

**A Facilities Evaluation praxis for Knowledge
Generation in Social Systems**

An exploration of the role of dynamic evaluation of facilities
performance and management within social systems as a means
of facilitating organisational learning.

By
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A Thesis submitted in fulfilment of the requirements of the degree
of

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**UNIVERSITY OF STRATHCLYDE
THESIS ABSTRACT FORM**

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TITLE OF THESIS: A Facilities Evaluation Praxis for Knowledge
Generation in Social Systems

An exploration of the role of dynamic evaluation of facilities performance and management within social systems as a means of facilitating organisational learning.

ABSTRACT:

This research explores the role of dynamic evaluation of facilities performance and management within social systems as a means of facilitating organisational learning, and presents a practice based method for evaluating the quality of Facilities Management within organisations.

Its objective was to demonstrate the value of focus group methodology in the evaluation of the performance of facilities and their management, and in developing new levels of understanding and improved communications between users of facilities and those responsible for its operational management.

It is argued that the process of dynamic change both technological and social, results in the invalidation of many of the premises upon which design and management decisions are made. As such the appropriateness of conventional methodology paradigms is challenged, calling for new forms of organisational intervention to improve the fit between users and their physical environments.

The approach offered by the thesis is to challenge the validity of existing approaches to the generation of knowledge of man -environment relationships, calling for an interventionist evaluation in which subjects are co-researchers of the evaluation of their facility related needs.

The thesis adopts a systems perspective to understanding the interdependencies of individuals, organisations and environmental support systems arguing that traditional approaches of partitioning science into interest fields results in only incremental advances in knowledge at the expense of removal from reality.

This accordingly argues for a holistic approach to understanding human needs and how they are (or are not) satisfied by the 'serviced environment'. This requires breaking the traditional boundaries of physical and social science disciplines, in so doing providing an understanding of the human being in its totality and developing new conceptual frameworks for man-environment evaluation.

The approach to action research provides the basis for the generation of improved communications within organisations and fosters the opportunity for organisational learning. Emphasis is placed on the use of focus groups as a means of generating knowledge which is not readily accessible by traditional means of survey research. I use the term praxis however as the roles of change agent and researcher within organisations can sometimes come into conflict with one another as demonstrated in the principal case study

The thesis suggests that the environment (building) is a 'service' which cannot be viewed in isolation from other less tangible processes of facilities management which impinge upon user satisfaction and well-being. Building performance is therefore considered as a subset of Facilities Management performance.

The thesis posits five notions of what would constitute Facilities Management research to distinguish the field from other research in the engineering, management or social sciences.

These are:-

Facilities management research should be concerned with decision making;

Facilities management research should be concerned with the systemic relationship between people and their environments in an holistic sense;

Facilities management research should be rooted in practice;

Facilities management research should be action oriented; and

Facilities management research should be aimed at collaborative inquiry.

Whilst perhaps contentious they serve principally as a framework for guiding the conduct of this research.

The research demonstrates that organisations go through a process of stress adaptation following many decisions which are temporally dependent, regarding the use and management of facilities. The basis for which is a lack of comprehensive understanding of systemic processes and the transfer of work to new agents and consequent loss of knowledge.

The research suggests that the true cost of service provision needs to account for factors such as the costs to human satisfaction, presence of inter-organisational strain, and consequential impacts of facilities decisions on other organisational functions.

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Last and by no means least I wish to acknowledge the support, patience and tolerance of my family who, like many others, will be as grateful as myself that my monastic and selfish pursuit is at an end.

Dedication

This thesis is dedicated to Susan, Mark and Judith

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Orientation of the Thesis

This thesis is presented as an example of research which can be clearly defined as facilities management research as distinct from management, social or engineering sciences research. It draws however on the epistemologies and research from these fields to substantiate the five contentions aimed at distinguishing the Facilities Management research.

These are:-

Facilities Management research should be concerned with strategic decision making;

Facilities management research should be concerned with the systemic relationship between people and their environments in a holistic sense;

Facilities Management research should be rooted in practice;

Facilities Management research should be action oriented; and

Facilities Management research should be aimed at collaborative inquiry.

The thesis itself tends toward the iterative rather than linear theory building exemplified by traditional scientific inquiry. The basis for such reiteration was to keep returning to the central theme of the argument suggested by the five contentions above, however it is accepted that this makes for some repetition. Like all research, the principal problem encountered in the preparation of this thesis was what to include or perhaps what not to, and my general reluctance to discard the thought processes which led to the particular methodological stance. I consider however that the sections on the Philosophical basis and nature of knowledge together with debate on scientific validity and the heavy emphasis on systems thinking are necessary inclusions to provide support for the action research methodology adopted.

Those inclusions pertaining specifically to built environment research, communications and service quality are included as a means of reflectively relating case study findings back to established knowledge. Previous research findings serve as a reference point only and have not been recounted with the findings from the case research.

The emphasis on learning and knowing is central to my personal belief that research should be aimed at changing the attitudes and behaviour of both

researcher, and subjects or co-researchers, in addition to providing knowledge for the wider community.

In any action research methodology, the intervention may not necessarily bring about the desired or expected result. I argue, however, that the very process of inquiry provides an opportunity for all of those involved in collaborative inquiry, to learn through sharing in the experience of others, making tacit experiential knowledge explicit and challenging their own assumptions.

The case study demonstrates that tacit and experiential knowledge can be gained through collaborative inquiry providing insight into both canonical and non-canonical practices, and demonstrating the systemic nature of organisational processes. Moreover it demonstrates that managers' perceptions of users facility related needs can result in decision making which compromises the efficiency and effectiveness of the service through poor understanding of the implications of their decisions.

In the final section and analysis I have justified the praxis adopted against the criteria laid down to test the validity of action research projects.

The thesis is divided into 8 chapters.

Chapter 1

Sets the scene by arguing that modern society is such that gaining access to dispersed knowledge within organisations will become a key task of management in an increasingly complex and demanding business environment. I argue that accessing knowledge which is often tacit, or practices which are non-canonical, is a critical component in fostering organisational learning, and suggest that new means of intervention are necessary.

Chapter 2

Considers briefly the aims of Environmental Evaluation Research, and the emergence of the field of Facilities Management. I argue for the inclusion of a fifth dimension to the established framework for Environmental Design Research, that of context, which I contend is the way in which the system as a

whole references itself with regard to its environment. The five notions above are posited, in order to delineate Facilities Management research as a field of inquiry distinct from other management or social science research.

Chapter 3

Considers theories of organisations and charts the development of organisational theory from classical and neo-classical or humanist approaches to modern systems theory. I argue that organisations, like natural systems are integrated wholes whose structure arises from the interactions and interdependence of the parts. They are also intrinsically open systems existing in a state of dynamic balance with their environments, but are reliant upon feedback to adapt to changes to the system environment. Organisational communications, it is argued provides the key to adaptive behaviour, by which social systems might learn.

Chapter 4

Considers the nature of knowledge and learning arguing that reality is cognitively and socially constructed by individuals. It is considered that tacit or experiential knowledge is unconscious and explicit often denying articulation. It is argued that gaining access to such knowledge, together with an understanding of non-canonical practices, provides the opportunity to develop organisational learning. I argue that dynamic evaluation, using focus groups engaged in dialogue, affords the opportunity to elicit distributed knowledge, in addition, by forming a dialectic between espoused and actual practices, improved understanding can be gained of organisational processes.

Chapter 5

This chapter is divided into four parts A - D inclusive. In Section A social science research is explored together with issues of objectivity, validity and reliability in qualitative research in the social sciences. The appropriateness of focus groups evaluation techniques is considered. Section B considers the role of environmental behaviour research and provides a critique of evaluation research methodology. Section C explores some of the factors which can influence individual environmental evaluations and places particular emphasis

on the concept of service and service quality. Section D considers recent thinking on the nature of facilities management research and argues for the consideration of context as a dimension of study for understanding system complexity.

I argue that as individuals perceive of their environments holistically, environment and service are inseparable and should accordingly be considered together as part of a facilities evaluation methodology.

Chapter 6

Presents the research design and methodological considerations for the conduct of a pilot study using focus groups for evaluation research. The pilot focus groups provided insight into areas that would not have been accessible by other forms of data collection. Moreover, it indicated that the basis for individual evaluations of the physical environments, were inseparable from other organisational and social factors which impinged upon users' satisfaction. The experience gained during the initial pilot study formed the basis for the research design used for the principal case study. In particular the use of a service quality instrument was included to identify convergent validity with the focus group evaluations.

Chapter 7

Presents the research design or the action research praxis, together with the principal methodological considerations, description of case organisation, and the evaluation conduct.

The data analysis based upon the groups dialogues is presented by way of pattern models, demonstrating the interrelationships involved in the area under study, and based upon the researchers' interpretations of the dialogue. The service quality instrument was used to provide convergent validity of findings generated by the main dialogue praxis.

Chapter 8

Presents conclusions on the basis of the contentions put forward for the nature of Facilities Management research, and judges the study against criteria laid down for the conduct of action research.

In conclusion, the research has demonstrated that dynamic evaluation using focus groups can make explicit experiential knowledge and generate insight into systemic problems within organisations.

The research has demonstrated that organisations are particularly vulnerable to stress adaptation following the transfer of practice to new agents for example when outsourcing services. The basis for this is that much knowledge of a situation is tacit, ineffable, experiential and generally incommunicable. As such it demonstrates that Facilities Management decision making can compromise the effectiveness of an organisational performance.

Whilst the research has demonstrated the use of Facilities evaluation research in the context of organisational learning, It is not demonstrable that the organisation has learned. Whilst new knowledge or insights can be generated, without accompanying changes in practice only the potential for learning exists.

Research Objective

To demonstrate the value of focus group methodology in evaluating the performance of facilities and their management, and in developing new levels of understanding and improved communications between users of facilities and those responsible for its operational management.

Sub-Objectives

To provide evidence that the criteria for facilities management research posited by this thesis are appropriate. These are that:-

Facilities Management research should be concerned with strategic decision making,

Facilities management research should be concerned with the systemic relationship between people and their environments in a holistic sense.

Facilities Management research should be rooted in practice,

Facilities Management research should be action oriented,

Facilities Management research should be aimed at collaborative inquiry.

To explore and investigate the potential of multi-user focus group evaluation of the built office environment.

To develop a methodology for the involvement of users in the evaluation of facilities and articulation of needs.

To explore the extent to which homogeneous and heterogeneous groups differ in content in their evaluation criteria of facilities and their management.

To identify attributes of the built environment or facilities organisation in which there is a significant divergence between groups' perceptions of quality.

To identify patterns of relationship between the attribution of dissatisfaction with the built environment and that with the facilities management organisation.

Chapter 1

Organisational Knowledge and New World Realities

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Chapter 1

Organisational Knowledge and New World Realities

1.1 Summary

This chapter briefly explores the Knowledge based society in which we now live, which is characterised by globalization of business, technological innovation, increasing competition and societal expectations.

The chapter suggests that gaining access to knowledge within organisations and making sense of chaos and uncertainty will become one of the key tasks of management. Such knowledge however is dispersed across a network of organisational nodes which is often ineffable, non-canonical and characterised by complexity.

The contention that traditional notions of science are less relevant for the study of organisations is suggested, together with the need for an holistic approach to understanding complex, adaptive organisational systems.

The notion is put forward that an intervention praxis can gain access to experiential knowledge as a platform for organisational learning and adaptation to occur.

1.2 Towards the new Millennium - The Knowledge-based Society

As we approach the new millennium we are undergoing a relentless transformation towards becoming a knowledge based society. Some futurists such as Toffler [1990] go as far as to suggest that in the new millennium, society will have evolved such that knowledge will be the primary source of power. Toffler suggests that knowledge in the 'Post Smokestack era', his term for the post industrial age, will take precedence over the previous principle sources of power which he considers as Violence in the Agricultural age and material wealth in the Industrial age.

Others such as Drucker [1992] suggest that, our current society, calls for a rethink of the traditional factors of production. According to Drucker:-

knowledge is *the* primary resource for individuals and the economy overall.

[Drucker, 1992:95]

Drucker maintains that traditional factors of production used by economists, such as Land, Labour and Capital, do not disappear however but can be obtained by the application of specialised knowledge. But Drucker maintains that:-

specialised knowledge by itself produces nothing. It can become productive only when it is integrated into a task....the purpose and function of every organisation, business and non-business alike, is the integration of specialised knowledge into a common task.

[Drucker, 1992:96]

Individuals and the organisations of which they are part, work and live in a society which is characterised by rising education levels, increased competition, dramatic technological advances, increasing if often inequitable affluence and social welfare, and increased consumer consciousness, through commodification and the media. Whilst attempting to fully identify the characteristics of modern society would be a fruitless task, the implications of the above examples highlight the fact that we live in a society in which knowledge has both utility and value. The basic values, social and political systems, arts, practices and beliefs which constitute our society are changing to the extent that according to Drucker [1992;95], our age can be described as a period of transformation.

Such profound transformation, in addition to having a significant effect on nature of society, may change the ways in which individuals and the society of which they are part, view work practices. Dr Lars Ramqvist in the 1994 UK Innovation lecture to the Royal Society, stated that:-

Capital no longer knows any boundaries, nor do skills and knowledge. Global competition is the name of the game and only the fittest will survive.

[Ramqvist, 1994:5]

1.3 Change, adaptation and shared values

From an individual perspective, changing values, expectations, and technologies, together with different patterns of work and organisational structures, change the relationship between people and their physical and social environments.

Ramqvist [1994:5] suggests that in a changing business world we must be willing to re-examine our values and update them as necessary.

Talking of shared values according to Ramqvist is not enough, but requires a commitment to constantly confirm them in practice, and to take action if they are at cross purpose.

Such changes therefore have a profound effect on how organisations will be managed and resources deployed both now and in the future. Managers often have to make sense in conditions of ambiguity, to anticipate rapid change, and in effect do more with less in an increasingly dynamic, complex and demanding environment. The key to business survival according to Ramqvist [1994:7], is perseverance in pursuit of goals and an ability to adapt; to show an open mind to innovation; to respect the needs and ideas of others; and to be willing and able to change.

Drucker [1992:97] concurs, suggesting that the dynamics of knowledge are such that every organisation has to build the management of change into its very structure.

Ramqvist [1994:6] describes people as an organisations most important competitive asset, since no other resource he argues is capable of long term growth and improvement. Despite this, he asserts that no-one has been able to

place on the balance sheet the combined skills and thoughts of their staff, despite this being the real stronghold of a company.

1.4 Organisational Knowledge

Drucker [1992:97] argues that management has to draw upon three systematic practices, of continuing improvement; learning to exploit its knowledge; and learning to innovate.

However, In traditional organisational structures which are often characterised by bureaucracy and formal communication channels, the structure and flow of information, according to Toffler [1990:177] suppresses spontaneous discovery and innovation. According to Toffler:-

The way we organise knowledge frequently determines the way we organise people- and vice versa.

[Toffler, 1990:178]

Organisational knowledge Toffler [1990:178] suggests, tends to be frozen into place, obstructing the reconceptualizations that can lead to radical discovery. The nature of both bureaucracy and a dynamic knowledge based business environment are such that it is impossible to know precisely in advance who will need what information. A consequence of this, he suggests, is that information needed to be able to do one's job well, let alone to innovate or improve, at both strategic and operational level, is unavailable or inaccessible through the official communication channels.

Individuals, according to Toffler [1990: 179] attempt to circumvent formal channels of communication and canonical practices in order to do their jobs. To be a doer he suggests "they must trash the bureaucracy".

The society in which we now live is increasingly referred to and characterised by such phrases as, the 'Information age', the 'knowledge society', the 'Post industrial era', the 'post smokestack era' . Ours is said to be an age in which knowledge becomes the key resource by which individuals and organisations achieve their goals. Tofflers' [1992] argument, is that whilst force, wealth and knowledge constitute "the power triad", or a single interactive system which

constitutes power, under certain conditions, each can be converted into the other. The revolutionary aspect of the information age however, is that where force and wealth are the property of the rich, knowledge can be grasped by the poor as well. The struggle for power Toffler [1992] maintains, despite the inequalities of income and wealth, will become a struggle over the distribution and access to knowledge. Of the three root sources of social control knowledge is both the most versatile and in turn both force and wealth have come to depend upon it.

From a management perspective, gaining access to knowledge is fundamental to understanding and framing complex decisions. Knowledge of the mechanisms of organisation is not held by any individual however, but is dispersed across an interrelated network of people and information systems, canonical and non-canonical practices (formal and informal often elicit rules), conscious and unconscious beliefs and values both within and outwith the organisational environment.

1.5 A world characterised by chaos and complexity

Whilst the traditional scientific approach to management promised to provide managers with the capacity to analyse, predict and control the behaviour of complex organisations Freedman [1992:26-38] argues:-

The world most managers currently inhabit often appears to be unpredictable, uncertain and even uncontrollable."

[Freedman, 1992:27]

Freedman goes on to suggest that given the dynamic and volatile business world in which managers now operate, the traditional mechanisms of "scientific management" seem not only less useful but positively counter productive. Science itself he argues appears less and less relevant to the practical concerns of managers.

However, the problem Freedman [1992:26] contends, lies not so much in the shortcomings of a scientific approach to management as with managers' understanding of science. In the same way as managers have become

concerned with the volatility and dynamic nature of their business environments, the scientific community has moved away from the traditional focus on analysis prediction and control towards an emphasis on chaos and complexity. Freedman suggests therefore that there lies an opportunity for fruitful dialogue between the world of management and the world of science, in that new scientific research on chaos theory and systems thinking may provide managers with useful new ways of looking at the world.

Whilst Newtonian science posited a neat correspondence between cause and effect, scientists believed that the most complex behaviours could be reduced to the interactions of a few simple laws, and as such the behaviour of systems could be predicted into the future. Such traditional notions of science and the workings of natural systems have however subsequently been challenged, and found in many cases to be fundamentally wrong. Nature has been found to be far from predictable.

The term for the new theory of how things work is "Chaos theory" first posited by James Gleick, and is based on research conducted by Edward Lorenz in the 1960's in developing computer models for simulating weather systems. Lorenz found that an infinitesimal change in initial conditions could have a profound effect on the evolution of the entire system. Moreover the patterns of change are such that they cannot be modelled as they appear to display random behaviour.

Chaos theory goes on to suggest however that behind the seemingly random and unpredictable behaviour which characterises natural systems, certain patterns of behaviour can be observed, and their probability predicted. The way in which patterns are predicted however involved taking a more holistic approach requiring a focus on the dynamics of a system as a whole rather than breaking down the system to component parts.

Similarly, Waldrop's [1992] research on self organising systems has demonstrated how simple actions of independent components can combine to produce extremely complex behaviours.

Waldrop has developed some basic rules for complex adaptive systems, which can be extended to understanding the economy as organic as opposed to machine like. Freedman [1992] draws upon Waldrop's research concluding that:-

The business environment is something that is "organic, adaptive, surprising and alive

[Freedman, 1992:32]

Waldrop maintains that few researchers in the emerging field of complexity have attempted to apply the concepts to the specific problems managers face, namely operating in an uncertain and frequently chaotic business environment.

Business organisations by Waldrops [1992] definition are 'complex adaptive systems'. The main characteristics of these are that they are "self managed" in that they consist of a network of "agents" which act independently of one another yet are capable of engaging in co-operative behaviour by forming "communities", in order to achieve behaviour that cannot be achieved by individual agents.

Self management is possible through feedback by which the system learns through interaction and feedback with its external environment which is subsequently embedded in its actual structure. In other words the organisation can be construed as an open system which evolves and responds to changing internal and external environmental conditions.

Freedman [1992:32] argues that self management and learning through feedback allows the system to operate by "flexible specialisation" in which self organising sub-systems contain an array of specialised behavioural niches occupied by specific agents or groups of agents.

The holistic approach which reflects the chaos theory approach to understanding the overall behaviour of a system, is also advocated by Senge [1992] who suggests that, in order to understand complex managerial issues, it is necessary to consider the whole system that generates the issues. As with living systems in which the character depends on the whole, the same he maintains is true for organisations. Senge [1992:68] considers the role of systems thinking as a means of allowing managers the capacity for "seeing wholes".

Senge argues:-

Systems thinking is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots.

[Senge, 1992:68]

However Senge [1992:67] suggests seeing the whole does not mean that every organisational issue must be understood in its entirety. The principal of the system boundary determines the critical systemic forces which need to be understood. In some cases this will be the interactions between organisational functions, whereas in others it may be the dynamics of an entire industry.

According to Senge:-

The key principle, called "the principle of the system boundary" is that the interactions that must be examined are those most important to the issue at hand, regardless of parochial organisational boundaries.

[Senge, 1992:67]

In the same way that chaos theory demonstrates that small, seemingly insignificant changes can have significant and often catastrophic effects in physical systems, the crucial concept in Senge's [1992] systems theory is "leverage", the idea that small well-focused actions can produce significant enduring improvements. Mastering systems thinking, according to Senge [1992:6] provides the opportunity to build an organisation that can truly learn through an understanding of the patterns of change affecting the system. Freedman [1992:37] considers the learning organisation as described by Senge [1992] as having characteristics remarkably similar to the complex adaptive systems scientists are finding in nature. Whilst the ability to adapt and respond to changes in the system environment, is a characteristic of complex adaptive systems, building a learning organisation according to Senge [1992:6] demands the assimilation of five new component technologies which are gradually converging to innovate learning organisations. Senge describes these as:- systems thinking, personal Mastery, mental models, building shared vision and team learning.

1.6 Learning Organisations

Garvin [1993:78-91] argues however that learning organisations and knowledge-creating companies, whilst in vogue tend to be somewhat superficial, in that in many ways change remains cosmetic and improvements are either fortuitous or short lived. The reason he suggests is that most companies have failed to commit to a basic truth that continuous improvement requires a commitment to learning.

The concept of the learning organisation he maintains remains somewhat confusing and difficult to penetrate. The blame for which he suggests lies partly at the door of academics:-

[whose] discussions of learning organisations have often been "reverential and utopian, filled with near mystical terminology. Paradise, they would have believe is just around the corner.

[Garvin, 1992:78]

Nonaka [1991:96-104] in referring to knowledge creating companies suggests that they are places in which inventing knowledge is not so much a specialised activity but a way of believing, a way of being in which everyone is a knowledge worker.

Nonaka [1991:97] suggests that Japanese companies adopt a more holistic approach to knowledge than in the traditional (scientific management) view of the organisation as a machine for information processing. Nonaka argues that viewing the company as a living organism as distinct to a machine is fundamental. The organisation he argues, much like individuals, possesses a collective sense of identity and fundamental purpose. As such he argues that this is the organisational equivalent of self knowledge.

Creating new knowledge Nonaka maintains:-

...is not simply a matter of processing objective information. Rather it depends upon tapping the tacit and often highly subjective insights, intuitions, and hunches of individual employees and making those available for testing and use by the company as a whole.

[Nonaka, 1992:97]

Such knowledge creating companies he suggests use metaphors and analogies and organisational redundancy to focus thinking, encourage dialogue, and make tacit ideas explicit. The key challenge in understanding knowledge creation, is that of making tacit ideas explicit, which has direct implications for how a company designs its organisation and defines managerial roles and responsibilities within it. This, according to Nonaka [1992:101] is the "how of the knowledge creating company, the structures and practices that translate a company's vision into innovative technologies and products.

However, the conversion of tacit knowledge into implicit knowledge means finding a way to express the inexpressible. Nonaka himself argues that:-

...unfortunately, one of the most powerful management tools for doing so is also among the most frequently overlooked: the store of figurative language and symbolism that managers can draw from to articulate their insights.

[Nonaka, 1992:100]

Whilst Garvin [1993:79] finds the notion of the knowledge creating company desirable, he is highly critical of Nonaka, describing his recommendations as too abstract, by focusing on high philosophy and grand themes which use sweeping metaphors rather than the gritty details of practice.

Garvin [1993:79] suggests that three critical issues, essential for effective implementation remain unresolved.

First he suggests we need a plausible and well-grounded definition of learning organisations that is actionable and easy to apply. Secondly we need clearer guidelines for management practice which has operational advice rather than high aspirations. And thirdly, we need better tools in order to measure or assess an organisations rate and level of learning to demonstrate that gains have been made.

These three 'M's' of *meaning*, *management* and *measurement*, Garvin suggests, provides the foundation on which learning organisations might be built, and without which progress is unlikely.

Garvin's own definition of a learning organisation reflects his view that cognitive change in itself is not enough but that also behavioural change in response to new ideas is required:-

A learning organisation is an organisation skilled at creating acquiring, and transferring knowledge, and at modifying behaviour to reflect new knowledge and insights.

[Garvin, 1993:80]

New insights, from whatever source he argues, cannot in themselves create a learning organisation:-

Without accompanying changes in the way that work gets done, only the potential for improvement exists

[Garvin:1993:80]

Clearly Garvin's definition and argument presents a significant challenge to those who would profess to belong to a learning organisation. Moreover, it poses a serious challenge to those who would choose to intervene in organisations with a view to generating new insights and modifying work practices. Organisational intervention, whether by an outsider or from within the organisation, is often aimed at changing established values and practices to take account of new insights. This demands a commitment on behalf of the organisation to be not only receptive to changing beliefs about the world, but also to modify practice to account for new insights. The extent to which this is possible in practice will depend upon numerous factors, not least the willingness of the organisation to be receptive to challenges to its current practices.

1.7 Conclusions - Towards a Knowledge Generation Praxis

This thesis presents a praxis for gaining insight to peoples experiential knowledge of facilities and their management. In so doing it may be possible for organisations or individuals to learn through developing a shared understanding of the different needs and expectations of others. For learning to occur, cognitive attitudes have to be changed at the very least, thereafter such attitudes may subsequently modify behaviour. Whether such learning actually occurs will be dependent of course upon the extent to which it can be demonstrated or measured through resulting changed attitudes or practices. The use of the term praxis however is intended to emphasise the practical nature of participating within organisations to facilitate learning, as distinct to the development of a theory of learning. The basis for which is that knowledge generated within and for use in a practice based context is primarily of local utility. I argue however,

that the process of fostering an environment by which tacit knowledge can be elicited and shared in itself, can provide new insight and affords the opportunity for a more holistic understanding into the complexity of social systems. Such a praxis I argue is particularly relevant in the chaotic and dynamic environment in which businesses and individuals now compete.

The nature of organisations and knowledge and learning will be key components to the progression of my thesis, as will be research methodology appropriate to gaining access to often tacit, experiential and distributed knowledge within organisations. All of which should be seen in a context of the evaluation of facilities and their management.

Chapter 2

Environmental Evaluation and Facilities Management

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Chapter 2

Environmental Evaluation and Facilities Management

2.1 Summary

This chapter discusses the role of environmental design research and suggests that the dynamics of societal change call for new means of intervention into organisational settings.

It is argued that the existing model of environmental design research by concentrating on dimensions of Place, People and Phenomena and their dynamic relationships with one another over time, influenced by context, provides for a less than complete understanding of complex adaptive systems, and call for context in itself to be the prime focus of study of organisations.

The emergence of Facilities Management is briefly discussed with a view to differentiating Facilities Management as a field of study distinct from management, social or engineering sciences.

The chapter posits five contentions by which research might be distinguished as Facilities Management Research, such that a research platform might be established for the emerging discipline distinct from other research fields.

These contentions are;-

Facilities Management research should be concerned with strategic decision making;

Facilities Management research should be concerned with the systemic relationship between people and their environments on an holistic sense;

Facilities Management research should be rooted in Practice;

Facilities Management research should be action oriented; and

Facilities Management research should be aimed at collaborative inquiry.

2.2 Towards a new paradigm for Environmental Evaluation Research Practice.

This thesis is about the relationship between people and their work environments. Individuals, groups and organisations function within social systems and interrelate with and can be influenced by their physical surroundings. That is not to say however that human behaviour is necessarily architecturally determined nor that the physical designed environment can satisfy the social, psychological and physiological needs of individuals. However, through a better understanding of the relationship between people and their environments, it is possible to produce information by which both the design and management communities might produce better quality environments.

Environmental Design research has been defined by Moore, Tuttle and Howell, [1985], as:-

the study of relations between people and their surroundings. The purpose of the field is to produce information that can be used to improve the quality of life through environmental policy, planning, design and education.

[Moore et al.,1985:4]

They also suggested that in the 1960's the need for a more socially responsible approach to the planning and design of the environment was identified. To meet this challenge a new multidisciplinary field emerged from the more traditional disciplines. The field has been labelled environment behavioural studies, environmental psychology and environmental sociology - the collective term for which is *environmental design research*.

The factors which contributed to the growth of this new field are no less prevalent today than they were some thirty years ago. Becker [1992:92] has suggested that many of the failures in the built environment were invariably placed on architects which served to discredit the profession. Those failures he suggested are a result of a lack of consideration of the full range of stakeholders and other contextual factors in the built environment. In point of fact the accelerating pace of change in many aspect of our society places is change the nature of the workplace, calling for arethink on the way

in which the physical environment meets human needs. This calls for the need for further and more systematic forms of research between the social, psychological and environmental sciences in order to understand the relationship between people and their environments.

The dramatic social and cultural changes, brought about by rapid advances in technology, have generated what many current management theorists, [Toffler, 1990], [Nonaka, 1991] [Garvin, 1993] refer to as a knowledge society which is affecting every aspect of our lives and defines in part how people relate to their environments. In addition they may be major modifiers in the way the environment is construed in terms of needs and expectations.

Changes in working patterns, rapid technological advancements and political and economic systems change the inherent value systems of individuals and the society of which they are part, and in so doing redefine the relationship between individuals, the social system of work and the work setting.

Such factors however are systemic. They operate in a living system, a system of dynamic complexity in which each of parts affects and is affected by other parts of the system. Like all living systems social organisations have to evolve to adapt to changes in the environment with which they interact.

Social Organisations are accordingly open systems. They are integrated wholes which cannot be understood by the study of constituent parts. They are inherently open as they deny the conditions for closure through a dependence on feedback and interaction with the external environment.

Open systems are both capable of adaptation and sensitive to environmental changes, they are emergent phenomena, as such they are capable of evolution. Designed settings by contrast are less responsive and adaptable to a myriad of perhaps evolutionary changes within the system they contribute to and interact with. As such they can limit the potential of the system to adapt and to create new conditions towards a new homeostasis or equilibrium.

I would argue that, it is through an improved understanding of the imperceptible evolutionary changes in the system as a whole that will

generate new knowledge of the way in which the physical environment responds to, interacts with, and adapts to the changing needs of users. This knowledge demands an understanding of the underlying processes which generate change rather than snapshots in time of linear-cause/effect relationships. Knowledge of the relationship between users, organisations and environments should seek to recognise the systemic nature of social processes. Moreover, they should provide the opportunity for the system [Organisation] as a whole to learn through introspection of their evolving facility related needs, in so doing providing an opportunity for organisational learning in addition to providing new knowledge to the design and research communities.

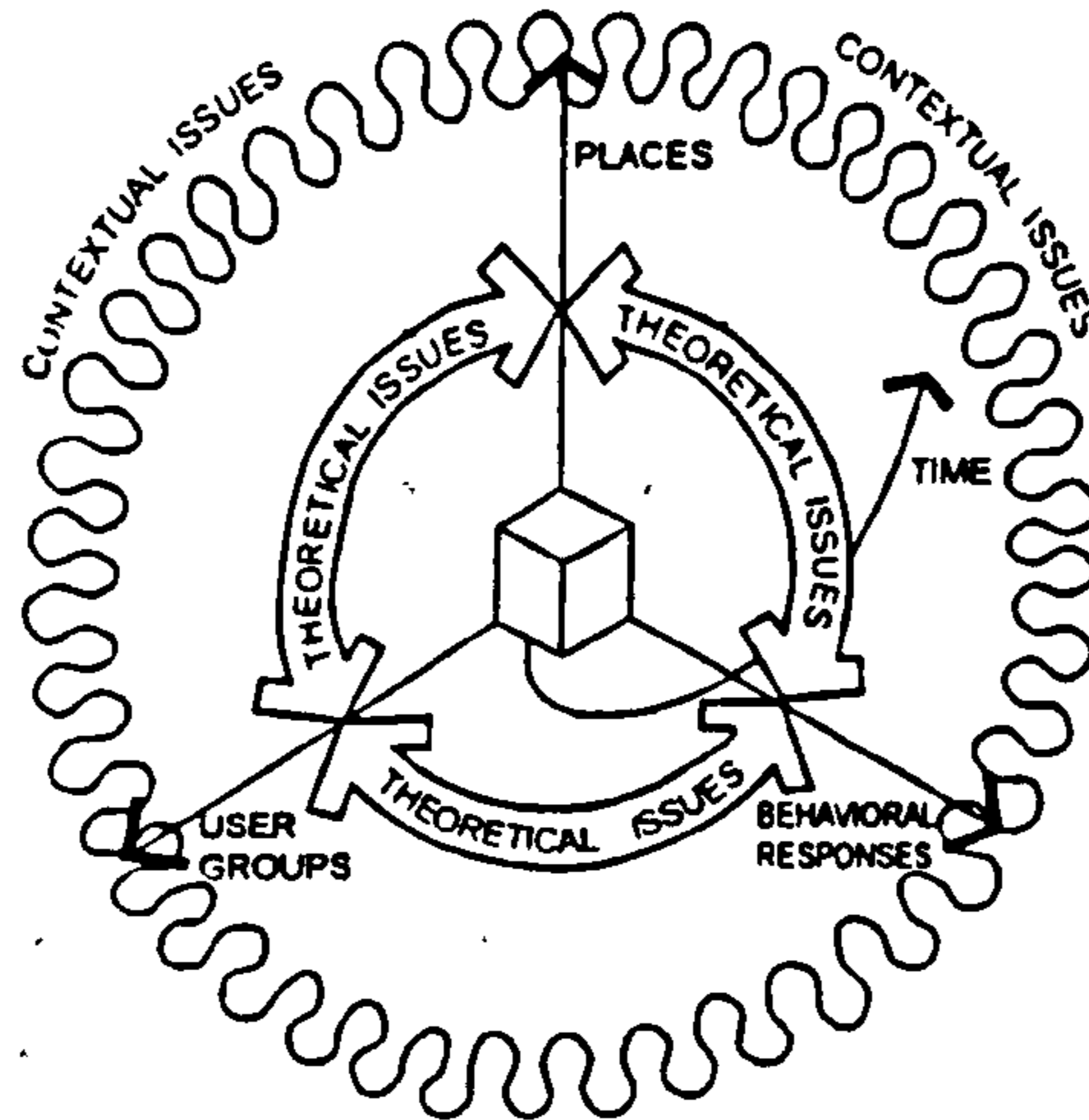
The praxis offered by this thesis is to challenge the validity of existing approaches to the generation of knowledge of environmental evaluation. In a wider sense however the term facilities evaluation would be more appropriate to use, as it is primarily an interest in how facilities and their management might be evaluated, rather than solely the organisations physical environment. Similarly the case studies referred to should be termed facilities performance evaluation, as distinct from Environment Design Research or Post Occupancy Evaluation.

In this thesis I argue that dynamic facilities evaluation can be used to foster organisational learning of system interdependencies which traditional means of knowledge generation fail to address.

The Environmental Design Research Association (EDRA) suggested a model for Environmental design research, with dimensions of place, people, socio-behavioural phenomena and the dynamic interaction of the three over time. (See figure 2.1 below)

Moore et al. [1985] suggested that any one of the four dimensions suggested might be used as a prime focus of research.

2.3 EDRA Model for the development of theory of environment behavior relations [Figure 2.1]



Source: Moore G., Tuttle D., and Howell S., *Environmental Design Research Directions: Process and Prospects*; Praeger, NY, 1985

Despite reference to the contextual issues within which environmental design research takes place, context does not serve as a focus of research in its own right.

This thesis suggests that a fifth dimension is required. That of the organisation, or system as a whole, which sets the context within which the system boundaries of people, place and process and time interrelate. Accordingly context should be the focus of study of organisations as living systems, continually adapt in response to changing environmental and system component conditions.

Context is considered to be the way in which the system as a whole references itself with regard to its environment, and accordingly requires a more holistic understanding of the system complexity. This system complexity is a product of the interrelationship of a wider variety of dimensions than can be conceptualised as individual variables in a traditional linear sense. The complexity of a 'living system' such as an organisation therefore demands alternative methodologies for determining patterns of relationships than those offered by traditional reductionist scientific paradigms.

2.4 The emergence of Facilities Management

In the early 1980's, as global competition, increases in operating costs, competition and the impact of new technology combined to create a greater

awareness amongst managers of the important role facilities and their management play in organisations overall performance. A new phrase entered the management vocabulary: Facilities Management.

Whilst numerous definitions abound of facilities management , a working definition might be:

The process by which an organisation delivers and sustains agreed levels of support service in a quality environment at appropriate cost to meet the business need.

[Alexander, 1992]

In truth facilities Management eludes precise or even consensus definition. There are probably as many definitions of facilities management as there are practitioners who profess to be facilities managers. For the purposes of this thesis it is appropriate however to expose my own understanding to set the boundaries within which a definition of facilities management might lie.

Within the various definitions of facilities management which currently abound, there are numerous attempts to make concrete some of the specific functional areas of responsibility, or the activities which generally fall under the remit of the Facilities Manager. Whilst I would argue that many institutions and individuals seek to define facilities management for their own ends perhaps the abstraction of definitions serves little purpose in informing the individual as to its intent. Invariably such definitions encompass such items as buildings, equipment, physical and human resources, services and technologies, with processes including planning co-ordination and control. The remit in point of fact is so extensive that it is perhaps more appropriate to say what does not fall under the remit of facilities management. The usual response to such a retort is 'all core business activities.' I would content however that the core/non-core split is much too simplistic to understand the role facilities management plays within organisations. Rather than black or white the split is more like shades of grey with often imperceptible distinctions between core business activities and non core activities which fall under the remit of facilities management.

In one organization for example, the facilities management contract for a military airbase includes not only the maintenance of all infrastructure and

supporting services but the provision of test pilots for military aircraft. The only activities that are not directly managed by the facilities manager are the military sorties and control of military staff.

Facilities management I argue can only be interpreted by the unique context of a given situation. To suggest that it is a support function serves to denigrate the importance of something which may be critical to the achievement of organisational goals. I interpret facilities management then not as a support function but as a catalyst. The role of facilities management is to bring together the various component functions or technologies of a business such that organisational goals might be achieved, in a co-ordinated, controlled and resource effective manner. Facilities Management is as much an attitude of mind as it is a discipline, demanding an holistic understanding of business processes, people and environments, their needs, interdependencies and aspirations. The question posited here and later then must be what distinguishes facilities management from general management?

The answer I think lies in the growth and roots of the profession as an amalgam of both technical and managerial disciplines.

2.5 The emergence of the Facilities Management discipline

As a professional discipline FM came into existence in the USA with the formation of the International Facilities Management Association (IFMA) in 1980, soon to be followed in the UK by the Association of Facilities Managers (AFM) and the Institute of Facilities Management (IFM), which subsequently merged to become the British Institute of Facilities management (BIFM). Similar bodies exist across Europe brought together under the auspices of EuroFM, an enabling organisation dedicated to the sharing of FM knowledge and experience and the promotion of the discipline of facilities management as both a science and management function. Existing professional bodies in the UK whose members may include facilities managers include the Royal Institution of Chartered Surveyors, The Royal Institute of British Architects, The Chartered Institute of Engineers, The Chartered Institute of Builders. These bodies are all acutely conscious of the emergence of this new field and the implications it will have on their

management, or are blatantly claiming the right to be recognised as the lead body.

2.6 The Facilities Management Marketplace in the UK

The FM marketplace is characterised by in-house and external providers of non-core business services, and, to a certain extent by consultancies offering strategic business advice on organisational remodelling and strategy. FM is accordingly perceived as a contracting strategy aimed at increasing margins and providing a buffer against uncertainty in an increasingly dynamic and competitive marketplace. However, whilst organisational strategies such as outsourcing are likely to continue in the future, they provide short term solutions to more fundamental working practice problems.

Market research conducted by The Centre for Facilities Management (CFM) at the University of Strathclyde estimated in 1992, that the market for contracted business services in the UK alone is £64.1bn. There is little wonder that competition amongst many players for a slice of market share leads to greater confusion as to what Facilities management means to individuals and organisations. In a survey by ROMTEC [1989], whilst 72% of senior company managers thought FM was about contracting out only 26% considered it to be about the management of an organisations support services.

2.7 The Facilities Management Challenge

The real challenge for Facilities Management is to combine both the *managerial* and *technical* issues associated with the occupation and management of facilities to create and sustain productive environments which are resource effective and support a quality of working life for employees. This must be done however in conditions of ambiguity and uncertainty, shifting goals and alliances, and in the face of increasing pressure on resources, regulatory constraints and changing stakeholder expectations.

The effective 'balance-in-use' of resources requires innovative approaches to organisational re-engineering in addition to ensuring the correct fit between an organisation, its facility related needs and its facility users.

The effective 'balance-in-use' of resources requires innovative approaches to organisational re-engineering in addition to ensuring the correct fit between an organisation, its facility related needs and its facility users.

FM has been the focus for extensive research as organisations strive to reduce operating costs whilst maintaining value for money and effectiveness in an increasingly competitive business environment. Of the workplace based research, most activity to date has focused on the office environment in fields as far reaching as Real Estate portfolio analysis at the macro level, to ergonomic workspace design at the micro level, including extensive studies on new technology issues which have combined innovative working practices such as 'free address' with high technology buildings and systems to provide the 'office of the future'.

Facilities Management as a discipline or strategy goes beyond mere consideration of individual components of the productive workplace. Facilities Management is an 'attitude of mind' which requires a fundamental rethink of the way in which an organisation approaches all aspects of business. It is the appropriate balance of the technological and social needs in a framework which addresses the culture, values, behavioural standards and strategies of an organisation which will determine positioning its chosen marketplace.

Facilities managers in practice operate across all business sectors from Airports to Zoological parks, and in public sector managing libraries, museums, offices and hospitals, although in many cases they go under a host of other titles such as Estates, works or support services, office services etc. Regardless of the title the parameters of such posts are generally similar. Facilities managers are responsible for the provision, maintenance, advice and professional services pertaining to land, buildings, equipment, infrastructure, business support services, logistics etc. Facilities managers manage resources be they physical, intellectual or human.

The distinct discipline itself has emerged in part due to the increased complexity of the workplace demanding of higher levels of co-ordination of a wide range of business support services. In addition, organisations are now

coming to recognise that second to staff costs, facilities are usually the next highest item on the organisational balance sheet. The consequence of which, in combination with increased competition, has forced organisations to focus more on the way in which their facilities contribute as a factor of production.

2.8 Distinguishing Facilities Management Research

If Facilities Management is to progress and establish itself as a recognised professional discipline then it must do so on a sound platform of education and research. To date there are around 20 Universities in the United Kingdom offering Degrees at Post Graduate level. The content of these appears however to be little more than some additional modules to existing technically oriented courses, as the University sector, in common with other sectors of industry, seeks to capitalise on 'the bandwagon' effect in the face of increasing competition.

The research platform is no more favourable. To date facilities management research has not distinguished itself from other research fields in the engineering sciences, social sciences or management research. An interesting question then is whether it should and whether there is anything genuinely distinct about this emerging new concept about the way in which facilities should be managed as a factor of production.

Professor Markus whilst chairing a research forum at The European Facilities Management Conference, Brussels, 1994, suggested that if Facilities Management does not establish a research platform it may be in danger of extinction, as it will come to be recognised as a passing fad.

I agree with Professor Markus on this point. I do not consider however that facilities management needs to develop its own epistemology of practice as these can be borrowed from other fields, in particular management and social sciences.

At this moment it appears that many areas of workplace research are being placed under the banner of Facilities Management Research, as the field is concerned with both management and Physical and social sciences.

Much research which pertains to facilities management is currently placed under sub-categories such as performance research, environmental design research, workplace research and so on. To what extent anything is gained by bringing them under a single roof I am unsure. It may serve only to further

confuse a field which to most is characterised by great breadth and proliferate further confusion when above all else clarity is required.

The question remains then what is different about facilities management such that it should be considered as a research field in its own right. For me the answer lies in holism. Facilities management research to distinguish itself from other established research field should ground itself in a holistic approach to understanding the relationship between people, organisations and their environment. Existing research fields provide a resource to draw upon but not necessarily to subsume.

2.9 Contentions guiding the conduct of this research

First and foremost facilities management is a management discipline.

Management, as distinct from administration, suggests that there must be some form of decision which changes the status quo of a situation. Decisions must be made from some form of information which changes the context of the decision, and in turn influences the action outcome.

Facilities Management research then should naturally be concerned with making decisions, often in conditions of complexity and ambiguity. Equally it should be concerned with the action outcomes of such decisions. All decisions have some form of strategic intent. They are aimed at achieving some goal or at directing some goal seeking behaviour, to reduce the discrepancy between where the individual or organization is and where it intends to be.

2.91 *Facilities Management research should concerned with strategic decision making*

- with respect to the complex array of interrelationships which constitute the organisational environment. This is distinct from general management research on strategic decision making to the extent that facilities managers require a fuller understanding of the relationships between people and their environments. By environments I mean the whole range of environmental influences, through which individuals construct their perceptions through experience. The emphasis on the term 'strategic' is not intended to imply however that facilities management research should not be undertaken in areas which are tactical or operational concerns, but that the emphasis

should be on generating information such that decisions can be made. The emphasis will therefore be based upon the research objective and the managerial level at which findings have to be applied.

Environments are perceived holistically. People's experiences and perceptions are influenced not only by the physical environment in terms of its tangibility, but with their relationship to the way in which it came about, and the way in which it is managed. Facilities management is therefore concerned with product, process and service. In common with general management, facilities managers also need to be grounded in the social psychology of work, of interpersonal behaviour, of strategy, structure and finance ad infinitum. My second contention however, is that;

2.92 *Facilities Management research should be concerned with the systemic relationship between people and their environments in a holistic sense.*

Organisations operate in a system of dynamic complexity in which system variables impact upon and are impacted by one another. Adopting a holist standpoint requires studying the whole human system in its setting. The basis for which is that the characteristics of a part are largely determined by the whole to which it belongs. Understanding variables of any sort requires an understanding of the context of the system whole. Holism is concerned therefore, not only with the interrelationships among the parts, but also the unique characteristics which differentiate the system from others.

By adopting principles of systems thinking I argue that sense can be made of complexity, in so doing patterns of relationships may be observed by which new theory, or perhaps more appropriately new practice grounded on theory might be generated.

This leads to the my third contention;

2.93 *Facilities Management research should be rooted in practice, in so doing responding to the evolving needs of organisations and the changing nature of value systems and technologies of society.*

My fourth contention is that;

2.94 *Facilities Management research should be action oriented,*

but take a relativist and social constructionist perspective to the resolution of organisational problems. Much research which purports to be of value to the field of facilities management, leads to only small incremental increases in knowledge and in many cases removal from reality. Moreover such basic research more often than not fails to be effectively disseminated to practice. Action research by contrast has been described as:-

an involvement by the researcher with members of an organization over a matter which is of genuine concern to them and in which there is an intent by the organization members to take action based on the intervention.

[Eden, and Huxam, 1994 forthcoming]

By adopting an action praxis, research practitioners can respond both to evolving needs in a rapidly changing organisational environment, and ground new theory on the systematic nature of facilities management processes. Such systemic processes, despite their complexity, can be pattern modelled and extended to demonstrate the interdependencies of the system whole. Pattern models whilst rarely if ever completed can be used to demonstrate the outcome of facilities related decisions, in so doing providing a feedback loop by which the organization might learn.

My fifth contention is that;

2.95 *Facilities Management research should be aimed at collaborative inquiry.*

Facilities involve many stakeholders with interests ranging from corporate image and capital efficiency at the macro level to individual task and psychological needs at the micro level.

Facilities management research as collaborative inquiry should aim to address the needs of a much wider range of stakeholders as to their facility related needs. This extend beyond the physical product itself to include management processes, organisational communications, service quality and other factors which impinge upon productivity, satisfaction and well-being.

Chapter 3

Theories of Organisation

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Chapter 3

Theories of Organisation

3.1 Summary

This chapter explores the ambiguous nature of the organisation and the organisational environment considering both classical and neo-classical organisation theory, and the roles of organisational design.

Organisations are considered to be inherently open systems, defying the conditions for closure, and as such are complex self adapting systems existing in a state of dynamic balance with their environment both internal and external, relying on feedback through communications to adapt to changes in conditions in the system environment .

Organisations are complex living systems the dynamics of which requires a systems thinking approach to appreciate system complexity of interacting components. It is considered that organisations are distributed knowledge systems and that communications and decision making through a network of nodes and both formal and informal channels provides the co-ordination and linkage of organisational components, and the necessary feedback for the system to adapt.

The chapter concludes that improvements in organisational effectiveness can be made by eliciting widely distributed organisational knowledge through co-operative inquiry involving the active participation of stakeholders throughout an organisation.

3.2 Characteristics of organisations

According to Duncan [1981], an organisation can be described as;-

a collection of interacting and independent individuals who work towards common goals and whose relationships are determined according to a certain structure."

[Duncan, 1981:5]

Elaborating on this definition, the term organisation is not restricted to commercial or industrial concerns but extends to a wide range of other organised human activities, or social systems. Whereas social systems may consist of a wide variety of individuals and groups who engage in personal and collective endeavours, organisations by contrast tend to be characterised as having a more specific intent or range of intents in which collective action is aimed, and in which the actions and authority of individuals are explicit. That is not to suggest however the lack of explicit measurable goals, shared value systems and clear relationships and structure within a broad social system such as a community cannot be described as a form of organisation, merely that the term organisation might best be characterised in relation to a system in which the system goals are commonly understood and worked towards.

Organisations are human creations consisting of people, buildings, equipment, machinery and other factors, simultaneously and often inseparably, in support of the system objectives .

People within organisations must, to some extent be working towards common goals and co-ordinate their activities to that end. This does not mean however that everyone in the organisation has the same goals and priorities, nor that all the goals are explicit and clear to everyone.

It has been argued [Arnold, Robertson and Cooper, 1991:2] that although the relationships between people are determined according to a certain structure, informal or unofficial groups and structures can be at least as important as the formal organisation structure.

3.21 Defining the organisational environment

A major conceptual issue in organisational theory is the difficulty in defining what constitutes the organisational environment. The physical setting, by virtue of the fact that it is tangible in contrast to the more ephemeral nature of other organisational processes has led to a narrow, more static and less significant view of the role of the physical setting in terms of productivity and effectiveness.

According to Becker [1981]:-

The view of the physical environment as a product and of the social environment as a process has "contributed to the neglect of the role of the physical setting in organisational research."

[Becker, 1981:14-15]

It is something of a paradox that despite the tangibility of the physical setting which may lend itself to quantification and measurement, other organisational factors and influences such as production, technological and social processes, which have been seen to have a direct impact on workplace productivity, have tended towards more comprehensive research than that of the built environment.

Perhaps the very tangibility of the physical setting allowing for the control of variables within narrow fields, coupled with lack of knowledge or understanding on other factors such as organisational design, structure, work and social systems, control systems and reward systems and their interrelationships and subsequent impact on productivity, has contributed to this position.

The very concreteness of the physical environment by contrast to the social environment which is more difficult to comprehend has resulted in a view according to Becker [1981:14-15] that the physical environment is construed as being of lower significance than other social factors.

Simon [1956] in reference to the ambiguous nature of the organisational environment, and the difficulties at arriving at a consensus definition asserted that whilst attempting to define the term environment:--

We are not interested in describing some physically objective world in its totality, but only those aspects of the totality that have relevance as the 'life space' of the organism considered.

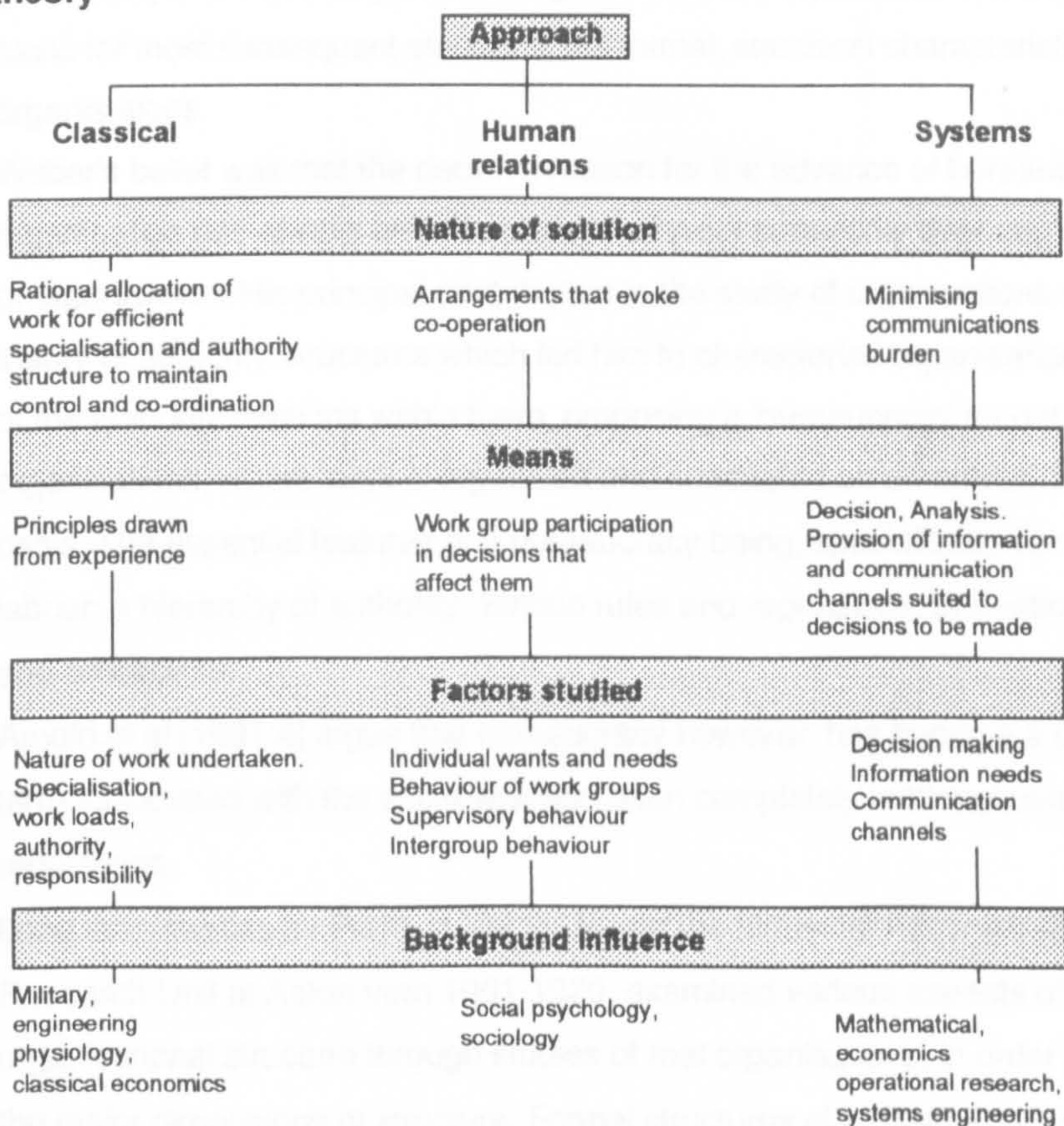
[Simon, 1956:129]

Hence reference to the 'environment' he suggested, will depend upon the 'needs', 'drives', or 'goals' of the organism and upon its perceptual apparatus.

3.3 The development of organisational theory

Organisational theory can be described as having progressed through three distinct phases of development. The classical approach, which was concerned primarily with structure and control; The neo-classical or human relations approach, which sought to address the imbalance of classical theory in depersonalising work by recognising psychological and behavioural issues; and Modern systems theory which recognises the complex and dynamic nature of organisations. A summary of the main considerations in each of the approaches is shown in figure 3.1.

Figure 3.1 Summary of the influences and development of organisational theory



Source: O'Shaughnessy, J., *Business Organization*; Unwin Hyman, London, 1966

3.31 Classical Organisation theory

Classical theory is credited with providing the structural anatomy of organisations by focusing on the structural relationships and how they might be arranged to achieve objectives.

The classical organisational theorists and management scientists such as Taylor [1911], Fayol [1930] and Weber [1947] were the first to emphasise the formal study of organisational structure as a means of improving productivity. Whilst it might be argued that Weber, who emphasised a paternalistic and Protestant ethic of work, was a stronger advocate of the spirit of capitalism than productivity, his primary interests were in the technical efficiency of bureaucratic organisational structures. Despite the legacies of scientific management and the influence it may still exert on the quality of working life, Max Weber (1864-1920) made the first attempts to produce systematic categories for organisational analysis which was to form the basis for most subsequent studies of the formal, structural characteristics of organisations.

Weber's belief was that the decisive reason for the advance of bureaucratic organisation has always been its purely technical superiority over any other form of organisation. His principal contribution to the study of organisations was his theory of authority structures which led him to characterise organisations in terms of the authority relations within them, proposing a 'bureaucratic' model of organisations, where work is organised and conducted on an entirely rational basis. The essential features of a bureaucracy being; specialisation or division of labour; a hierarchy of authority; Written rules and regulations; and rational rules and procedures.

Arnold et al [1991:4] argue that bureaucracy however, has become a derogatory term associated with the excessive and often completely irrational use of rules and regulations.

Long term studies by Pugh [1989:9-15] and the Industrial Administration Research Unit at Aston from 1961-1970, examined various aspects of organisational structure through studies of real organisations, in order to identify the major dimensions of structure. Formal structures of a diverse sample of organisations were analysed in terms of:-

Specialisation of functions and roles; Standardisation of procedures; Normalisation of documentation; Centralisation of authority; and Configuration of role structure.

Based upon this work, Pugh and the Aston group put forward and empirically derived taxonomy of prevalent forms of organisational structure in contemporary society. Whilst there are other types, figure 3.2 shows the principal bureaucratic structures identified by Pugh and Hickson.

Figure 3.2 Taxonomy of Main forms of Organizational Structure

Concentration of authority	HIGH	Personnel bureaucracies	Full bureaucracies
	LOW	Non-bureaucracies	Workflow bureaucracies
		LOW	HIGH
		Structuring of activities	

Source: Pugh D., and Hickson D., *Writers on Organisations*; Pengiun, London, 1971

Similar studies by James and Jones [1976:74-113] proposed a slightly different classification of characteristics of organisational structural variables. The different sets of organisation structure characteristics proposed by the Aston Studies [Payne and Pugh, 1971] and those of James and Jones are shown below in figure 3.3

Figure 3.3 Major Dimensions of organization structures

The 'Aston' studies (see Payne and Pugh, 1971)	An alternative classification (see James and Jones, 1976)
Specialization Centralization Configuration	Specialization Centralization Span of control Size Interdependence of components
Standardization Formalization	Standardization Pervasiveness of rules

Source: Arnold J., Robertson I., and Cooper C., *Work Psychology: Understanding Human Behaviour in the Workplace*; Pitman, London, 1991

Regardless of the structural factors considered however, such factors are concerned with the organisational structure only and provided no evidence of how individuals actually behave in practice. As Pugh and Hickson [1976] noted;-

...none of the variables of structure are directly related with individual behaviour in the organisation. Specialisation is concerned with the existence of separate functions and roles not whether the individuals in them trespass outside their territories or not; Standardisation is concerned with the existence of procedures, not whether they are conformed to.

[Payne and Pugh, 1971]

Woodward [1958] examined the links between organisational success, size and structural form, finding no correlation's between commercial success (successful performance) and structural form. She found however that successful organisations had different structural forms dependent upon the technology they utilised for production. By categorising organisations into three groups of ;- *Small batch and unit production; Large batch and mass production; and Process production*, and regrouping the companies on the basis of their technologies, Woodward found that structural forms differed in terms of spans of control, the number of levels in the management hierarchy and the relationship of managers and supervisory staff to other personnel.

Burns and Stalker [1961] showed that organisations tend to use different management practices depending on their environmental conditions (environment

refers in this sense to the system environment as oppose to the physical environment) such as the rate of technological change in the industry concerned. All organisations are situated in an environment in which their are other organisations and people including customers, suppliers and competitors, with whom transactions take place. Burns and Stalker considered that there are technological, legal and ethical developments in the organisational environment (which I refer to here as the system environment) which will affect the adopted structure and strategy of organisations. Physical environment refers however to a subsystem within the system environment which provides the physical, tangible infrastructure for organisational and individual needs and processes.

Similarly Lawrence and Lorsch [1967:1-47] examined the links between environmental factors and organisational design, suggesting that different types of organisations are likely to be successful in different environments, accordingly a good fit between the organisation's characteristics and the surrounding environment is a determinant of organisational success.

3.32 Neo-classical Organisation Theory

Whilst the structural principles of classical organisation of theory of specialisation, unity of command, line management and span of control principles remain today, they have been re-examined by neo-classical theory which questions the rigidness of the classical principles and recognises psychological and behavioural issues which were lacking in classical theory. The Neo-classical or humanist approach challenges the classical approach which results in depersonalisation of work activities. In so doing rather than seek to change classical theory, they sought to make it fit the realities of human behaviour in organisations by drawing heavily upon behavioural research which revealed the importance of individual differences thus suggesting that classical theory was not as universally applicable or simple as originally formulated. [Muchinsky 1993:259-263]

Modern organisation theory recognises that organisations are much more complex that even the neo-classicists portrayed them, and adopts a complex, dynamic

view of organisations - the systems approach borrowed from the biological sciences and modified to meet the needs of organisational theory. [Kast and Rosenzweig, 1972:444-445]

3.4 Systems Theory

The term system can be used to cover a wide range of phenomena, some of which are conceptual constructs others are physical entities. Ackoff [1960] broadly defines a system as any entity, conceptual or physical which consists of independent parts. The outcomes of a system being the product of a set of independent acts.

The systems approach to subjects has a relatively short history having developed from the initial ideas of von Bertalanffy [1932] on the theory of open systems in physics and biology. Traditional scientific theory in the physical sciences concerned itself almost exclusively with processes in closed reaction systems, leading to chemical equilibrium. The development of steady state and open systems theories produced fundamental new principals which helped to explore many of the characteristic of living systems which appeared to contradict the laws of physics.

The systems view looks at the world in terms of relationships and integration. Systems are integrated wholes whose properties cannot be reduced to those of smaller units. Social systems like natural systems are wholes whose specific structure arises from the interactions and interdependence of their parts. Although the individual parts may be discerned, the nature of the whole is different from the sum of the parts. Systems are intrinsically dynamic by nature, as a result of the simultaneous and mutually interdependent interaction between multiple component parts. Systems thinking then according to Capra [1993], is process thinking; form becomes associated with process, interrelation with interaction and opposites are unified through oscillation. Capra concedes however that the reductionist description of systems can be very useful and in some cases necessary, however dangerous when taken to be the complete explanation. To that extent he argues "reductionism and holism, analysis and synthesis, are complementary approaches that, used in proper balance, help us to obtain a deeper knowledge of life"..

Thinking of an organisation as a closed system according to Katz and Khan [1966] results in a failure to develop the intelligence or feedback function of obtaining adequate information about the changes in environmental conditions.

Katz and Khan consider that:-

...the adoption of systems theory in the field of management has marked the convergence, assimilation and interrelation of previous seemingly disparate emphases.

[Katz and Khan, 1966]

The systems approach provides a single unifying model for all organisations. Whilst adding nothing to the subject matter of management or the social sciences in itself, all organisations can be said to strive for dynamic equilibrium. Equilibrium however should not be confused for stability, as the stability of self-organising systems is essentially dynamic, open systems require to be in a state of non equilibrium in which they are 'at work'. Systems thinking can, however, provide a clear and balanced means of observing and analysing the processes taking place and thus releasing new insights into complex interdependencies and relationships.

3.5 Organisations as self organising systems

The complexity however, of any system is determined by the number of distinguishable states it is capable of having. Any system with human intervention is therefore a product of the interconnectedness of the system together with the elements or variations such a system is capable of possessing. Despite controls on variations through rules and regulations, It is impossible to anticipate the range of responses an individual is capable of in social systems as in effect, individual experience and comprehension of shared reality is likely to differ, as Cohen [1964] observed:-

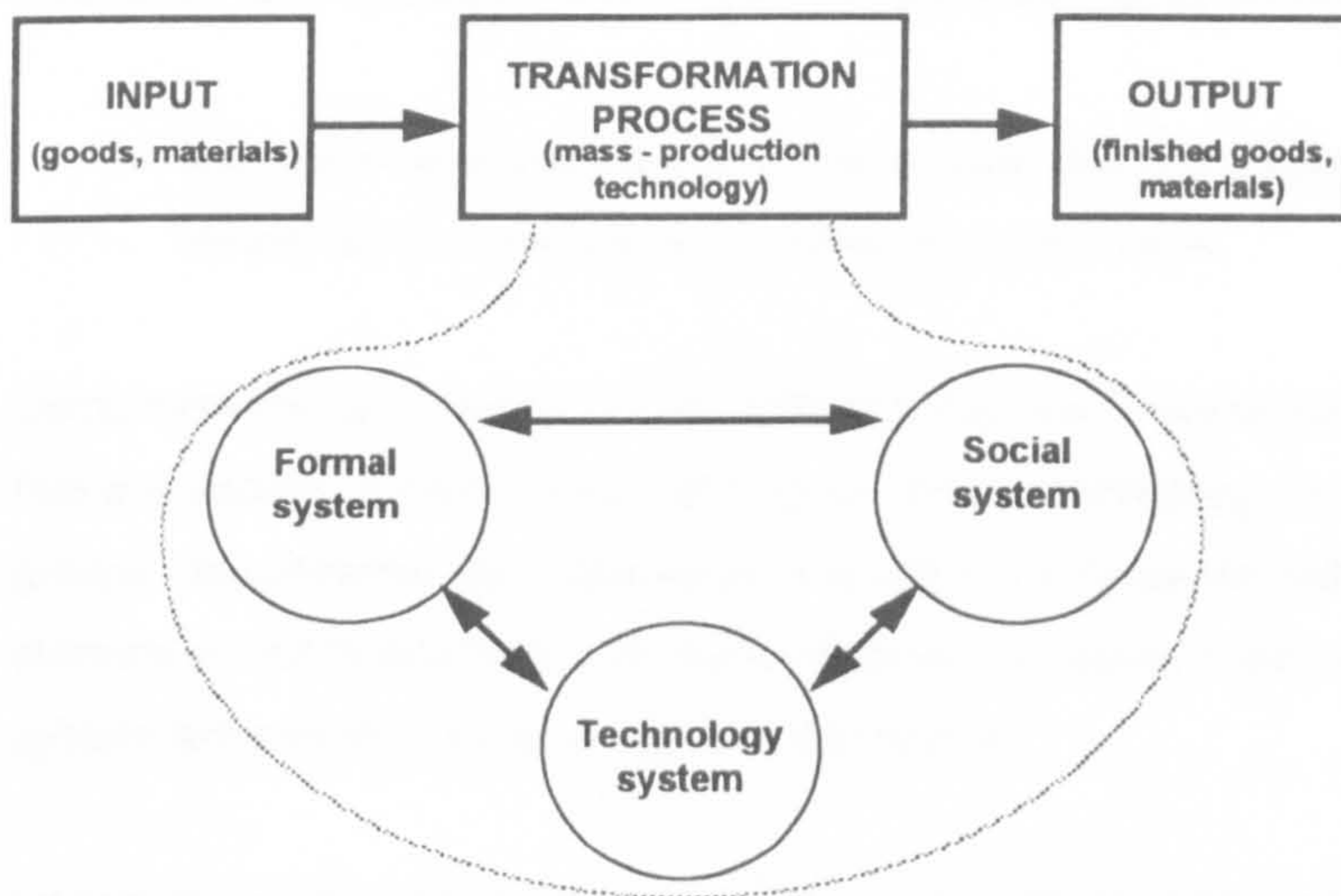
The number of separate variables which in any particular social phenomenon will determine the result of a given change, will as a rule be far to large for any human mind to master and manipulate them effectively.

[Cohen, 1964:356]

3.51 Organisations as Complex open systems

Whereas organisational charts provide a static view of the structural dimensions of organisations, they fail to provide a comprehensive picture of the dynamic nature which characterises living system. Using the ideas generated by systems theory, the dynamic nature of organisational systems can be modelled and better understood. In its simplest form an open system involves an input, transformation process and an output.

Figure 3.4 An open systems view of organisations



Source: Arnold J., Robertson I., and Cooper C., *Work Psychology: Understanding Human Behaviour in the Workplace*; Pitman, London, 1991

Closed systems by contrast do not involve inputs and outputs and are independent of external forces. The systems approach views an organisation as existing in a dependent relationship with its environment. Organisations are essentially open systems therefore.

The interdependencies and inter-relatedness of all parts of a system and its external environment suggests however that the viewing organisations from a systems perspective is a fairly abstract concept but necessary in modern organisational theory to conceptualise the complexities of complex social systems.

As Scott et al. [1981] observed;-

It is impossible to understand individual behaviour or the activities of small groups apart from the social system in which they interact. A complex organisation is a social system; the various discrete segments and functions in it do not behave as isolated elements. All parts affect all other parts. Every action has repercussions throughout the organisation, because all the elements are linked.

[Scott; Mitchel; and Birnbaum, 1981:44]

Describing organisations with the aid of systems concepts highlights two important issues as Arnold et al, [1991:9] observe:-

Interaction and inter relatedness. Ackoff and Emery [1972] defined a system as:-

a set of interrelated elements, each of which is related directly or indirectly with every other element, and no subset of which is unrelated to any other subset.

Using systems concepts to understand organisations helps to emphasise the point that any aspect of the organisation (e.g. structure, technology, individuals, work groups, departments, etc.) cannot be considered as separate, self contained element or unit of analysis. The elements or sub-systems in the organisation system are part of a complex interrelated network.

Levels of analysis. Any system is part of a wider super-system and can be subdivided into sub-systems. For example the social structure of an organisation, could be considered as a whole, subdivided into systems based on groups of workers or broken down into individual (single person) systems.

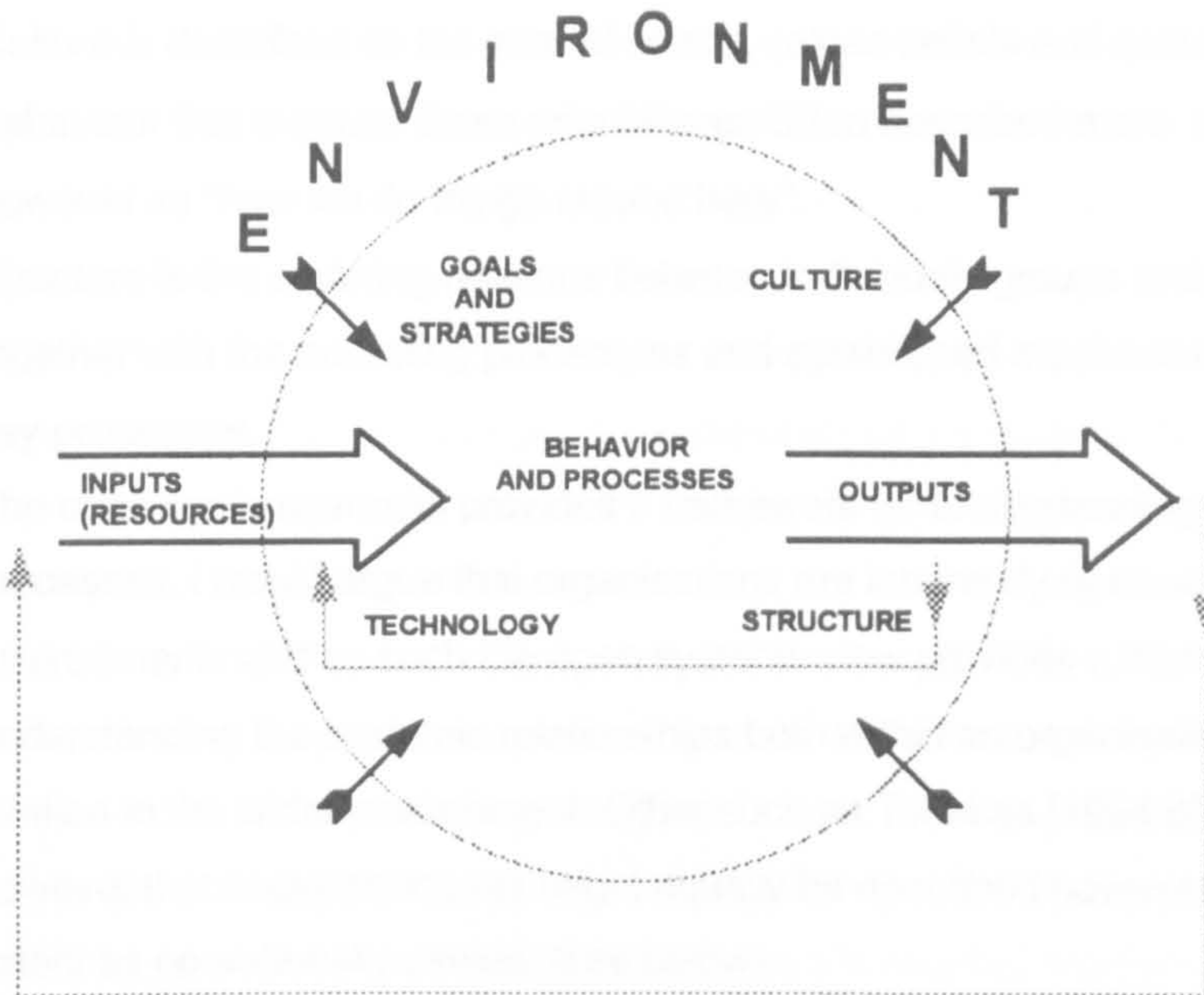
The question of which level of analysis is most appropriate for study is dependent upon the specific problem being addressed. The strength of the systems approach however, lies in its ability to draw attention to the existence of different levels of analysis. Katz and Kahn [1978] have for example demonstrated the use of systems concepts to study organisations at various levels of analysis in order to develop theory on aspects of organisational psychology.

3.52 Viewing the Organisation as an Open System

The open systems approach provides a general model that can guide the diagnosis of entire organisations and of divisions or departments within

organisations. Harrison [1994] (figure 3.5) presents an alternative model of organisations as open systems as a framework for Organisational Diagnosis.

Figure 3.5 Open systems view of organisations



Source: Harrison M., *Diagnosing Organisations; Methods Models and Processes*, 2nd edition, Sage, London, 1994

Simply explained the main elements include Inputs in terms of resources such as people, money, equipment, raw materials, knowledge; Outputs which comprise the products, services and ideas that are the outcomes of organisational action; The technology tools and techniques for processing resources; Environment- The task environment includes all the external organisation and conditions that are directly related to the organisations main operations and technologies, including customers and suppliers.

The general environment includes conditions having infrequent or long term impacts on the organisations such as the economy, technical knowledge, political systems, society and culture; in this sense the general environment is also a product of the social system in that it is not a structure imposed from the outside but is a creation of those beings, as such the organisation and the environment are not actually separately determined.

Goals and strategies are the future states desired by the decision makers. Goals are the desired ends, strategies are the routes to goals; Behaviour and processes are the prevailing patterns of behaviour interactions and relations between groups and individuals;

Culture is described as the shared norms, values beliefs and assumptions and the behaviour that express these orientations; Often described more basically however as "how we do things around here".

Structure is the enduring relations between individuals groups and larger units, together with the operating procedures and established mechanisms for handling key processes.

The open systems model provides a framework for understanding organisational processes. I would argue that organisations are inherently open with their environments and as such the open systems view provides a framework for understanding the systemic relationships both within an organisation and in relation to the wider environment. Other such as Tsoukas [1994:8] have argued however that social structures might equally be described however to a certain extent as operationally closed. (see below)

3.53 Organisation as operationally closed, self organising systems

Weber [1965] in *The Growth of Cities in the Nineteenth Century*, identified social structures as "all embracing social organisms" consisting of "a myriad of small social units each complete in itself and independent of the others". They might be, Van Der Erve [1994], considered as 'holons', a term introduced by Koestler to describe biological and social structures which are both whole and parts. Koestler observed that each holon has two opposite tendencies; an integrative tendency to ensure its togetherness with other elements, and to sustain its individual autonomy.

As such Mataruna [1994:136] argues, social or business systems might be described to a varying extent as an operationally closed, self organising system, which contrasts with the view of Tsoukas[1994] that organisations are intrinsically open. Tsoukas argues that such systems have four main characteristics;- Complexity, Self reference, Autonomy and redundancy.

Operationally closed , self organising social structures are complex as a result of the mutually independent elements within the social structure itself. Increasing complexity places greater dependence on self organising forces to strive towards an equilibrium.

A social structure evolves whilst maintaining its identity as an operationally closed, self referential system, although influenced by its physical environment, it is essentially dependent on its own beliefs and actions. As new possibilities are only created by our actions, social structures are operationally closed subject to the intrinsic and extrinsic conditions of closure being met, i.e. constancy of conditions. Van Der Erve [1994:30] also observed that people are likely to discover their group identity when defining the outside influences that affect them as a group. The subsequent choices they make about the nature of external influences determines the boundaries within which the group is autonomous. Although part of another structure, in a sense social systems are 'holons' in that their degree of autonomy is visible in their freedom to control combinations of resources.

Finally Tsoukas [1994] argues that self organising social structures are redundant in that they have more capacity, capability and resources than are strictly needed. Mechanistically conceived social systems are however inflexible as they can only operate effectively if the environment is static or has little effect on it, or where it can operate as a closed system.

As Gharajedaghi and Ackoff [1994] observe however ;-

.. a rapidly changing environment requires continuous adaptation and learning by an organisation if they are to remain effective. (sic.)

[Gharajedaghi and Ackoff, 1994]

They suggest that in addition to the *mechanistic* model, organisations may be viewed as *organismic* or in terms of *social systems* models.

In the organismic model the a social system is conceptualised as an organism with a purpose of its own which is survival for which growth is seen to be essential. Contraction is seen to be synonymous with decay. The organismic system is dependent on its environment, which if changing, requires the system to be capable of learning and adaptation to survive.

The social systems model means considering systems as a whole that cannot be divided into independent parts. The behaviour of each part and its effect on the whole depends upon the behaviour of other parts. Therefore the essential properties of the system are lost when it is taken apart. The performance of the system as a whole is not the sum of the independent performances of the parts but is the product of their interactions. Viewing the relationship between individuals, organisations and the physical environment therefore should take a social systems perspective. The one adopted here is that organisations are open systems, as the conditions necessary for closure do not hold in dynamic environments. They can also be conceived as living or organic systems as distinct to mechanistic, in that systems open with their environments demonstrate the ability to adapt and response to changes in the system environment, as such they are self adapting in response to feedback. I would also argue that organisational systems are distributed knowledge systems, that in addition to relying on roles, power and control, the primary link between system components is information. The reductionist approach to understanding the functioning of a system through the cause effect relationship is inadequate in that it only reveals knowledge of the structure but not an understanding of the function of a system. Traditional notions of science by advocating a Cartesian paradigm invariably result in only partial understanding of man-environment relationships by focusing on a limited number of variables within a social system. It is through the search for an understanding of system complexity rather than knowledge about system elements that a more humanistic approach to environmental design might be taken.

3.54 Organisations as Goal seeking Phenomena

Organisations are systems of people and accordingly like individual man, are essentially goal seeking. They seek to reduce discrepancies between where they perceive themselves to be and where they would like to be. It has been suggested for example that it is essential that there is goal congruence between the evolving plans of business and the facilities enterprise [Anderson, 1994]. This statement however holds for any sub-group within the enterprise.

Senge [1992;23] however, suggests the existence of an organisational 'learning horizon', which results in avoidance of the decision making process and attempts

at holistic approaches to reduce such discrepancies between where the organisation is and needs or desires to be. By learning horizon Senge means the unwillingness or inability to see beyond a particular time frame. These in turn have manifest themselves in organisational structures which contribute to a widening of the gap. Such interventions which are taken by management tend to focus on components of the system only and serve to produce short-term benefit but long-term malaise by failing to understand the systemic nature of organisations. As Senge states:-

Traditionally, organisations attempt to surmount the difficulty of coping with the breadth of impact from decisions by breaking themselves up into components. They institute functional hierarchies that are easier for people to 'get their hands around'. But functional divisions grow into fiefdoms, and what was once a convenient division of labour mutates into the 'stovepipes' that all but cut off contact between functions. The result; analysis of the most important problems in the company, the complex issues that cross functional lines becomes a perilous or non-existent exercise.

[Senge, 1994::24]

The emergence of facilities management as a distinct discipline has come about in part in response to the increasingly complex and systemic nature of organisations. As a form of 'process re engineering', many organisations are now attempting to break down the functional divisions between service departments towards process thinking, improving communications and co-ordination between different components of the organisational system and recognising the interdependencies therein.

3.6 Systems thinking and holism

Senge [1992] argues:-

Living systems have integrity. Their character depends on the whole. The same is true for organisations; to understand the most challenging managerial issues requires seeing the whole system that generates the issues.

[Senge, 1992:66]

However Senge argues that seeing the whole system does not mean that every organisational issue can be understood only by looking at the entire organisation. Some components can be considered in relative isolation from the system whole when they have either little interaction with or impact on other variables.

Some issues can only be understood however by looking at how major functions interact, whereas other issues by understanding the critical systemic forces that occur in a given functional area. The key principle is that of the 'system boundary' in that interactions to be examined should be those that are most important to the issue at hand irrespective of parochial organisational boundaries. Thus in the same way that facilities management is not a panacea for the problems of an organisation, by recognising the interrelationships and dependencies between organisational subsystems, it can provide a more effective means of co-ordination and control of support activities. Moreover by cutting across system boundaries outwith the function of facilities management, namely by interacting with the organisation as a whole, facilities management can be seen to enable the achievement of organisational objectives by an appreciation of the interrelationships between whole system components and goals.

Senge [1992:96] describes systems thinking as a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots in time. In addition to set of general principles, he contended that systems thinking provides a set of tools and techniques which originate in the threads of "feedback" concepts of cybernetics and as a sensibility for the subtle interconnectedness that gives living systems their unique character.

The overwhelming complexity of organisations and society has, according to Senge [1992] :-

perhaps for the first time in history provided humankind with the capacity to create more information than anyone can absorb, to foster far greater interdependency than anyone can manage, and to accelerate change far faster than anyone's ability to keep pace with it. As the scale of complexity is without precedent systems thinking provides a means of seeing the structures which underlie complex situations.

[Senge, 1992:69]

To adopt a systems perspective for the evaluation of environment, the principle would be to focus on patterns of change rather than just snapshots at a moment in time. Accordingly, to focus on the detailed complexity of the thousands of variables and complex array of details can actually distract from observing the emergence of patterns and major interrelationships.

Similarly from the perspectives of the subjects themselves taking the approach of Gestalt psychology founded by Max Wertheimer, that living organisms do not perceive things in terms of isolated elements, but in terms of *Gestalten*, that is, as meaningful wholes which exhibit qualities that are absent in their individual parts. The physical environment or peoples attitudes towards it may be inseparable from the process by which it is managed i.e. the quality of facilities management.

In distinguishing systems thinking from systems analyses Senge suggest that;-

Sadly for most people "systems thinking" means "fighting complexity with complexity", devising increasingly "complex" (detailed) solutions to increasingly "complex" problems. In fact this is the antithesis of systems thinking.

[Senge, 1992:72]

The real advantages to systems thinking according to Senge [1992] lies in its ability to see dynamic complexity rather than detail complexity, as such seeing interrelationships rather than linear cause-effect chains and seeing processes of change rather than snapshots. The art in systems thinking then lies at seeing

through the complexity of problems to the underlying structures that generate change. As Senge confirms;-

Systems thinking does not mean ignoring complexity. Rather it means organising complexity into a coherent story that illuminates the causes of problems and how they can be remedied in enduring ways.

[Senge, 1992:128]

3.61 Social Systems Research and Information Overload

The problem in social sciences research as with organisational management is the increasingly complexity and interdependencies result in 'information overload'. This results in defensive postures by both those seeking to advance knowledge and by those faced with organisational decision making, both parties essentially pursue a course of action which is as free from risk as possible. Ultimately such stagnation deprives the opportunity to learn from praxis or action and the interaction with others.

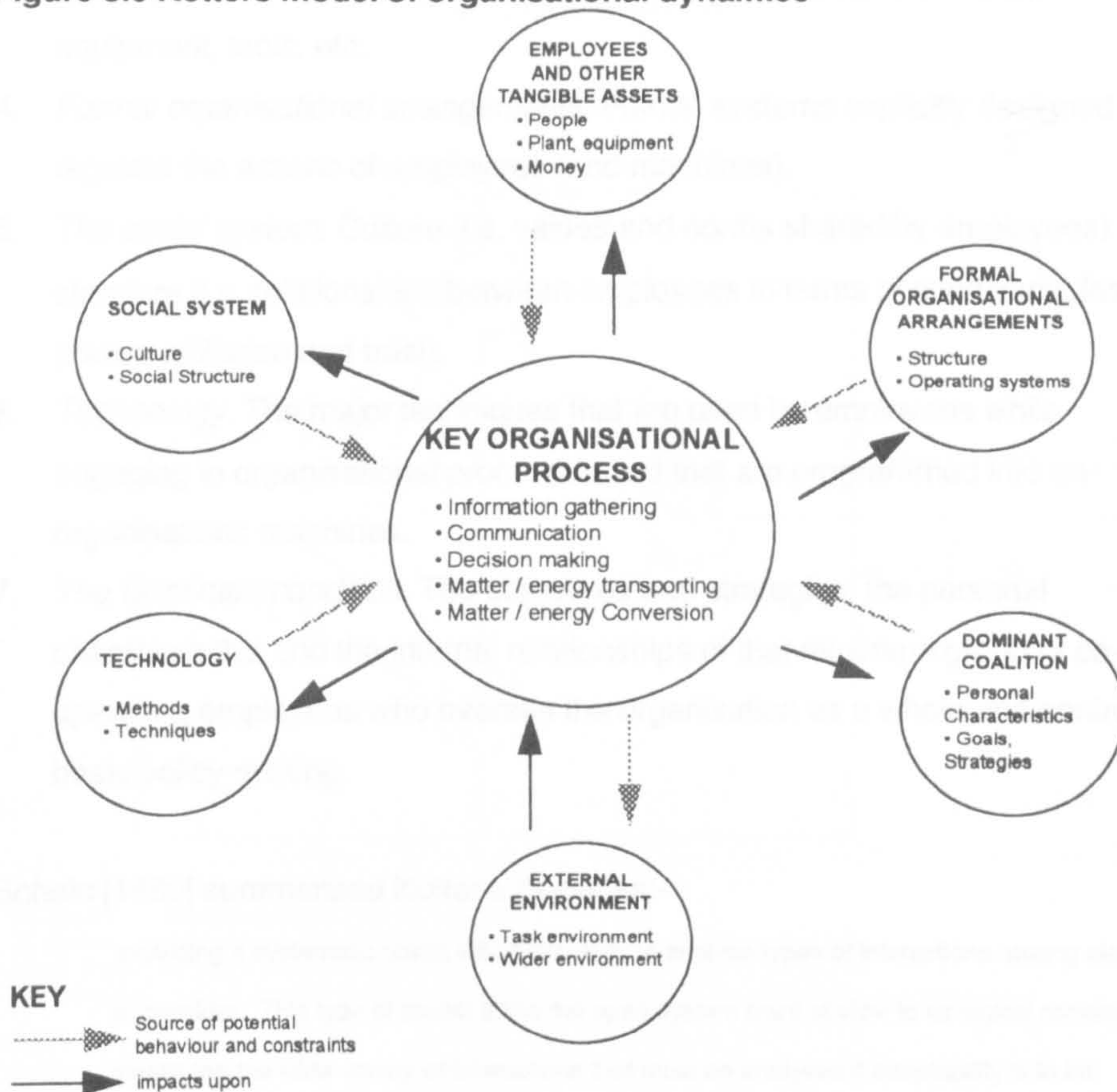
What we need most according to Senge [1992:128] are ways to know what is important and what is not important. What variables to focus on and which to pay less attention to - and we need ways to do this which can help groups or teams develop shared understanding.

Systems thinking in parallel with the other learning disciplines described by Senge provide important principles and tools that make individuals, teams and organisations more able to make the shift from seeing the world primarily from a linear, Newtonian perspective to seeing and acting systemically.

3.62 Organisational Dynamics

Kotter [1978] provides a model of organisational dynamics by integrating non-exhaustive aspects which characterise organisations into an overall framework for examining organisations. (as shown in figure 3.6)

Figure 3.6 Kotters model of organisational dynamics



Source: Kotter J., *Organisational Dynamics: Diagnosis and Intervention*; Addison Wesley, Reading, Mass., 1978

The seven major elements of Kotter's model of Organisational dynamics has been summarised by Arnold et al. [1981:11] as;-

1. *Key organisational processes.* The major information gathering, communication, decision making, matter/energy transporting and matter/energy converting actions of the organisations employees and machines.
2. *External environment.* An organisation's task environment includes suppliers (of labour, information, materials etc.), markets, competitors and other factors related to the organisation's current products and services. The wider environment includes factors such as public attitudes, the economic and political systems, laws etc.

3. *Employees and other tangible assets.* Employees, plant and offices, equipment, tools, etc.
4. *Formal organisational arrangements.* Formal systems explicitly designed to regulate the actions of employees (and machines).
5. *The social system.* Culture (i.e. values and norms shared by employees) and structure (i.e. relationships between employees in terms of such variables as power, affiliation and trust).
6. *Technology.* The major techniques that are used by employees while engaging in organisational processes and that are programmed into an organisations machines.
7. *The Dominant condition.* The objectives and strategies, the personal characteristics and the internal relationships of that minimum group of co-operating employees who oversee the organisation as a whole and control its basic policy making.

Schein [1980] summarised Kotter's model as:-

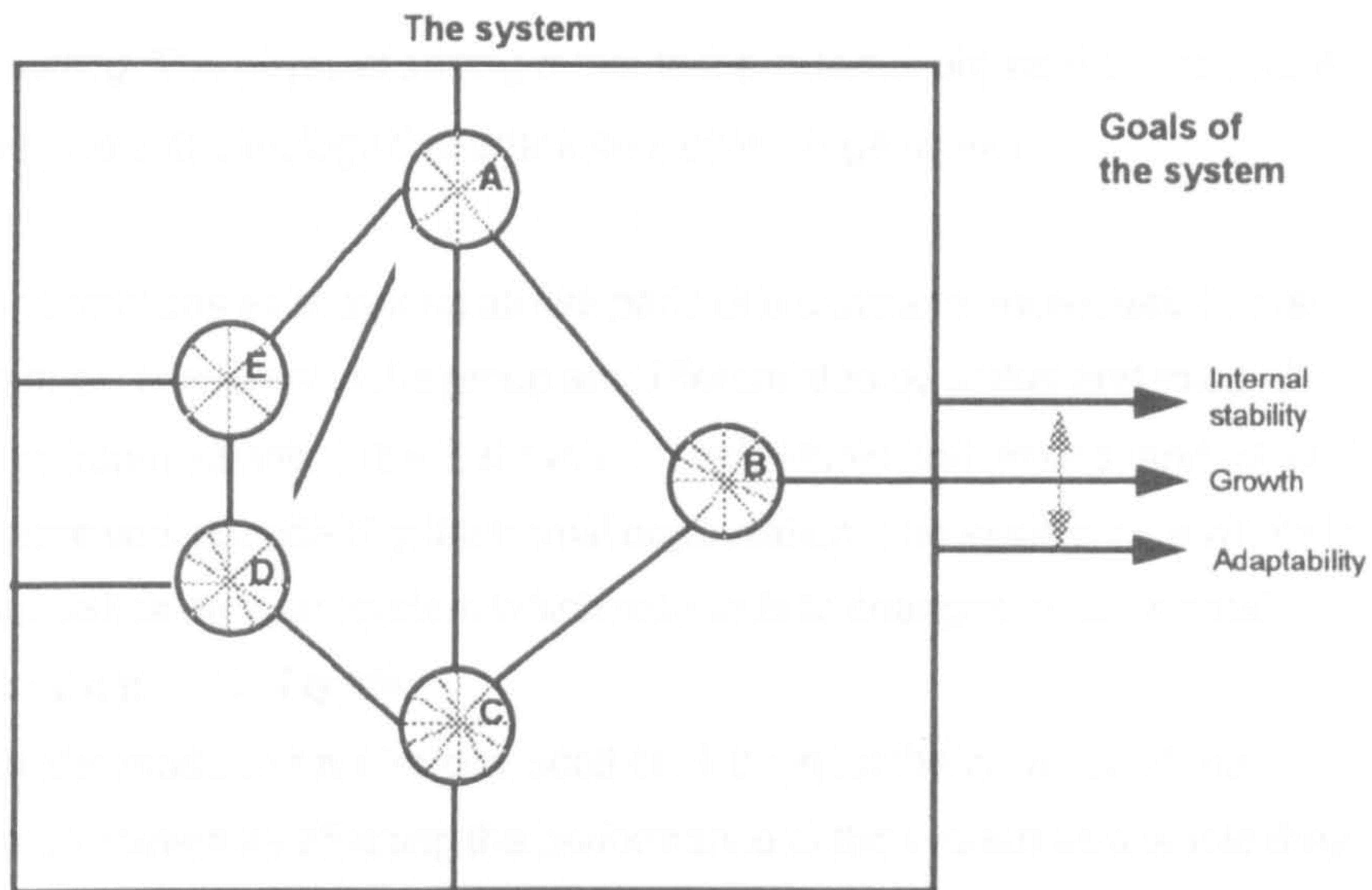
providing a systematic check list of elements to analyse types of interactions among elements to consider...This type of model takes the open system point of view to its logical conclusion in identifying the wide variety of interactions that must be analysed if adaptability is to be maximised.

[Schein, 1980:277-278]

Arnold et al.[1991] suggested that Kotter's model is in keeping with most contemporary attempts to deal with organisations, in that it neither attempts to provide a comprehensive picture of every element involved, nor does it seek to understand or explain all of the possible interconnections and their interrelationships to one another. A task they conclude that is "well beyond our current state of knowledge and perhaps always will be."

Scott et al. [1981:4] suggested that organisational systems are composed of five interrelated parts which are co-ordinated and linked through communications and decision making. Scott et al., argue that the goals of the system are internal stability, growth and adaptability, and suggest a conceptual framework for systems analysis as shown in figure 3.7.

Figure 3.7 The framework of systems analysis



key:

1. Circles represent parts of the system.
2. Broken lines represent intrapart interactions, i.e.. individuals with othe individuals
3. Solid lines represent interpart interaction.
4. Both the solid lines and broken lines arte the processes which tie the parts of the system together.

Source: Arnold J., Robertson I., and Cooper C., *Work Psychology: Understanding Human Behaviour in the Workplace*; Pitman, London, 1991

The five parts consist of;-

Individuals. All individuals have their own personalities, abilities and attitudes, which influence individual aspirations from the organisational system.

Formal organisation refers to the interrelated pattern of jobs that provides the structure of the system.

Small groups are distinguished from individuals as individuals do not work in isolation but become members in small groups as a way of adapting themselves to the system.

Status and role define the differences that exist among jobs in an organisation and define the behaviour of individuals within the system.

Physical setting. The physical setting refers to the external physical environment and the degree of technology that characterises the organisation.

Complex interactions exist among all five parts of the system. Individuals interact in small groups, members of the group are differentiated by status and roles, the physical environment affects the behaviour of individuals and groups, and all exist within a framework provided by the formal organisation. The system as a whole is conceptualised as an open system which responds to changes in its external environment in pursuit of goals.

Whilst both the models of Kotter and Scott et al. suggest the inclusion of the physical environment as affecting the performance of the system as a whole they more importantly emphasise the key role played by organisational communications in maintaining dynamic equilibrium.

In Kotter's model of organisational dynamics Information gathering, communications and decision making are seen as a central process which interacts with all activities, Scott et al.'s model framework of system analysis similarly suggests co-ordination and linkage among system parts is achieved through communication and decision making. They noted however that organisational communication occurs through a series of networks which often bear little resemblance to formal lines of authority, in addition to decision making which deviates from formal lines of authority. They conclude that the reality of how organisations actually conduct themselves is usually quite different from the principals established by classical organisational theory

According to Muchinsky [1993:263]:-

Social systems unlike physical or biological systems have no formal structure apart from its functioning.

[Muchinsky, 1993:263]

Muchinsky's basic argument is that the 'structure' of an organisation is determined by the functional requirements of the system. The emergent components

necessary for functioning, such as roles and practices, are in essence intangible unlike biological systems in which the structure and functioning is observable. This view is shared by Katz and Khan [1978] who observe "it is hard for us to think of a social system as having no tangible anatomy, because it is easier to understand concepts with concrete and simple components."

Whilst social systems do have components such as roles, norms, power or control and culture they are not concrete but abstract constructs which seek to define the uniqueness of an organisation's social system. Adopting a systems perspective allows an understanding of organisations which would not have been provided by classical theories. Whilst constructs may define an organisation's structure and are determinants of behaviour they are for the most part intangible and incapable of observation in the formal sense.

Seeking understanding of the relationships between man and physical environment therefore demands an appreciation of the systemic nature of organisations and how they interrelate with personal constructs and the environment.

3.7 Conceptual Modelling of Organisations

The process of using conceptual models and methods from the behavioural sciences to assess and organise an organisation's current state and to find ways to solve specific problems or increase its effectiveness has been described by [Harrison 1994:1], as Organisational Diagnosis.

Diagnosis in this context does not rely heavily on traditional behavioural science methods and models nor does it seek to emulate applied research methods which seek to examine areas of relatively narrow research focus. To that extent Organisational Diagnosis has greater synergy with evaluation research in which behavioural science research seeks to contribute to the planning, monitoring and assessment of the costs and impacts of social programmes. Like evaluation research, Organisational diagnostics is practically oriented, focusing on effectiveness, but often capable of examining a broader spectrum of indicators of organisational effectiveness than summative or formative evaluations which are aimed at measuring either programme efficiency or implementation respectfully.

Organisations operate in an invariably dynamic environment, one in which the complexity of the social system makes the reduction of system dependencies to variables difficult to achieve. Conditions which hold in stable environments exist only in closed systems which do not undergo qualitative or quantitative change over time. The opportunity to recognise the changing facility related needs of individuals and organisations can be gained through intervention and regular evaluation. In addition to design intervention aimed at improving physical environments and improving the knowledge base for the design community, those responsible for managing facilities over time, namely facilities managers, have the opportunity to develop increased understanding on the changing needs of the organisation and make facility related decisions to close discrepancies in the fit between organisation and facilities. However it should be observed that the notion of 'fit' suggests a closed and static notion which does not necessarily reflect the open and dynamic nature of organisational systems. As such, alignment or realignment, between individuals, organisations and facilities might be a more appropriate notion, suggesting an ongoing attempt to understand and improve upon the way in which facilities support individual and organisational needs. Such a design research approach is much more akin to action research in which social change efforts can be enhanced through systematic data collection towards a common goal.

3.71 Contingency theory and organisational design

It is generally considered that managers can influence subordinates to work toward the goals of the firm in at least three primary ways. One is through personal contacts - by what they do and say in meetings, one-to-one sessions, speeches, building tours, etc. The second way is by the substantive decisions they make about the allocation of resources to one activity or set of products, rather than to another. The third way is through their decisions about the definition of jobs, arrangement of organisation charts, measurement and reward schemes, selection criteria for personnel etc. [Lorsch, 1983:575]

To be more precise, the design of the organisation is composed of the structure, rewards, and measurement practices intended to direct members' behaviour

toward the organisation's goals, as well as the criteria which may be used to select persons for the organisation.

Structure is usually defined as the pattern of job definition, authority and communication relationships which are represented in the organisation charts, job descriptions, etc.

Rewards refer to those things that an organisation offers employees as its part of the psychological, social and economic, contract. Not only financial compensation and benefits are included, but also career opportunities, interesting work, and even meaningful personal relationships. Closely connected to this are the criteria that managers use to select new employees.

Measurement includes the management control systems and management information systems necessary to detect deviations from intention.- in essence, the procedures by which plans are made and results measured and reported.

It is a safe generalisation that as managers move up in a hierarchy and/or as the size of an organisation grows, they become more concerned with issues of organisational design. This is a result of the fact that with more subordinates the manager is less able to rely on personal contacts to influence subordinates. Therefore, the manager must rely more heavily on the organisational design elements of structure, rewards, measurement, and selection criteria. In this regard focus is more on issues of structure than on the other design elements.

3.72 Goals of organisational design

Lorsh [1983;575] suggests that a broad statement of the ends managers seek in considering organisational design decisions is intended to influence subordinates' behaviour. More specifically, managers are concerned with three inter-related goals when they make design decisions in respect of the organisation:

1. To create an organisational design that provides a permanent setting in which managers can influence individuals to do their particular job.
2. To achieve the pattern of collaborative effort among individual employees that is necessary for successful operations.
3. To create a cost-effective organisation, that is, one which not only achieves the first two goals, but does so with a minimum of duplication of effort, payroll costs, etc.

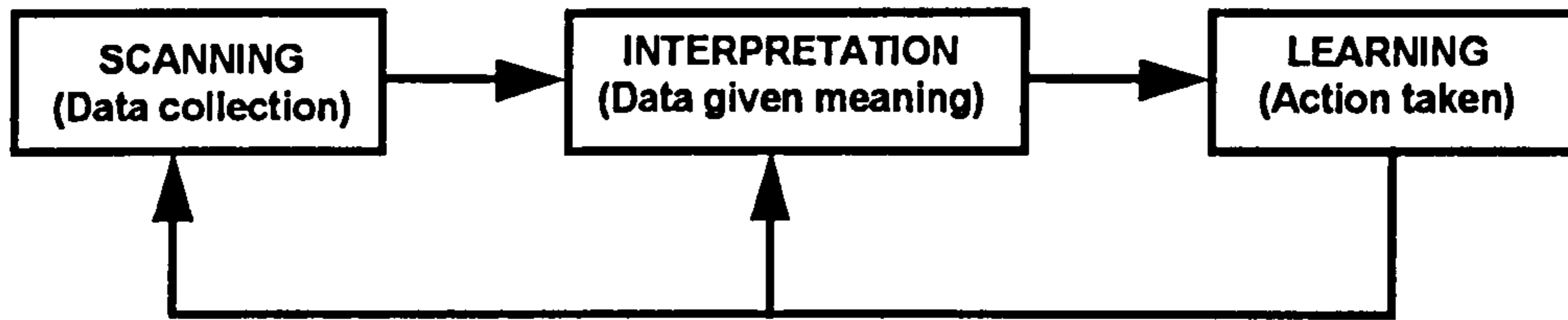
These ideas, labelled contingency theory, emphasise that the characteristics of an organisation are contingent (depend) on the nature of the environment in which it operates, the tasks that members must perform to accomplish the firms strategy in this environment, and the psychological characteristics of its members.

3.73 Interpretation and the organisational environment

Weick, [1977:267-300] argues however that organisations do not respond to the external environment (system) as it actually is, but to the perception of the environment built up by the members of the organisation. The perceived environment may or may not correspond with 'reality', but as a subjective interpretation.

Daft and Weick [1994:70-86] suggest that the organisation experiences interpretation when a new construct is introduced to the cognitive map of the organisation. A three stage process of scanning, interpretation and learning occurs as shown in figure 3.8.

Figure 3.8 Relationship among organisational scanning, interpretation and learning



Source: Daft E., and Weick K., 'Organisations as Interpretation systems' in *New Thinking in Organisational Behaviour*; ed. Tsoukas, H.; Butterworth Heinemann, Oxford, 1988

Organisational interpretation is defined by Daft and Weick, [1994:73] as:-

the process of translating events and developing shared understanding and conceptual schemes among members of upper management.

This emphasis on upper management is based upon the view that whilst many participants may play a role in scanning or data processing, the point at which information converges and is interpreted for organisational action is assumed to be at the top manager level.

The subjective perceptions of individuals may, for example, result in individual or collective action in response to perceived stimuli from the environment which may itself be open to individual misinterpretation.

Daft and Weick [1994:70-86] propose a model of organisations as interpretation systems which consists of two variables;-

- (1) management's beliefs about the analysability of the external environment; and
- (2) level of intrusiveness from passive conditioned viewing to active discovering.

They consider that interpretation is the process by which managers translate data into knowledge and understanding about the environment. As organisations must make interpretations, i.e. make sense of their environments in order to act upon events, managers must be capable of interpreting or giving meaning to events.

Daft and Weick consider that individual managers interpretations of the

environment may result in different organisational outcomes such as strategy, structure and decision making.

Silverman [1970] supports the view that reality is a personal construct. In discussing the influences of the environment on organisations he stated;

Organisations do not react to their environment, their members do... People act in terms of their own and not the observer's definition of the situation.

[Silverman, 1970:37]

This suggests that an individual's action may be based upon individual perceptions of the environment in addition to those interpretations made by management and subsequently enacted in the organisational structure or direction for collective action. This would suggest that the perceptions of individual and the organisation may differ dependent upon the relation of the individual in the scanning and interpretation process. i.e. the level at which the individual operates within the decision making hierarchy.

3.8 Open systems and Feedback

Emery and Trist [1960] suggested that current theorising on organisations has tended to continue thinking in terms of closed systems. Closed system thinking they suggest:

... is to regard the enterprise as sufficiently independent to allow most of its problems to be analysed with reference to its internal structure and without reference to its external environment.

[Emery and Trist, 1960]

Katz and Khan, [1966] similarly, considered thinking about the organisation as a closed system results in failure to develop the intelligence or feedback function of obtaining adequate information about the changes in environmental forces. They observed:-

Traditional organisational theories have tended to view the human organisation as a closed system. This tendency has led to a disregard of differing organisational environments and the

nature of organisational dependency on environment. It has led also to an over concentration on principals of internal organisational functioning, with consequent failure to develop and understand the processes of feedback which are essential to survival.

[Katz and Khan, 1966]

The feedback principle has to do with information input which is described by Katz and Khan as a special kind of "energetic importation", a kind of signal to the system about environmental conditions and about the functioning of the system in relation to its environment. Feedback of such information allows the system to correct from either its own malfunctioning or to changes in the environment, in order to maintain a steady state or homeostasis of dynamic balance, in other words the maintenance of equilibrium in a social group. Feedback may occur through formal management control systems of communication or through informal communications networks.

3.81 Organisational Communications

Organisational communication is central to the concept of an organisation as a means of making decisions, obtaining feedback and pursuing organisational goals, it provides the network of linkages between the interdependent organisational parts. Viewing the organisation as an open system highlights the key role played by organisational communications in maintaining dynamic equilibrium, as emphasised by the models of both Kotter and Scott (see diagrams 3.6 and 3.7 above).

Organisational communication occurs however through a series of networks which are often unplanned or deviant from the canonical system. Organisations are repositories of organisational knowledge in which information is exchanged in order to allow the system as a whole to function in an adaptive manner.

Arnold et al [1991] suggested that an essential prerequisite to the accuracy of communications within organisations is an understanding of organisational dynamics. In supporting their view they quote American management guru, Saul Gellerman who suggested:-

Nothing is more central to an organisation's effectiveness than its ability to transmit accurate, relevant understandable information among its members. All the advantages of economy scale, financial and technical resources, diverse talents, and contracts - are of no practical value if the organisation's members are unaware of what other members require of them and why. Nevertheless, despite its overwhelming and acknowledged importance, the process of communication is frequently misunderstood and mismanaged.

[Gellerman in Arnold et al. 1991]

It seems therefore that an understanding of the nature of both formal and informal communications within complex and dynamic systems is a prerequisite to improving feedback by which the system might adapt or learn in response to changes within the system or its environment.

Whilst there are many definitions of the term communications, Dance [1970:210-210] for example identified over 95 definitions of the term used by researchers. A definition for use here might be that offered by O'Reilly and Pondy, [1979], who define communication as;

The exchange of information between sender and receiver and the inference of meaning between participants.

[O'Reilly and Pondy, 1979:684-696]

Organisational communication is a subset of communication in general and has been defined by Farace and MacDonald [1974] as:-

the process by which organisationally relevant information is transmitted and received.

[Farace and MacDonald, 1974: 1-19]

Robert's et al. [1974:501-524] suggest that organisational communication occurs and may be viewed on at least three levels.

Interpersonal communication between a sender and a receiver, such as a superior and a subordinate.

Intraorganizational communication between groups or subunits of the organisation.

Interorganizational communication between organisations.

Communications serve to enhance the functions of organisational processes, Scott and Mitchell [1976] have proposed four such functions of communication, as control, information, motivation and emotive;

Control - to clarify duties and establish authority and responsibility

Information - to provide the basis for decision making

Motivation - to elicit co-operation and commitment to organisational objectives

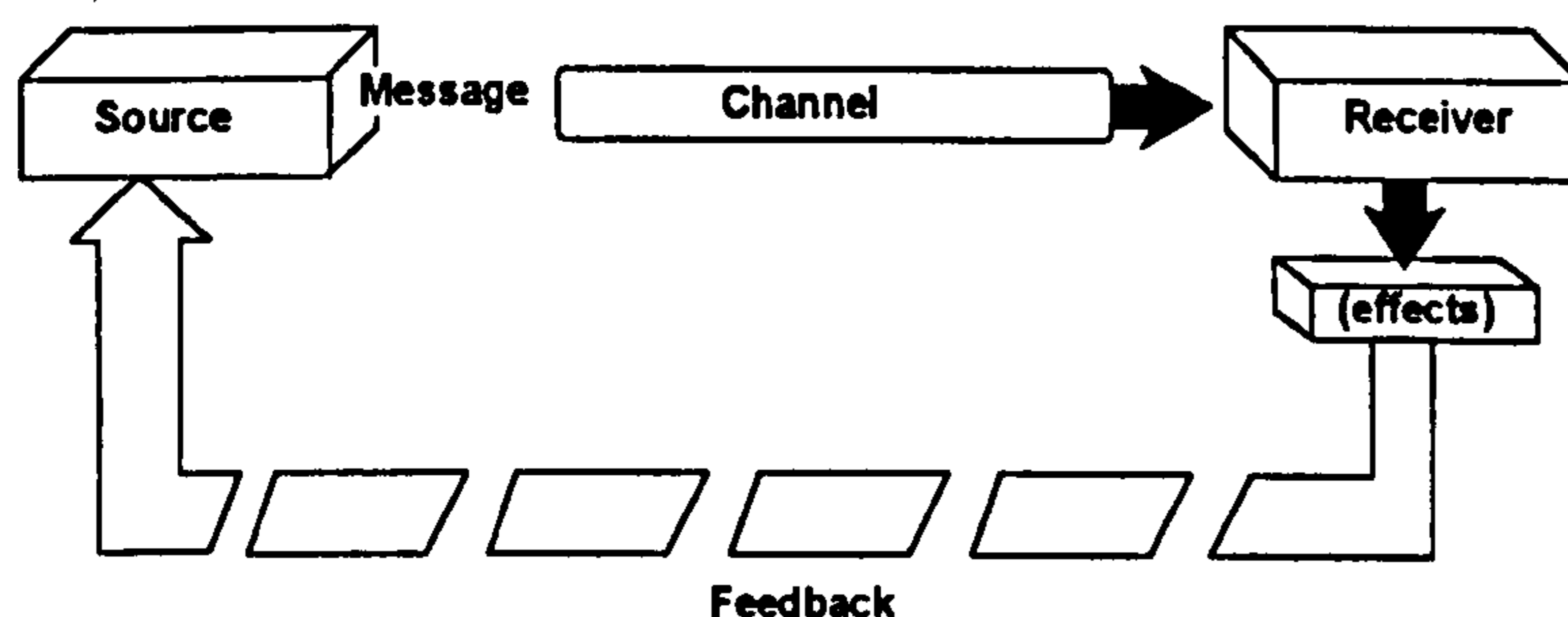
Emotive - to express feelings.

All four functions may manifest themselves singularly or in combination simultaneously, dependent upon the needs and intent of communication.

Berlo [1960] suggests that there are four major components in the communications process and provides the S-M-C-R model of communication as a framework for analysis of the communication process. (see figure 3.9)

The four major components include Source, Message, Channel and Receiver together with two other components of effects and feedback.

Figure 3.9 The S-M-C-R model of communication



Source: Berlo D., The process of communication; Holt, Rinehart and Wilson, NY, 1960

The *source* is the message originator which may be either an individual or an institution.

The *message* is the stimulus or idea that the source transmits to the receiver.

Messages may be language symbols (words), non verbal signals (facial or bodily gestures), or pictures. Meanings are the references that the source and receiver have in common, without shared meanings, communication cannot occur. Berlo

maintains that many communication failures are due to mistaken assumptions by the source or the receiver about the meaning of a symbol they have exchanged. As Berlo, [1960] observes; " Meanings are in people, not in the message" as such words themselves have no meaning other than those that are assigned to them by individuals.

The *channel* is the means by which a message travels from source to receiver and as such can either be through media or through interpersonal means involving face-to-face exchange.

The *receiver* is the recipient of the message. Muchinsky [1993:398] argued however that receivers are in many cases ignored by the source resulting in a failure to communicate. Sources can for example be source oriented in which the source is aimed at a particular sub population, message oriented in which they are topic knowledgeable but fail to express a message meaningfully to receivers or channel oriented in which the emphasis is on a particular channel of communication. Effective communication Muchinsky contends must be receiver oriented as the receivers are the object of communication.

Communication effects are the changes in receiver behaviour that occur as a result of transmitting the message. Such changes may be in receiver *knowledge*, *attitude* or *overt behaviour* and may occur in sequence whereby a change in knowledge may modify an attitude which could precede a change in overt behaviour.

Feedback is described as a response by the receiver to the source's message and may be either positive in that the source is informed that the intended effect of the message was achieved, or negative which informs the source that the intended effect was not achieved. Feedback in this sense is used more in a cybernetic sense in which subsequent adjustments or modifications may be made to the communication process to ensure the desired effect, it suggests however that a desired state may be either implicit or explicit.

A more appropriate view of feedback mechanisms might be that of Senge [1994:79-92], who made the distinction between reinforcing and balancing feedback, describing reinforcing (or amplifying) feedback processes as drivers or engines of growth or decline. Balancing (or stabilising) feedback by contrast

operates when there is a goal operated behaviour to close the discrepancy between actual and a desired state.

Senge suggested that:-

From the systems perspective, the human actor is part of the feedback process, not standing apart from it.

[Senge, 1992:78]

This anthropocentrism in which individuals are at the centre of activities allows the individual to see how they are continually influenced by and influencing their own reality. Despite his contention that reality or assigned meaning is a personal construct, feedback in the sense used by Berlo[1960], may be somewhat oversimplified when operating in a dynamic social system.

Sims and La Follette [1955:19-38] identified that organisations can be differentiated in part on the basis of their communication practices. The organisational climate reflects the combined perceptions of individuals based on organisational practices. They identified a climate factor called *openness of communication* which sought to measure the level of communication between managers and subordinates over a range of specific items.

Muchinsky, [1977b] correlated several communication variables with measures of both climate and job satisfaction. He found the perceived accuracy of communication and employee satisfaction with communication were related to the interpersonal atmosphere in the organisation, perceptions of management, and judgement about organisational practices. Employees who were dissatisfied with communication and who felt that most communication was inaccurate did not like the interpersonal atmosphere, felt negative towards management, and were critical of the way the organisation conducted itself. In addition, employees who felt communication was accurate and were satisfied with it were generally satisfied with their work, their supervision, and their co-workers. Perceptions of organisational communications are according to Muchinsky vital if a company wants to foster positive feelings in the employees.

3.82 Interpersonal communications

Markus et al. , [1972] Suggest that "man is Goal oriented. People only do nothing when they are dead." Their basic assumption suggests that people are in an active role with regard to their environment. Adopting a systems theory approach to the development of a conceptual model of the system of building and people, Markus et al suggest that all people forming part of the system are goal oriented; they form an adaptive system which is open i.e. it interacts with its environment. Argyle [1967] writing on the psychology of interpersonal behaviour, suggests that individuals essentially seek to satisfy goals through social interaction which are satisfied by a certain behaviour on the part of others. He suggests that social behaviour is the product of at least seven different *drives* which provide the social motivation by which people interact. A 'drive' can be defined as "a persistent tendency to seek certain goals". In addition he suggests that a drive is a source of energy which whilst operating will provide a general increase in vigour. People however display different behavioural approaches on different occasions in pursuit of different goals from social interaction in addition to different levels of energy with which they pursue goals.

Argyle suggests goals are associated with positive effects, with cognition's about how they might be obtained and with patterns of behaviour. Accordingly people are motivated to interact socially because they anticipate that they will enable certain goals to be obtained.

Achieving goals through social interaction involves a combination of both verbal and non-verbal communication, in order to achieve desired behaviour in others.

3.83 The physical environment and communications

Communication in the sense of a system environment however is more complex, involving the transmission of activities in response to demands for change. Markus et al. [1972] considered communication in most organisations to include " the movement of people, things, energy and information", as such communication is "an integral part of the functioning of the activity system."

In addition to the social processes within organisations people elicit meaning from their physical environment, which in turn serves as a medium of communication of factors such as status and approachability.

Oldam and Brass [1979] for example suggested that from a sociotechnical perspective, boundaries can transform a work area into a private, defensible space. They argued that a private area provides opportunities for personal communications and the sharing of information. However, in addition to influencing the ability to foster informal or formal interpersonal communications, such adaptations by design intent on behalf of the organisation or by the individual might be interpreted as an individual's desire for privacy which may influence approachability. In addition they may limit opportunities for informal interaction. By contrast the social relations approach also suggested by Oldam and Brass [1979] argues that the absence of interior walls and barriers in open plan offices facilitates the development of social relationships among employees, which in turn positively motivates employee motivation and satisfaction. [Becker, 1981]

Studies such as those conducted by Brookes and Kaplan [1972] Clearwater [1980] have however found that the office landscape design often fails to facilitate communication and interaction between departments, often resulting in reduced levels of employee satisfaction. Becker [1981] reported, the Clearwater study concluded that the move from conventional to a landscape office did not support the underlying intentions to improve flexibility, information flow, communications and the elimination of internal barriers which might otherwise hamper a dynamic organisational environment.

A fuller examination of the role of the physical environment in supporting organisational communications and individual needs is beyond the aims of this study and has been a field of significant study since the 1950's in which architecture became to be seen as a determinant of social interaction instead of a context for it, through architectural determinists such as Festinger, Schachter and Back, [1950]; Gutman, [1966]; Roslow, [1961]. For a fuller explanation see Sundstrom, [1986]

3.84 Non Verbal Interpersonal Communication

Similarly, non verbal communication (NVC) forms which include facial expression, gazing, gestures and body movements, bodily posture, bodily contact, physical proximity, orientation, territorial behaviour, clothes and appearance, and non

verbal aspects of speech such as emotion or tone, may have a significant impact on the way social signals are encoded and decoded by a sender and receiver.

Non verbal communication plays a significant role in social interaction and has been identified by Argyle(1975) as functioning in four rather different ways;

Communicating Interpersonal attitudes and emotions

Self presentation

Ritual; and

Supporting verbal communication.

Participant observation is a significant field in its own right and one which is beyond a fuller consideration in the scope of this study other than to recognise the key role played by the evaluation facilitator in identifying aspects of NVC whilst facilitating the dialogue process.

The aim of this research is to present a praxis for generation of knowledge through reflective dialogue with users, which may lead to increased understanding of the users needs and expectations from the built environment. The principal focus of consideration on interpersonal communications is on verbal communication, through reflective inquiry by focus groups. In so doing, in addition to attempting to seek meaning through dialogue, by combining users with different interests and experiences of a facility the opportunity also exist to improve interorganizational communications, by learning from the experiences of others.

3.9 Aligning organisational and Individual Psychological goals

Individual expectations from the work environment are changing dramatically as a consequence of the both the knowledge based society, improved education and communications, and dramatic advances in technology resulting in greater expectations from the work environment.

Rising user expectations from the work environment was cited by Becker [1989] as one of the primary drivers for the emergence of the field of Facilities Management.

Brooks et al., [1971] observed that:-

Rapidly rising education levels are creating a demand that work be not only financially but also psychologically rewarding. In the future this may turn out to be a crucial issue in assessment of the technology of production.

They argued that much social unrest results from an unwillingness to accept the character of occupations offered by society, together with a perception that the present occupational structure is governed by the requirements of technology in relation to economic efficiency. They argued that greater personal fulfilment in work entails a loss of economic efficiency in the traditional sense, and as such the collective goals of society and personal goals may be in conflict with one another.

Brooks et al. [1971] suggested that a major challenge to science policy in the next decade may prove to be to find new goals for technological, social and institutional innovation that relate to the adaptation of work style to the psychological needs of individuals. In the past they argued, the pattern was one of the adaptation of man to work styles which were dictated by technology and demanded by economic efficiency. This challenge, they suggested, will demand closer co-operation between both the social and engineering sciences, since they noted, knowledge of the true origins of work dissatisfaction is very limited.

3.91 Productivity: A primary goal of Organisations

It is a widely held belief that Job Satisfaction is one of the goals of people in organisations. Equally held is that Organisational productivity and goal satisfaction are both essential goals in Today's society. Measuring both productivity and satisfaction however are constrained by our existing conventions of metrics in terms of some form of exchange. In many cases organisations using existing measurement systems can demonstrate improvements in capital efficiency ratio's through a host of strategies such as downsizing, outsourcing, delayering, moves towards networked and virtual organisations etc.

There is little research evidence on the true implications of many such workplace strategies however, and their consequent impact on productivity and effectiveness.

Sutermester [1959], argued for new means of measuring the relationship between people and productivity and quotes organisational theorists Basil Georgopoulos and Robert Tannenbaum as having stated:-

organisational effectiveness is based on the extent to which an organisation, as a social system, fulfils its objectives without incapacitating its means and resources and without placing undue strain on its members."

[Georgopoulos and Tannenbaum, in Sutermeister, 1959]

As criteria of effectiveness, they use not only organisational productivity but also organisational flexibility and absence of intraorganizational strain or tension. Such an approach demands recognising the need for more humanist strategies towards work and workers and moreover to break away from traditional view of organisations as static systems. However humanisation of the workplace, participative management and a host of other management's strategies aimed at improving employee motivation need not result in higher productivity.

One might jump to the conclusion that individuals whose needs are being fairly well met will be motivated to improve their performance and contribute to greater productivity. Sutermeister [1959] concluded however that this is an unwarranted assumption. It may be true generally, but it is possible for individuals needs to be fairly well met, for them to be fairly well satisfied with job and firm, and for them to have a fairly high level of morale but to wilfully restrict their output not perform at their best, and in fact work against the company goal of increased productivity.

Whilst Sutermeister [1959] argued that the relation between need satisfaction, morale, employees' job performance, and productivity is much too complex for us to assume that satisfaction of individuals needs will automatically lead to better job performance and increased productivity. This should not act however as any form of impediment to improve understanding of the role of organisation and environment in meeting users needs, however, but merely serves as a caution that needs satisfaction may not always result in quantifiable gains.

Perhaps however we are constrained by our ability to measure. Our ability to measure satisfaction, quantify personal growth and log levels of commitments. Should such techniques be available, they would surely find their way onto the organisational balance sheet, as a measure of the effective deployment of human resources in line with an organisations value system.

An alternative approach to measuring productivity from an organisational perspective however, might be to look for poor congruence between the intention

of a work system, in terms of its policies, strategies structures and implicit and explicit goals, and that of the actual practices undertaken, in an attempt to identify mismatch between the two.

The identification of gaps between espoused and actual practices however demands organisational intervention which seeks an understanding of the system from within. Such ethnographic research practices exist and allow the researcher to become part of the group under study, helping groups with specific problems and providing new insight into human behaviour. As such they are able to adopt a social constructionist perspective such as the Soft systems methodology proposed by Checkland [1981] which adopts a holistic approach to understanding the complexity of a system using concepts as distinct from numerical analysis. Such a phenomenological approach whilst providing a systematic means of inquiry does not however attempt to describe in entirety the complexity of the system merely to help groups solve specific problems through inquiry of theories-in-use, such that appropriate action might ensue.

3.92 Organisations as emergent phenomenon

Rather than static entities, Weick [1977] argued that organisations can be seen to be emergent phenomenon which result from the coherent and constrained interaction of individuals. For Weick [1977:260-300], an 'organisation' is not a given, objective structure confronting an equally objective entity called the 'environment' to which it ought to act in a given manner.

Both organisations and the environment are subjectively constructed entities which are subject to individual interpretation. Individuals accordingly attempt to make sense of their environments through reflection in which casual maps of variables are retained as knowledge.

Interaction with the environment is a continual interplay and mutual influence between the outer world and the inner world of individual sensory perception.

The traditional Cartesian view assumed that every individual has the same biological apparatus and accordingly has access to the same 'screen' of sensory perception, differences would arise as a result of subjective interpretation of sensory data. Capra [1993] suggests however:-

Our responses to the environment are determined not so much by the direct effect of stimuli on our biological system but rather by our past experience, our expectations, our purposes, and the individual symbolic interpretation of our perceptual experience.

[Capra, 1993:320]

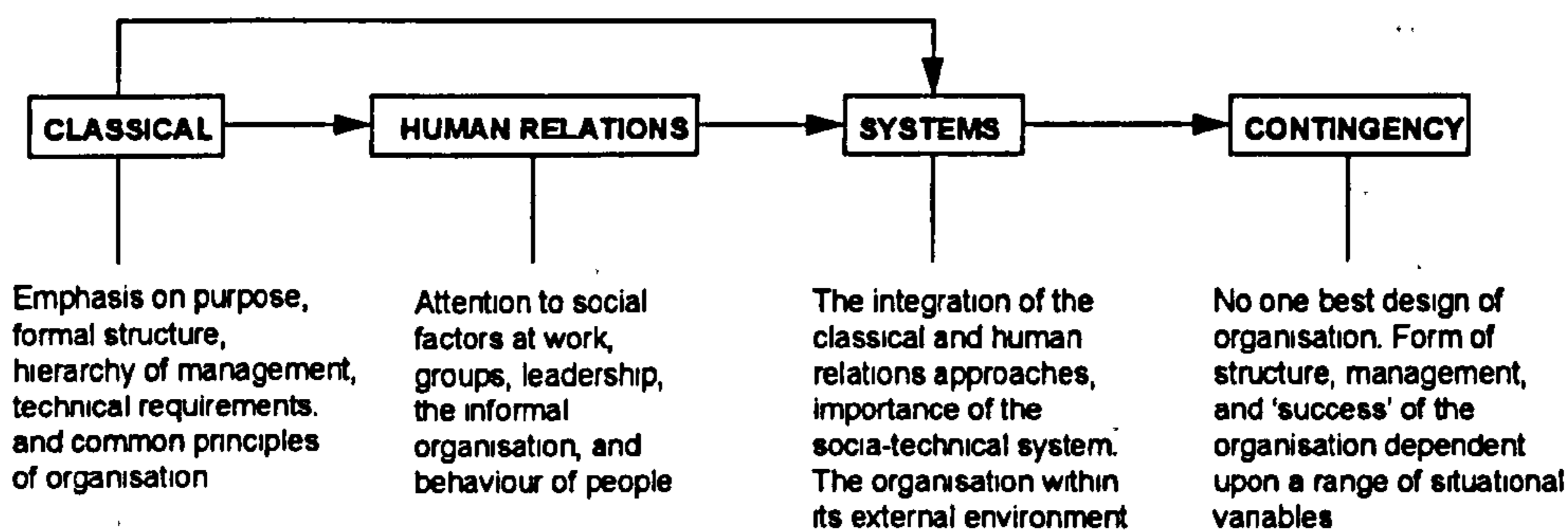
Capra cited recent neurophysical studies which suggests that the modification of sensory perception by past experiences occurs before interpretation but begins at the outset, the gates of perception. Physiological aspects of perception cannot therefore be separated from psychological aspects of interpretation.

As the individual casual maps converge through sustained interaction, a group of individuals can be said to have become 'organised'. Organisation is, according to Weick [1977:70-87], the outcome of a process of sense making through which ambiguity is progressively removed. Organisation begins with individuals first enacting with their environment which they subsequently seek to understand through reflection. As individuals act according to the local knowledge that they possess, organisations are open systems subject to chance events and actions, and as such are difficult to classify as finite entities.

3.93 Conclusions

Organisational theory can be charted as having progressed through three distinct phases of classical, neo classical or human relations and systems. Current theory adopts a contingency approach suggesting that there is no one best way to organise, but that design will be dependent upon the unique contextual circumstances of a given situation. (see figure 3.10 below)

Figure 3.10 Main approaches to organisational structure and management



Organisations are complex dynamic systems, operating in a state of dynamic balance with their environments. Organisations then are intrinsically open systems, context dependent, and self reflective, the proliferation of organisational variety can only be controlled according to Ashby [1956], if matched by a design which possesses the capability of utilising highly dispersed knowledge.

Organisational knowledge is not held by anyone in entirety, accordingly, organisations respond to unidentified stimuli through self organisation, in a spontaneous manner rather than through central command. Van der Erve [1994] concedes that:-

Managers are the custodians of corporate purpose. However as nodes in a social network, they are not necessary its sole owners. Driven by unpredictable events, they have to constantly adjust and improve corporate and organisational purpose.

[Van der Erve, 1994:37]

Sharing the view of Tsoukas [1994:16] that organisations are distributed knowledge systems, whose effective action is the result not so much of individuals acquiring more and more knowledge as of finding ways of utilising widely distributed knowledge, improvements in organisational effectiveness could be achieved by eliciting inherent, distributed organisational knowledge through reflective inquiry involving the active participation of stakeholders throughout an organisation.

Those responsible for the management of facilities together with the subjects of inquiry will, in effect, become co-researchers in the sense that they contribute directly to the research process.

This calls for new forms of co-operative inquiry, as advocated by Reason [1988], which adopts as a starting point the idea that all people have the ability to be self directing, to choose how they will act and to give meaning to their experiences. In addition to focusing on the experiences and explanations of the individuals themselves, it also involves them in deciding in the first place the questions and issues worth researching.

Chapter 4

Theories of Knowledge and Learning

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Chapter 4

Theories of Knowledge and Learning

4.1 Summary

This chapter considers the nature and philosophy of knowledge and contends that rather than objective truth, reality is cognitively and socially constructed by the individual and as such is determined by context. Knowledge, rather than being an abstract concept has local utility but is temporally dependent.

Consideration of tacit knowledge and knowledge-in-action suggests the need for means of tapping distributed knowledge within social systems as a means of facilitating organisational learning. Organisational learning is considered to be a necessary precondition for maintaining dynamic equilibrium by adaptation to evolutionary environmental changes.

The concept of learning organisations are considered, and it is proposed that dialogue forms the basis for shared meaning by which both single loop and double loop learning might occur. The role of learning in groups is considered, and the notion of dynamic evaluation as a means of facilitating organisational learning is posited.

4.2 The philosophy of Knowledge

Philosopher Sir Alfred Ayer in theorising on the nature of knowledge as a means of philosophical enquiry stated that:-

The quest for certainty has played a considerable part in the history of philosophy: it has been assumed that without a basis of certainty all our claims to knowledge must be suspect. Unless some things are certain, it is held that nothing can be even probable.

[Ayer, 1955:41]

He suggested that the word 'certain' is often used as a synonym for 'necessary' or for 'a priori' statements which are an ideal to which empirical statements logically strive.

However, Ayer asserts that:-

If empirical statements had the formal validity which makes the truths of logic unassailable they would not do the work of them; they would not be descriptive of anything that happens.

[Ayer, 1955:41]

Similarly, Sacks [1985] engages in a philosophical discourse on the nature of self knowledge arguing that:-

Man does not consist of memory alone. He has feeling, will, sensibility, moral being..

[Sacks, 1985:36]

Sacks goes on to assert that empirical science has been unable to solve human diseases involving spiritual and neuropsychological wellbeing. To this end he argues that:-

empiricism takes no account of the soul, no account of what constitutes personal being.

[Sacks, 1985:37]

Ayer [1955:79-81] argued that concern with the theory of knowledge follows four main lines of philosophical approach; Naive Realism, Reductionism, the Scientific Approach, and descriptive Analysis.

The naive Realist strengths he contended lies in his allegiance to common sense. What he knows, he knows. The general attitude he considered is that of intuitionism. Whereas the naive realist attempts to bring evidence up to the conclusion, the reductionist attempts to bring the conclusion down to the level of evidence.

In Scientific analysis it is accepted that there can be a gap between evidence and conclusion but such a gap can be bridged by a legitimate process of deductive reasoning.

Finally, in descriptive analysis no attempt is made to bridge the gap between theory and justification. As Ayer suggests:-

We simply take it in our stride....we can give account of the procedures we actually follow, but no justification of these procedures is necessary or possible.

[Ayer, 1955:80]

4.21 Philosophy of Science

The philosophy of knowledge is closely related to the philosophy of science in that knowledge is often held to be something that is certain. However new notions on the philosophy of science challenge the positivist conviction that empirical science is the only source of positive knowledge. Kahn's view of the traditional reductionist approach to the resolution of social problems infers a widely held belief in the need for new paradigms of research in the social sciences. This view is shared by Capra [1992] who suggested that the mechanistic world view of Cartesian-Newtonian science does not provide an appropriate framework for understanding the interdependence of global, psychological, social and environmental phenomena. Capra calls for:-

a new 'paradigm' - a new vision of reality; a fundamental change in our thoughts, perceptions and values.

[Capra, 1992:xviii]

The beginnings of this change Capra suggested is a shift from the mechanistic to the holistic vision of reality. In addition to challenging the Cartesian world view and the value system which lies at its basis, Capra argued that the profound influence of Newtonian thought on fields such as biology, medicine, psychology and economics present serious limitations on our ability to interpret and understand the new social realities.

Capra argued for a new vision which includes the emerging systems view of life, mind consciousness, and evolution; the corresponding holistic approach to health and healing; the integration of Western and Eastern approaches to psychology and psychotherapy; a new conceptual framework for economics and technology;

and an ecological and feminist perspective which is spiritual in its ultimate nature and will lead to profound changes in our social and political structures.

Whilst by his own admission, Capra, by covering such a broad range of ideas, phenomenon and fields tended to be somewhat superficial and simplistic even unoriginal. It is in the systems approach that interconnections and interdependencies between the numerous concepts and fields might be explored and as such the ways in which the various parts are integrated into the whole are more important than the parts themselves.

4.22 Defining Knowledge

Toffler [1990] argued that there are more definitions of knowledge than there are people who regard themselves as knowledgeable. As such he suggested a more simplistic framework for broadly defining knowledge. Toffler suggests *data* means more or less unconnected facts; *information* refers to data that have been categorised and classified into schemes or patterns; and *knowledge* means information that has been further refined into more general statements.

At the expense of a more rigorous definition he suggested that knowledge could be given an expanded meaning which would embrace, information, data, images and imagery in addition to attitudes, values and other symbolic products of society, whether true or false.

Such a notion of knowledge fits well with that adopted in this thesis, namely that there is no such thing as objective truth other than the reality which is cognitively and socially constructed by the individual. Such knowledge is often tacit and difficult to explain in any way other than in a holistic way.

4.23 Tacit Knowledge

I do not profess within this thesis to offer a treatise on the philosophy or nature of knowledge other than to substantiate the use of praxis in gaining access to tacit knowledge held by individuals. The intention is to gain access to peoples' experiential and intuitive knowledge of the use of facilities, such that greater understanding might be gained of the systemic nature of the processes which impinge upon user satisfaction and organizational effectiveness.

It has been argued above that reductionism or rationalism denies acceptance of sense experiences which cannot be reduced in a linear fashion. In line with the theories of Gestalt psychology, it is considered that perception takes place holistically. Every detail of an observed object is perceived in relation to its whole, and perception is affected both by the object of perception and by characteristics of the observer, including his ideas and experiences. [Granath, 1992:77]

Tacit knowledge has been described by Polanyi [1962], as knowledge which is *ineffable* or escapes articulation, in the sense that it cannot be broken down or verbalised. To some extent it can be described as intuition. Polanyi defined tacit knowledge in terms of incommunicability, such as the kenetic knowledge possessed by sportspeople. He argued for example that swimmers generally do not know how they keep themselves afloat by regulating their breathing and buoyancy. Such knowledge cannot be articulated to teach others.

As Feyerabend [1987] observes of knowledge:-

Living in a particular world, an individual needs knowledge. Knowledge can be stable and it can be in a state of flux. It may be available in the form of public shared beliefs by all, and it may reside in special individuals...Only a fraction of this 'tacit knowledge' can be articulated in speech.

[Feyerabend, 1987:106]

Polanyi [1926] argued that intuition and rationality are cognitive processes which concern the ways in which knowledge is both acquired and constructed by the individual. Intuition however is widely regarded as being something mystical, something which cannot be taught, and as such is regarded as something which is irrational.

Simon [1986] contended however that rationality and intuition are two complementary aspects of the cognitive process, in that intuition is nothing more than the collection of prior experience which can be drawn upon from an individual's *knowledge repertoire*.

Intuitive understanding then is a means of drawing upon the tacit or experiential knowledge that individuals possess but in such a way that it cannot be described or articulated in a rational way.

Polanyi [1962] suggested however that tacit knowledge need not be ineffable, but only *unconscious* or *implicit*. Tacit knowledge is made up of all the knowledge we possess in the form of rules, understanding of concepts and first hand experience, as such it is personal *knowledge*.

Whilst such personal knowledge can facilitate intuitive understanding and help us to grasp situations more fully or holistically, tacit knowledge can, according to Granath [1992:80], hinder us from the absorption of new ideas and acceptance of solutions which do not correspond to the set of rules learned by individuals. As such tacit knowledge can hinder opportunities for innovative thinking.

As tacit knowledge is experiential, it would appear that gaining access to it would provide greater insight to the subject under study. Making explicit the *implicit* however demands a willingness to explore sense experiences in an effort to make sense of that which we hold to be true, or at least that which we perceive to be reality in an intuitive way. Such an exploration can only be achieved through reflection on that which we hold to be true or constituting our individual realities. This thesis suggests that dialogue affords the opportunity to tap tacit knowledge through reflective enquiry which might then be made explicit through understanding or consensus on experiences which are shared.

Such a praxis demands however the use of groups in order to share experiences and develop common ground through dialogue. It must also be action oriented in that the goals of the process should be clarified from the outset in order to provide focus on the object of enquiry. In addition to generating insight into experiential knowledge on the researchers part, such a process also affords the opportunity for group participants to learn from the experience of others and possibly modify their own tacit knowledge or beliefs.

4.3 Fundamental perspectives for knowing

Belenky et al.'s *The Collaborative* [1986] provides a feminist perspective via an epistemological position which enables, they argued:-

..the development of autonomy and independence, abstract critical thought.. the unfolding of morality of rights and justice in both men and women... the development of interdependence, intimacy, nurturance, and contextual thought.

[Belenky, Clinchy, Goldberger and Tarule, 1986:6-7]

The Collaborative's' five stages on knowing like Holmes [1989] levels of cross-cultural awareness are interrelated stages of development. The stages include;

Silence as a form of mindless and voiceless knowing (or 'unknowing') which is subject to the whims of authority.

Received Knowledge is defined as the Knower able to receive and reproduce knowledge, but not able to create it. The source of knowledge in this case is entirely outside the Knower, and as such is a passive form of knowing in which learners are dependant on authority.

Subjective Knowledge is defined as personal knowing, where truth and knowledge are intuitive, private and subjectively known. The source of knowledge is entirely within the Knower.

Procedural knowledge is defined as being vested in learning and applying objectives procedures for obtaining and communicating knowledge. The source of knowledge is both within and outside the Knower. In this case whilst the procedures for discovering knowledge lie outwith the Knower, they are vested in external authority or through the methods preordained by authority.

Constructed knowledge is defined as fundamentally contextual, and created by the Knower. In this case all truth is relative, in other words, the meaning of an event depends on context and on the framework the Knower employs.

4.4 The Notion of Objective Truth

Feyerabend [1987] distinguished between the "material notion of objectivity" as the ancient idea of tradition-independent *truths* and the "formal notion of objectivity" as a less ancient idea of tradition-independent *ways of finding truths*. The latter he contended was developed in response to the problems of cultural diversity and variety. He maintained however that both attempts at being rationale, using and

accepting the results make sense in some worlds but not in others. Feyerabend [1987:8] argued that the demand for unending criticisms followed by increasingly comprehensive explanations breaks down in a universe that is finite. He went on to say that theories of refutation "are surrounded by an 'ocean of anomalies' as is the case in most social matters". concluding that

..cultural variety cannot therefore be tamed by a formal notion of objective truth because it contains a variety of such notions.

[Feyerabend, 1987:10]

4.41 The reflective practitioner

That research and practitioner institutions have operated independently, in the past perhaps capitalising on the basic and applied sciences which were and are the foundation of much professional knowledge, the changing context of work and value systems have however challenged the merits of maintaining such a division, and indeed perhaps places more emphasis on the utility to be derived from research activities seeking fixes appropriate to short term goals. The consequence of such action however must ultimately be to the detriment of the community at large devoid of the opportunity to generate understanding of basic social science problems which elude resolution.

Schon [1983] in considering the crisis in technical competence by practitioners which in part have contributed to the failure to meet societies expectations, suggested that

on the whole professional knowledge is mismatched by the changing character of the situations of practice - the complexity, uncertainty, instability, uniqueness, and value conflicts which are increasingly perceived as central to the world of professional practice. Such complexities resist the skills and techniques of traditional expertise. ..Even if professional knowledge were to catch up with the new demands of practice, the improvement in professional practice would be transitory.

[schon, 1983]

It is arguable that all research data ultimately possesses a shelf life, its value exists in contribution in a particular time frame, until such time as it is superseded by new understanding of the interrelationships of variables. Taking such a fatalistic

or negative view of the nature and generation of knowledge would fail however to recognise the significance of findings at a particular time frame for local utility. In addition it fails to recognise the value of tacit knowledge which may be acquired by both subjects under inquiry and researchers in the course of inquiry. The generation of basic knowledge must continue therefore to be a priority for the academic research community and practitioners, not however at the expense of utility to be gained by addressing concerns which are of immediate significance to individuals, organisations and society.

4.42 The origins of technical rationality

Schon [1983] questioned the rationale of retaining the dominant model of professional knowledge embedded in learned institutions namely the positivist epistemology of practice. He suggested that technical rationality is the heritage of positivism, and of the inevitable result of the rise of science and technology since the reformation. The powerful philosophical doctrine can be traced back to Bacon and the advancement of learning in 1605, however gained prominence in the nineteenth century as the scientific world-view gained dominance, as did the idea that human progress would be achieved by harnessing science to create technology for the achievement of human ends.

The principle doctrines of positivism put forward by French Philosopher, Auguste Comte expressed the conviction that empirical science was not just a form of knowledge but the only source of positive knowledge in the world. Further that positivist epistemology was intended to purge society of the residues of religion, mysticism and metaphysics, forms of pseudo-knowledge which prevented technical rationality over the affairs of man. Accordingly the only significant statements about the world, or truths, were those based upon empirical observation, which could be rigorously criticised and rationally analysed. Those propositions which could be neither empirically nor analytically tested were held to be emotive of no substance and dismissed.

Despite Comtes' belief that reality is external and objective and that knowledge is only of significance if based on observations of this external reality, he did not

agree with the principal of reductionism, believing that where we have to deal with social phenomena, the whole is better known than the parts, and therefore social theory must start from our knowledge of the directly apprehended wholes. His use of the term social physics to describe the science of the collective organism, would appear to have been substituted by his contemporary, astronomer and statistician, A. Quetelet (c.1830) [see J. Lottin; *Quetelet: Statisticien et Sociologue*, Louvain and Paris, 1912], for the new word sociology.

Whilst the debate between the phenomenologists and the positivists prevails it is clear that positivism is in its' purest form an extreme form of empiricism, by incremental improvements in knowledge which refine the extent of what is known, restrict the potential of phenomenological epistemology. Some of the greatest advances in science and medicine such as the theory of relativity (or indeed by serendipity such as the discovery of penicillin) are achieved through creative thinking which extends beyond the boundaries of existing ideas,

4.43 Positivism and organisational ecology

Positivist epistemology is a term generally used to describe those who advocate an alternative view of knowledge. In its strongest form, positivism, denies objectivity by assuming not only that there is an external world but that the external world itself determines the one and only correct view that can be taken of it, independent of the process or circumstances of viewing. [Kirk and Miller, 1986:14]. To describe the world appropriately however demands as Capra [1983:xix] argued, an ecological perspective that the mechanistic world view of Cartesian-Newtonian science does not offer. Whilst not advocating positivism as a stance, reliance on a set of unexamined positivist assumptions is often necessary to make sense of findings by serving to organise our view of the world.

Becker [1990:22-23] suggested that organisational ecology is a means of thinking of organisations as open systems, the connections between planning environments and organisational effectiveness as a means of understanding organisational effectiveness. Describing organisational ecology as the study of how planning design and management of physical settings affects and is affected by organisational patterns and practices, Becker refers to culture, values, decision

and organisational structure, understanding the web of interrelationships and interdependencies of same can often only be achieved by making assumptions about the world in which we live in order that we can develop theory which may not be substantiated by empirical reality. Becker [1981:125] suggested that Ecological Psychology, based upon the work of Roger Barker [1968] offers an alternative to stimulus-response model of human behaviour. Whilst ecological psychology tends towards determinism in that behaviours can be influenced by physical environments, organisational ecology he suggested involves a more detailed consideration of the behavioural setting in space and time. In other words involves not only the physical setting but the interactions within a place. Becker [1990:126] suggested a shift in viewpoint from the setting influencing the individual or organisation, to the individual or organisations ability to adapt that setting. Whilst Beckers' [1990:228] notion of organisational ecology is still somewhat deterministic, it is concerned not only with how the physical setting affects organisational patterns and practices, but also with how the physical environment is affected by organisations. As such he infers that the physical setting should be capable of adaptation to the evolving needs of organisations rather than constrain or predetermine the range of possible activities.

The fact that areas such as organisational culture appear intractable to measure should not limit attempts to understand its influence on individuals organisations the society of which they are part.

4.44 Knowing-in-Action

Schon [1983] refers to the dilemma faced in professional practice as that between "rigour" and "relevance". This presents an ongoing challenge for those concerned with research within organisation. An alternative description might be the choices between validity and utility.

In the varied topography of professional practice, there is the high ground where practitioners can make effective use of research theory and technique, and there is the swampy lowland where situations are confusing "messes" incapable of technical solution. The difficulty is that the problems on the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of greatest human concern.

[Schon, 1983]

Schon's dry ground allows researchers to function according to the canons of technical rationality applying research based theory, but does so on a narrow range of well formed problems of limited scope. The descent to the swampy terrain, of complexity, changing issues, groups and individuals, places challenges on the researcher's ability to establish methodological rigour by the accepted notions of science but affords the opportunity to experience messy but crucially important problems. Whilst the practitioner (researcher) may be hampered by his ability to describe the complexity of a problem, Schon suggests that if knowing-in-action [from Polanyi, 1978 - Tacit Knowledge] is the characteristic mode of ordinary practice, then reflection-in-action is "learning by doing". He suggested that we may not know when something is right, or able to describe something, but intuitively know when something does not fit with ones experiences of a specialised practice. Schon concluded that the dilemma of rigour or relevance may be dissolved if we can develop an epistemology of practice which places technical problem solving within a broader context of reflective inquiry which establishes links to scientific inquiry and thus increases its legitimacy.

4.441 Reflection In action

Schon [1983] contended that "Reflection-in-action does not depend on a description of intuitive knowing that is complete or faithful to internal representation. He suggested that incompleteness of description is no impediment to reflection. The consequence of anything like a full understanding would produce an excess of information, which may limit the inquirer's ability to criticise, test and restructure understanding. Description need only be appropriate to restructure one's understanding by reframing the problem. Ambiguity and a variety of interpretations are ineradicable in social systems, and as such requires the adoption of a research methodology which allows for such ambiguity in the measurement or reflection process. This however presents difficulties in the social sciences. Measurement is the *sine qua non* of any science. The validity of any theoretical statement is evaluated by measurement of all variables contained therein. Whilst the use of heuristics (rules of thumb) may help guide a research

programme, for theories to stand on empirical observation, such observations require to be reliable and valid.

4.5 Organisational learning

All organisations have to make provision for continuing activities directed towards the achievement of given aims. [Pugh, 1989:4] Traditional thinking in organisational theory suggests a mechanistic view of organisation and management which emphasises objectivity detachment and control through *social engineering*. Management can in this sense be seen as a regulatory process of making decisions about the structure, function and performance of organisations and of the behaviour of groups within them in response to changes in the environment, in pursuit of prescribed goals.

However, as Schon [1983] argued organisations are repositories of cumulatively built up knowledge: principles and maxims or practice, images of mission and identity, facts about the task environment, techniques of operation, and stories of past experience which serve as exemplars for future action. As such knowledge is distributed throughout an organisation and held often tacitly by individuals.

Tapping and making explicit such knowledge in order that it might be shared more widely, may provide opportunities for organisational learning to occur.

Tsoukas [1994:8] concurred with Schons view, describing organisations as self organised systems of distributed knowledge.

He argues that an alternative way of looking at organisations, as distinct from the social engineering theory, is a *reflective action* perspective, which highlights the intrinsic openness of organisations in which it is impossible to obtain stable regularities over space and time.

Bateson's [1972] (*Steps to an Ecology of Mind:collected essays in anthropology, psychiatry, evolution, and epistemology*) work on the cybernetic aspects of learning influenced Argyris and Schön [1978] to explain organisational learning by the concepts of double and single loop learning. They suggested that (like cybernetics) organisational learning involves the detection and correction of error. Single loop learning occurs when deviations from pre-set goals have been detected and corrective action is introduced. Double loop learning by contrast ensures that errors are corrected by adjusting an organisation's underlying norms,

policies and objectives which is likely to have a much more profound impact on the functioning of the organisation.

Van der Erve [1994:7], referred to the publications of Moss-Kanter, Peters and Waterman and the like, as an invaluable reservoir of ideas for double loop learning by providing case histories of the revolutionary approaches organisations had taken in questioning their fundamental norms, policies and objectives. Van Der Erve described the aforementioned studies and the subsequent models developed as tending to highlight conditions of corporate success, focusing on conditions rather than the dynamics of corporate evolution. The subsequent 'failure' of many of the case organisations he argues is that perpetuating corporate success is an evolutionary rather than revolutionary process.

4.51 Learning-in-Working

Concepts of knowledge or information transfer have according to Brown and Duguid [1994:175], come under increasing attack over recent years from a variety of sources [Reddy, 1979] and in particular from learning theorists [Lave, 1988] who have rejected transfer models which isolate knowledge from practice, and developed a view of learning as social construction, putting knowledge back into the contexts in which it has meaning.

Brown and Duguid [1994:165-185] argued that placing knowledge back into the context in which it has meaning, provides a means of learning through a construction of understanding from the wide range of variables and social relations of the people involved. What is learned is profoundly connected to the conditions in which it is learned.

They contended that working, learning and innovating are closely related forms of human activity that are conventionally thought to conflict with each other, and called for a conceptual shift to consider such activities as complementary as oppose to conflicting.

The source of conflict they considered to be primarily the gulf between precepts and practice. As they argue that the high value society attaches to abstract knowledge is to the detriment if not exclusion of actual practice. Such abstractions detached from practice distort or obscure the intricacies of and the role they play in

practice, which in turn cannot be well understood. They argue that much conventional learning theory tends to endorse the valuation of abstract knowledge over actual practice and as a result to separate learning from working, and more significantly, they argued, separates learners from workers. Building on Lave and Wenger's [1990] practice based theory of situational learning as Legitimate Peripheral Participation (LPP), they argued that the composite concept of 'learning-in-working' best represents the fluid evolution of learning through practice.

Workplace learning according to Brown and Duguid [1994] argued is best understood in terms of communities being formed or joined and personal identities being changed. [or as Orr's [1990] ethnographic research suggested through narration, collaboration and social construction.] They maintained:-

The central issue in learning is *becoming* a practitioner not learning *about* practice. This approach draws attention away from abstract knowledge and cranial processes and situates it in the practices and communities in which knowledge takes on significance.

[Brown and Duguid, 1994:176]

4.52 The existence of canonical and non-canonical Practices

Orr's [1990] ethnographic studies on the variances between organisational training programmes and actual work practices performed by members provided insight to the ways in which an organisation's members learned concurrent with or perhaps despite the intentions and educational programmes and methods of the organisation. Through the overlapping categories of 'narration', 'collaboration' and social 'construction', he demonstrates the actual practice of learning which are not included in the organisation's abstracted and canonical accounts of work. (The term canonical comes from the Greek *kanón* for rule, canonica as system of rules) In so doing Orr highlighted the role that non-canonical practices undertaken by members constituted opportunities for innovation which were not observed by the organisation's system of rules.

Narration, through the practice of creating and exchanging of stories, reflects the complex social web within which the work takes place and the relationship of the narrative, narrator, and audience to the specific events of practice. The flexibility

and generality of stories makes them adaptable providing an unrestrained means to interpret new situations in the light of accumulated wisdom. In addition stories act as repositories of accumulated wisdom providing a means of preserving practice knowledge despite the introduction of canonical practices which as Jordan [1989] showed can be circumvented.

Jordan [1989:925-944] for example studied the dichotomy between the prescribed rules for the sterilisation of instruments set down by city officials, and the actual practices of midwives operating in rural communities, which often lacked adequate means for sterilisation. She found that the noncanonical practices of midwives circumvented the possibility of surgical operations being carried out with unsterile instruments.

Collaboration is based on shared narratives in which work is communal, i.e. through a collective not individual process of working and learning. [Brown and Duguid 1994:173] argued that, not only in this case is learning inseparable from working but also individual learning is inseparable from collective learning. The insight is accumulated through the narrative of the trading of stories and as such is not private substance but is socially constructed and distributed.

4.53 Collaboration Beyond Communication

Moving beyond non-canonical means of collaboration, Schrage [1990:31-39] highlighted the quality of interaction provided by collaboration suggesting a move from communication oriented environments to collaborative environments. He suggested that rather than more communication, in which people discuss what they want to do and then go off and do it, in a collaborative environment people spend as much time understanding what they are doing as actually doing it. The thing that distinguishes collaborative communities from most other communities he observed is a desire to construct new meanings about the world through interactions with others. Schrage states;-

Real value in the sciences, the arts, commerce..comes largely from the process of collaboration. What's more, the quality and quantity of meaningful collaboration often depends upon the tools we use to create it... The issue isn't communication or teamwork it is the creation of value. Collaboration describes a process of value creation that our traditional structures of communication and team work cannot achieve.

[Schrage, 1990:31-39]

Social Construction is interfused with narration and collaboration, allowing individuals to develop a shared understanding from conflicting data resulting in a shared view of the world. Involvement in narration contributes to the construction and development of individual identity and reciprocally to the construction and development of the community or as [Brown and Duguid 1994:174] described, 'community of interpretation'. as it is through the continual development of these communities that the shared means for interpreting complex activity get formed, and transmitted.

4.54 Fostering Working, Learning and Innovation

To foster working , learning, and innovating, an organisation must close the gap between espoused and actual practice as [Brown and Duguid 1994] considered that such a gap may become too large for noncanonical practices to bridge. Closing such a gap requires moving beyond the canonical abstractions of practice to understanding the activities themselves which means the creation of alliances between the communities or sub-cultures in an organisation, and an understanding of the interdependencies, needs and practices of each. The establishment of effective dialogue provides the catalyst for improving understanding of the systemic nature of organisations and practices through an understanding of work practices which goes beyond improved organisational communications by providing the opportunity to collaborate and develop shared understanding.

Feldman and March, [1981:171-186] argued however that information exchange in an organisational system is more complex than simply the development of an appropriate technology or medium available to support it.

Eckert [1989] for instance contended that information travels differently within different socio-economic groups, working class groups are more likely to exchange information than managers who may treat information as a commodity. Similarly Orr [1990] found that people within the same work grouping shared information with one another freely.

Brown and Duguid, [1994:184] argued that within communities of practice, news travels fast. They concluded that understanding the ways in which information is constructed and distributed within an organisation demands an understanding of the communities that are formed within it and the distribution of power between them. It is through reflective dialogue between the various communities or sub-cultures within an organisation, that such systems might be better understood. Accordingly providing a participative forum for dialogue opens up the possibilities for improved understanding of work practices and needs.

4.55 Towards Learning Organisations

Organisational learning has been defined by Duncan and Weiss [1979:75-125] as "the process by which knowledge about action-outcome relationships between the organisation and the environment is developed."

Mumford [1993:271], suggested however that many authors who refer to the title organizational learning do so towards a variety of activities which, several years ago, would have been referred to as action learning, organizational development or quality circles. Describing the assignation of such theories to organizational learning he describes as "old wine in new bottles".

Morgan [1986] in his book *Images of Organisation* suggested metaphors for understanding the nature of organisational and behavioural life. He suggested, amongst other metaphors, the concept of construing organisations as a brain. Morgan [1986:77-109] argued that as organisations require to be not only flexible and resilient but also inventive and rational, seeing the organisation as a brain is in effect thinking about the system as not only being capable of change but also of rationale or intelligent change, about improving capacities for organizational intelligence. He suggested that:-

Innovative organisations must be designed as learning systems that place primary emphasis on being open to inquiry and self criticism...The challenge to design organisations that can innovate is thus really a challenge to design organisations that can self organise.

[Morgan, 1986:185]

Senge [1992] In his book *The fifth Discipline; The Art and Practice of the Learning Organisation* provides a framework for the construction of "learning organisations". He describes them as:-

Organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to learn together.

[Senge, 1992:3]

An alternative definition of the learning organisation is put forward by Mumford [1993] as:-

creating an environment where the behaviours and practices involved in continuous development are encouraged.

[Mumford, 1993:271]

Accordingly Mumford infers that it is through empowerment and development of human capital such that organizational objectives might be realised.

Ginzberg and Vojta [1981:27] described human capital as the "skill, dexterity and knowledge" of the population and suggested that "it (human capital) has become the critical input that determines the rate of growth of the economy and the well-being of the population.

Their definition builds upon Adam Smith's understanding that the wealth of the nation depends upon the skill, dexterity and knowledge of its people. They contended however that, unlike Smith's view that goods alone constitute wealth, services should not be viewed as non-productive or ephemeral but as a measure of wealth.

They contended that the competence of management and the skills of the work force, particularly those engaged in producer services, determine the ability of an enterprise to obtain and utilise effectively the other essential resources such as physical capital, materials and technology. In arguing for a revitalisation of the US economy they concluded that:-

As people represent the principal input of an advanced economy, and since their contributions will vary according to their endowment, their developmental opportunities and their motivation, the nation should pursue policies aimed at strengthening its human resources.

[Ginzberg and Vojta, 1981:34]

Pedler, Boydell and Burgoyne [1989] in referring to learning companies, suggest an alternative definition of the learning organisation, describing it as:-

an organisation which facilitates the learning of all its members and continuously transforms itself.

[Pedler, Boydell and Burgoyne, 1989:Vol.20:1]

Mumford [1993:270] referred to the publications of both Senge [1990] and Pedlar et al., [1989] and maintained that both take such a broad view of the circumstances in which an organization does or needs to learn, that the idea of learning becomes lost in a total vision of what a good organization might look like. Mumford continues;-

The growing attractiveness of the concept of the learning organization is currently making it one of the front runners for the management development mode of the 1990's

[Mumford, 1993:271]

Despite this Beck [1989], reviewed current experience in the United States, and suggested that it seems difficult to establish that such organisations are doing little more than effectively combining good formal processes of management development with some kind of encouragement of on-the-job development.

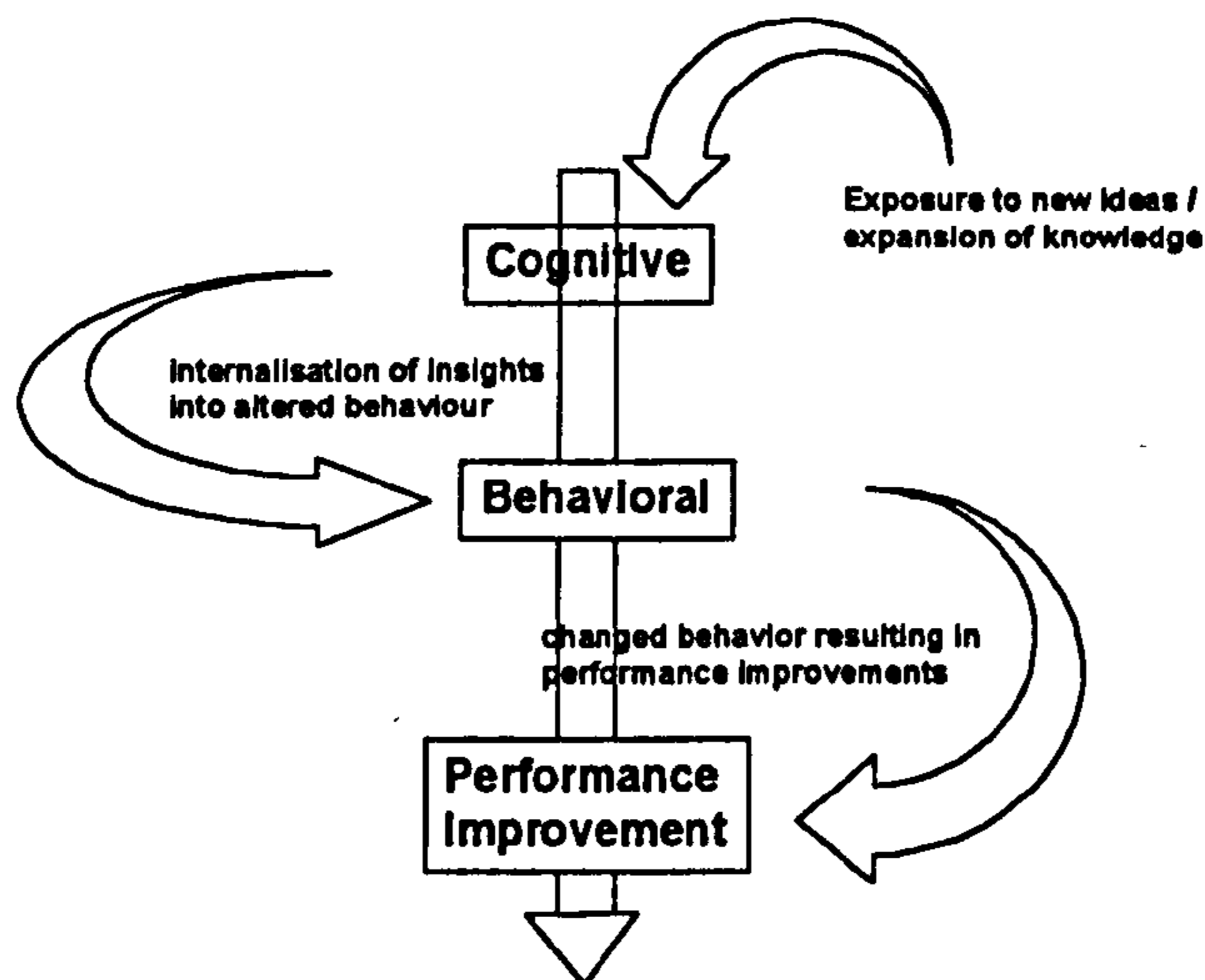
Mumford [1993:249] suggested that the learning organization is an attractive phrase but one which there is little evidence to support its substantial practice to support its potential. Entitlement to be called a learning organization Mumford [1983:136] suggested, requires a strong push to change the culture rather than simply pursuing learning processes with greater levels of intensity.

However as Handy [1985] has argued some organizational cultures are better suited to management development processes than others, dependent upon their power or role cultures.

Garvin [1993:90] maintained that organizational learning can usually be traced through three overlapping stages. (see figure 4.1) The first step he suggests is cognitive, when members of the organisation are exposed to new ideas and subsequently expand their knowledge and begin to think differently. The second stage is behavioural in that new insights gained are internalised and behaviour

altered accordingly. The third stage is performance improvement, whereby changes in behaviour lead to measurable improvements.

Figure 4.1 Stages of Organisational Learning



Based on Garvin D., 'Building a Learning Organisation'; *Harvard Business Review* July/August 1993 pp:78-91

Learning organisations are not according to Garvin [1993:91] built overnight but evolve over time as the product of cultivated attitudes, commitments and management processes. The first step he suggested however, is to foster an environment that is conducive to learning, in which there is time for reflection and analysis, to consider strategic plans, dissect customer needs and assess current work systems.

Another powerful lever Garvin suggested is to open up the boundaries which inhibit the flow of information and that keep individuals and groups isolated, thus reinforcing preconceptions. Opening up the boundaries he suggested with conferences, meetings and project teams, which cross organizational levels and link the company with its customers and suppliers, ensures a fresh flow of ideas and the chance to reconsider competing perspectives.

4.56 Cybernetic approach to organisational learning

The word 'cybernetics' comes from the Greek *kybernan* ('to govern'), and is usually now regarded as the study of control and self regulation in machines and living organisms. Becker's [1981:22] interpretation of cybernetics is to that of a "helmsman" and reflects the constant adjustments of course that characterise the way in which a sensitive helmsman controls a ship in response to changes in the wind or seas, often requiring tacking to change direction in response to changes in environmental factors but with the ultimate aim of arriving at a known destination point. In essence the wind is unpredictable and changing all of the time, as are the forces which influence behaviour in an organisations. Adopting a cybernetic model operates on the assumption that at best one can only achieve an approximation of what one aims at based on an initial course of action. The value of such an approach Becker suggests is that it removes the stigma of not achieving a goal in an anticipated manner. In the same manner as organisations adopt a cybernetic approach to organisational learning by re-adjusting their underlying beliefs and norms and changing direction or goals, the same might be adopted as a research paradigm which seeks to adjust the goals and outcomes to the changing and perhaps more explicit needs of the organisation.

The creation of learning organisations by Van Der Erve's[1994:124] interpretation, requires a thorough understanding of corporate evolution and the means to detect its phases. The basis for this is the concept of social elasticity which refers to the dynamics of a great number of social phenomenon which are consistently changing in sync with the pattern of natural growth. Detection of the phases which lead to an improved learning capability goes beyond the technical principles that help people establish output correcting feedback. In so doing this requires moving beyond single loop learning (learning by trial and error) in which corrective action towards present goals is taken, towards double loop learning in which the basic principles underlying the goals are questioned. In other words deuto learning as Bateson [1979] described it, involves modifyng the context in which knowledge is applied. Moreover he suggests that social elasticity leads to contextual type of learning (deutero second order learning) [Bateson, 1979]

Senge [1990:13] describes what happens in learning organisations as a form of *Metanoia* - a shift of mind. (from the Greek "*meta*" - above or beyond and "*noia*" from the root "*nous*" of mind) in which there is a fundamental shift or change or more literally transcendence of mind. He contends that to grasp the meaning of "*metanoia*" is to grasp the deeper meaning of learning as learning also involves a fundamental shift or movement of mind, as distinct from the everyday contemporary use to which learning has been taken, and in which it has lost its central meaning, which is to be - synonymous with "taking in information".

4.57 Learning to Adapt to Environmental Changes

Changes in environment are predominantly evolutionary rather than revolutionary. Despite the fact that dramatic events are likely to have a significant impact on an organisation's capacity to adapt, it is the ability to respond to gradual variations in our environment over time that will ultimately ensure the organisations capacity for survival and growth (as distinct from unplanned decline).

Similarly managers in organisations and providers of environments need to appreciate the changing values of society of which the organisation's constituents are a part, and modify their understanding of individuals needs from both the organisational and physical environment in light of changing value systems needs and technologies.

The ability to adapt to a changing environments is a characteristic of living systems and social systems. Different forms of adaptation take place successively during prolonged environmental changes [Capra, 1982:294-296]. The change processes are equally applicable for organisational systems and are indeed characteristic of the stresses and resource allocation decisions inherent in most organisations.

Capra [1982:294] described the first level of adaptive change as being associated with the phenomenon of stress whereby one or more variables are pushed to their limits or extreme values. The system as a whole becomes rigid with respect to these variables and unable to cope with further stress. As the system variables are all interconnected this rigidity spreads to other variables in the system rendering it inflexible. Such changes are reversible following removal of the stress.

Persistent environmental change, Capra [1982:295] argues, causes a further process of adaptation whereby physiological changes take place among the more stable components of the system allowing the absorption of environmental impact and restoration of stability. This form of adaptation is known as Somatic change (from the Greek Soma meaning body). Such somatic change internalises stress and maintains a degree of flexibility. Whilst such an adaptation retains the flexibility for reversal, it does so at the expense of freedom of control over other functions.

The third kind of adaptation available to living organisations (and I include in this self organising social systems) is the adaptation of the species (or system) in the process of evolution. Capra [1982:296] argued that such changes are brought about by mutation or as genotypic changes which are changes in the genetic makeup. Through genotypic change adaptation to the environment occurs by shifting the range of variables which result in the most economical changes, Such change provides more flexibility than somatic change as the new genetic information is coded in every cell and accordingly requires no modifying influence from other parts of the system. Genotypic change however is not irreversible in the lifetime of living systems.

Capra [1982:296] argued that, despite the fact that biological and genetic evolution of the human species has failed to progress noticeably over the last fifty thousand years, evolution is continuing socially as well as culturally.

On the evolutionary nature of society he asserted:-

The evolution of society.. is closely linked to changes in the value system that underlies all its manifestations. The value a society lives by will determine its world view and religious institutions, its scientific enterprise and technology, and its political and economic arrangements. Once the collective set of values has been expressed and codified, it will constitute the framework of the societies perceptions, insights and social choices for innovation and social adaptation. As the cultural value system changes - often in response to environmental challenges - new patterns of cultural evolution will emerge.

[Capra, 1982:176]

The study of values according to Capra [1982:197] is thus of paramount importance in the social sciences and he contended that there can be no such thing as a value free social science.

4.571 The Dynamics of Evolution

The ability of systems to adapt to environmental changes through stress adaptation, somatic or genotypic change has been extensively studied since Darwin's *Origin of species* [1859] synthesised the ideas of previous thinkers such as Lamarck particularly in respect of living systems, by introducing the concepts of chance variation or random mutation and natural selection. Van Der Erve [1994] extended the theory to present the concept of evolution management for organisations in his doctoral dissertation on the evolution and behaviour of intentional social structures such as companies. [Van Der Erve 1994:24] Advances in scientific theory and discovery that challenge the Cartesian Newtonian view of the world, similarly challenge the Darwinian theory of evolution. Whereas in classical mechanics, the properties and behaviours of the parts determine those of the whole, the situation is reversed in quantum mechanics in which it is the whole that determines the nature of the parts. As Capra observes:-

Modern physics pictures matter not at all passive and inert but as being in a continuous dancing motion whose rhythmic patterns are determined by the molecular, atomic and nuclear configurations. We have come to realise therefore that there are no static structures in nature. There is stability but this stability is one of dynamic balance.

[Capra 1982:79]

The basic dynamics of evolution, according to the new systems view, begins with the system in homeostasis - a state of dynamic balance characterised by multiple independent fluctuations. This differs from classical Darwinian theory in which evolution is seen to move towards an equilibrium state, in which systems adapt themselves or seek to improve the fit between themselves and their environment. The dynamic balance mechanism of living systems is a natural phenomenon in which systems move from equilibrium to equilibrium. The state of equilibrium however is self destructing

The systems view suggests that far from equilibrium, evolution develops through a continuous process of adaptation and creation in which the system takes into account that the environment is itself a system capable of adaptation and evolution. Mutual adaptation and coevolution were neglected in the classical view which has tended to concentrate on linear, sequential processes and ignore

transactional phenomena that are mutually conditioning and occurring simultaneously.

4.572 Adaptive and generative learning

Van Der Evre [1992:14] placed into context the cultural dimension of evolution by differentiation through the process of creating variations describing all evolution, biological as well as cultural as a continuous process. Moreover he suggested that the unlike biological evolution based on random mutation rather than by inheritance, cultural evolution is brought about through transmission of habits and information not merely from the individuals parents, but from an indefinite number of *ancestors*. The transmission of learning he concluded makes cultural evolution incomparably faster than biological evolution.

However as Capra [1992] noted of genetic mutation and subsequent studies of reproduction and heredity:-

[these] aspects represent only one side of the phenomenon of evolution. The other side is the creative development of new structures and functions without any environmental pressure, which is a manifestation of the potential for self-transcendence that is inherent in all living organisms.

[Capra, 1992:296]

In describing learning organisations as "an organisation that is continually enhancing its capacity to create its future." Senge [1992:14] suggested that whilst "survival" or "adaptive learning" is important, for a learning organisation "adaptive learning" must be joined by "generative learning" which enhances our capacity to create.

Senge argues that the most powerful learning comes from direct experience he suggests however;-

We each have a "learning horizon," a breadth of vision in time and space within which we assess our effectiveness. When our actions have consequences beyond our learning horizon, it becomes impossible to learn from direct experience.

[Senge, 1992:23]

He argued that the learning dilemma confronting organisations is that whilst we learn best from experience we never directly experience the consequences of many of our important decisions, which at the organisational level have system wide consequences which extend far into the future. Similarly facility related decisions pertaining to the design of buildings, extends beyond our learning horizon in that they are invariably made on our understanding of the present and an estimation of future needs.

4.6 Team Learning

Senge describes team learning as;-

..the process of aligning and developing the capacity of a team to create the results they truly desire.

[Senge, 1992:236]

Alignment occurs when a commonality of direction emerges when a group of people function as a whole. Senge described alignment of teams as {1992:234} as "like the coherent light of a laser rather than the incoherent and scattered light of a light bulb". Teams essentially "need one another to act", In addition however they require to maintain a shared goal or vision, the lack of which would result in merely the existence of a functional group. Increasingly important organisational decisions are being made in teams either directly or through the need for teams to translate individual decisions into action.

De Geus, [1988:70-74] argued that Institutional learning is much more difficult than individual learning. He argued that the learning level of the team is usually the lowest common denominator, a level he considered to be below the individual managers capacities.

Individual learning, Senge [1992:236] argued is at some level irrelevant to organisational learning. He maintained however that if teams learn, they become a microcosm for learning throughout the organisation, in which insights gained can be put into action, and skills developed can propagate to other individuals and to other teams. As such he argues the teams accomplishments can set the tone and establish a standard for learning together for the larger organisation.

Evaluation research may be seen then to be a form of team learning in that the dialogue and discussion generated through the praxis form the basis not only for

increased understanding of other parts of the organisation and the way in which the environment supports individual and organisational needs, but provides an opportunity to implement action from the insights generated.

Within organisation's team learning has, according to Senge [1992:236-237], three critical dimensions; the need to think insightfully about complex issues, in which teams must learn how to tap the potential for many minds to be more intelligent than one mind; the need for innovative, co-ordinated action, in which each team member remains conscious of other team members and can be counted on to act in ways that complement each others' actions; and the role of team members on other teams, in which a learning team fosters other learning teams through inculcating the practices and skills of team learning more broadly.

4.61 Dialogue and Team Learning

Team learning however demands mastering the processes of dialogue and discussion. Dialogue by Senge's [1992:10] definition is "the capacity of members to suspend assumptions and enter into a genuine thinking together," From the Greek *diálogos* meaning a conversation or discourse, dialogue according to Bohm,[1965] means "passing or moving through.. a free flow of meaning between people", allowing the group to discover insights which would not have been attainable individually. Perhaps the term Dialectic, in the sense that its substantive meaning is an investigation of truth by discussion, might be more appropriate than dialogue.

Senge believed commitment to the truth is more powerful than any technique for problem resolution. He asserted:-

Commitment to the truth does not mean seeking the "Truth", the absolute final word or ultimate cause. Rather it means a relentless willingness to root out the ways we limit or deceive ourselves from seeing what is, and to continually change our theories of why things are the way they are. It means continually broadening our awareness.

[Senge, 1992:159]

Regardless of the use of dialogue or dialectic, it should be distinguished from the word discussion which is to examine by argument, which in turn suggests a desire

make clear or prove which may be to win at the expense of the other party or parties.

Senge [1992:237] argued that the processes by which people converse of dialogue and discussion have both to be mastered in team learning. In dialogue, there is the free and creative exploration of issues and "deep listening" to one another and a suspension of personal views. In discussion by contrast, different views are presented and defended in order to search for the best view to support decisions. Whilst potentially complementary Senge considered that most teams lack the ability to distinguish between the two and to move consciously between them.

The process of interaction in which there is potential for conflict creates forces, however, which oppose productive dialogue. Argyris [1982] has referred to these as "defensive routines" which are habitual ways of interacting which protect us and others from threat or embarrassment. Such defensive routines, Senge argued, restrict the opportunity for learning however as they deny a commitment to truth. Defensive routines attempt to ignore the existence of problems, they are in addition according to Argyris [1985] "self sealing" in that "they obscure their own existence". This comes from "society-wide norms that say that we *should* be open and that defensiveness is bad, which makes it difficult to acknowledge defensive routines, even if we know they are being defensive."

4.62 Dialogue and Common Meaning

Much of Senge's thinking is based on the work of Quantum theorist David Bohm [1965, 1983] who has been developing a theory and method of "dialogue when a group becomes open to the flow of a larger intelligence". Bohm maintained that despite dialogue being revered by the ancient Greeks and practised by many primitive societies, "it is all but lost to the modern world". Bohm's work on the theory and practice of dialogue synthesises the systems or holistic view of nature and the interactions between internal models of thinking, perceptions and actions. In connecting the systems perspective and mental models Bohm[1965] argued that the purpose of science is not the "accumulation of knowledge" but rather the creation of "mental maps" that guide and shape our perception and action,

bringing about a constant "mutual participation between nature and consciousness.

The two primary means of discourse and dialogue referred to above provide the capability of generative learning, the power of which lies in their synergy which is dependant on an understanding of their differences. Bohm suggested that in discussion subjects may be analysed from many different points of view, the aim however is to have one's own views accepted by the group. Whilst another persons view might be accepted to strengthen one's own, it is the prevalence of one's own view that is fundamental. Sustained emphasis on 'winning' or having one's view prevail is, Bohm contends, not compatible with giving first priority to coherence and truth. The change of priorities to dialogue however allows a group to access a "pool of common meaning" which cannot be accessed individually. In contrast to discussion, dialogue, by going beyond individual meaning and understanding towards the development of shared understanding means that people are no longer primarily in opposition. Moreover Bohm suggest that rather than interacting, people are participating in a pool of meaning which is capable of constant development and change. As a result a kind of sensitivity develops that goes beyond what we normally recognise as thinking. Senge [1992:242] argued that to Bohm this sensitivity lies at the root of real intelligence, as he contended "Through dialogue people can help each other to become aware of the incoherence in each others thoughts, and in this way collective thought becomes more and more coherent." Senge concluded however;-

The main point is not to strive for some abstract ideal of coherence. It is rather for all participants to work together to become sensitive to all the possible forms of incoherence. Incoherence may be indicated by contradictions and confusion but more basically it is seen by the fact that our thinking is producing consequences we don't really want.

[Senge, 1992:243]

4.63 Necessary Conditions for effective Dialogue

Bohm identified three basic conditions that are necessary for dialogue:-

1. all participants must "suspend" their assumptions, literally to hold them "as if suspended before us";
2. all participants must regard one another as colleagues;

3. there must be a "facilitator" who "holds" the context of dialogues

Such conditions according to Senge contribute to allowing the "free flow or meaning" to pass through the group, by diminishing resistance to flow.

Suspending assumptions means rather than suppressing them or avoiding their expression, participants should be aware of their assumptions and to hold them up for examination. This cannot be done if individuals are defending their opinions, nor if they are unaware of their assumptions, or indeed that their individually held views are based on assumptions rather than incontrovertible fact. Holding assumptions suspended allows team members to see their own assumptions more clearly because they can be held up and contrasted with the assumptions of others, which Senge likens to Leaps of Abstraction and reflection which are jumps from observation to generalisation. Bohm maintained however that suspending assumptions is difficult because of "the very nature of thought. Thought continually deludes us into a view that 'this is the way it is'".

Bohm's second basic condition is that people see each other as colleagues in a mutual quest for deeper insight and clarity. He expressed doubts however about the possibility of dialogue within organisations, the hierarchical nature of which may invalidate the conditions of collegiality. He contended "Hierarchy is antithetical to dialogue, and it is difficult to escape hierarchy in organisations." Bohm's primary concern is the inability of those in authority to 'level with' those in subordinate positions. However as Senge pointed out;-

colleagueship does not mean that you need to agree or share the same views. On the contrary, the real power of seeing each other as colleagues comes into play when there are differences of view.

[Senge, 1992:245]

This concurs with the views of Kemohan et al. [1992:6-26] in bringing together the different 'cultures' or groupings of 'providers' and 'users' to evaluate the performance of facilities. "Choosing to view "adversaries" as "colleagues with a different view" Senge argued provides the greatest benefits.

Bohm's concerns that senior management may be used to having their views prevail and that junior staff may exert reticence in expressing views in front of more senior staff are relevant issues. Kemohan et al., [1992:95] for example cited

occasions of such reticence during evaluation in a military establishment in which rank played a significant part in inhibiting comments by junior officers in front of more senior officers.

There are dangers in using dialogue to explore differences however. As suggested Boje [1994, forthcoming], in considering the role of organisational storytelling and the struggles of organisational learning discourses. He stated that;

Modernist bureaucracy will resist and defend against changes to its hegemonic rendition or organisational praxis. The official, corporate story of the firm is bureaucratically defended against alternative stories.....bringing non-official stories and storytellers to the round table of dialogue is a political and rebellious invasion, and will be viewed in some enterprises as an act of terrorism.

[Boje, 1994]

Changing the corporate dialogue, Boje argued, means changing the balance of power among alternative discourses. However as many authors [Goodman,1972]; [Jencks,1971]; [Toffler, 1990]; have argued, we do not reside in a such a pluralist society that knowledge of the greater needs will necessarily result in a willingness to relinquish such power.

The conditions for fruitfull dialogue may therefore be better realised within relatively homogeneous groups in which the balance of power is fairly evenly distributed. However, this may be at the expense of a fuller understanding of the situation by not exposing individuals with alternative viewpoints to enter into dialogue and thus facilitate an appreciation of alternative understandings. It could be argued however that as all individuals differ in values, perceptions and experiences the likelihood of a truly homogeneous social group is remote. The willingness to be receptive to alternative viewpoints is clearly a key area in succesful dialogue, which again requires a willingness to relinquish power and accept challenges to current views or practices.

Bohm's concerns are not without foundation however and have been demonstrated in research by Janis [1971] into the Phenomenon of Groupthink, symptoms of which include a reluctance to challenge the views of superiors.

4.64 Groupthink

Groupthink is a phenomena that has been described by Janis [1971:43] as;- "the desperate desire for consensus at any cost". He cited examples of the inability of groups including those in positions of high power to challenge the direction of thought processes by a failure to consider alternative scenarios, the consequences of which have been at times disastrous. According to Janis [1971:44] "Groupthink involves non deliberate suppression of critical thoughts as a result of internalisation of the groups norms.". Groupthink occurs in group dynamics in which concurrence seeking becomes so dominant in a cohesive group that there is a tendency to disregard appraisal of alternative courses of action. The symptoms of this appears to be motivation amongst group members to avoid being over-critical of the ideas of colleagues or leaders.

In addition there appears to be a desire to conform to group norms as a desire for acceptance by others which whilst increasing group cohesiveness increases the risk of Groupthink through failing to consider the range of alternatives. Rather than the fear of punishment Janis suggested that individual reticence in challenging group ideas is more concerned with personal misgiving about the relevance of a challenge to established group consensus.

Similar phenomena are observed by White [1971:47-76] which he describes as selective inattention, a term to describe a psychological mechanism that seems to be present as nations proceed towards war. The basis for this he suggested is that that once an activity is well launched, people tend to maintain thoughts that are in harmony with it and to disregard others.

The studies of Janis conducted on high-level governmental decision makers suggest eight main symptoms of Groupthink. These are:-

Invulnerability A shared illusion of invulnerability which provides a degree of reassurance about obvious dangers. The consequence of which is a willingness to take extraordinary risks and to fail to respond to clear warnings of danger.

Rationalisation In addition to failing to regard warnings, groups collectively construct rationalisations in order to discount negative feedback that might force the group to reconsider their assumptions.

Morality Groupthink also provides victims with an unquestionable belief in the morality of the group. The consequence of this is an inclination to ignore the ethical or moral consequences of their actions.

Stereotypes Victims of Groupthink hold such stereotypes of their enemies or protagonists that genuine attempts at negotiating differences between them are impossible.

Pressure Victims of Groupthink apply direct pressure to individuals who doubt the shared illusions of the group or question validity of the arguments. Such a process reinforces the group attempts to maintain concurrence seeking behaviour.

Self Censorship There is a tendency in Groupthink for individuals to avoid deviating from group consensus. As a consequence individuals keep misgivings to themselves and minimise internally the importance of their doubts.

Unanimity There is a shared illusion of unanimity concerning all judgements made in support of the majority view. This reliance on consensus validation leads individuals to believe things to be true and consequently not to consider alternatives.

Mindguards Individuals often appoint themselves as mindguards to protect the leader and fellow members from negative information that would interrupt complacency shared about previous decisions made.

The consequence, according to Janis, of most or all of these interrelated symptoms being present are in fact poor decision making through a failure to consider a full range of alternatives and in turn potential solutions. Janis suggested however a number of remedies to avoid the emergence of Groupthink. These include:-

The group leader assigning critical evaluator roles to each member.

The adoption of impartial stances during policy decisions to encourage open inquiry of policy alternatives.

Using several groups to work on the same problem.

Encouraging the discussion of group deliberations between group members and others within the organization.

Inviting outside experts to meetings on a staggered basis to challenge the views of the core members.

Allowing one member to play devil's advocate in challenging the testimony of those advocating the majority position.

Splitting into sub-groups from time to time, before coming back together to resolve differences.

Holding second chance meeting after decisions have been reached in order to revisit residual doubts.

4.65 The Facilitators role in group Dialogue

The facilitator of a dialogue session carries out the basic duties of a process facilitator. In essence such duties are keeping the dialogues moving and maintaining a balance between being knowledgeable and helpful. Importantly the facilitator holds the context of the dialogue avoiding regression towards discussion where unwarranted, thus maintaining the essence of dialogue.

The necessary counterpart of dialogue, that of discussion, follows from an exploration of the issues towards 'discovering a new view'. Discussion is required in order that decision might be made on matters in which the group has reached agreement. Senge highlighted however the convergent and divergent nature of discussion and dialogue respectively;-

When they are productive, discussions converge on a conclusion or a course of action. On the other hand, dialogues are diverging; they do not seek agreement, but rather a grasp of complex issues.

[Senge, 1992:247]

The key facilitation skills for dialogue, are therefore skills of inquiry and reflection in which the process facilitator has to allow the group to move from dialogue to discussion, in order that decisions can be made, following an exploration of issues during the dialogue.

It is important to stress that primarily, the role of the facilitator is to hold the context of the issues and enable the process of dialogue to ensue, allowing participants to maintain ownership of the process and the outcomes. The facilitator's participation however demonstrates dialogue by his intervention or introspection. As such the facilitators in generating dialogue for organisational learning fulfils similar roles to those used in dynamic evaluation [Allen, 1990:3-16] :-

The *maieutician* role to help participants to think about the views to which individuals subscribe and to analyse the guiding principles behind such views.

(Maieutic means the performing of midwifery services to thoughts or ideas.

Socrates, for example, considered himself to be a midwife bringing others' thoughts to birth with his questions.)

The *expert* role providing opportunities for reflection and analysis that can help participants to express their views on a given issue; and

The *mediator* role, fostering conditions in which participants can interrelate and creating the conditions for exchanging points of view or diagnosing conflicts, helping to regulate relations among participants.

Similar to the dynamic evaluation process advocated by Allen, the role of team learning put forward by Senge is based on establishing a relationship between the individuals, the organisation and its larger environment, attempting to create a dynamic by which learning can occur or, as Allen would suggest in terms of implementing change, internal transformation might occur. As such the method relates well to Action Science [Argyris, 1972] in that the process involves generating a body of theory and method for reflection and inquiry on the reason that underlies our actions.

bi-product of dialogue.

Dynamic evaluation, or the team learning process using a facilitator can be distinguished from Socioanalysis in which direct intervention within the organisation is made. Allen {1990:9} suggested that the catalyst for change in organisational learning is that instead of being positioned inside the organisation the facilitator provides conditions for reflective dialogue rather than directly intervening in the process.

4.66 Learning through dialogue in Evaluation Research

According to Schneenkloth and Shibley, [1988:5:4] environmental design research and practice has identified two aims which direct and justify its work. They stated these aims as (1) the generation of knowledge for the advancement of the field, and (2) the creation of quality places for people. The former aim of knowledge generation is closely tied to the conduct of science and the methods and purposes which are part of that process, the latter, to create quality places and is framed in an ethical discourse which decides what is a quality relationship between people and environments.

In this thesis I contend that the aim of environmental design research and practice should be the generation of knowledge through reflective dialogue with users, as this will lead to increased understanding of the users' needs and expectations of the built environment. Moreover I contend that reflective inquiry provides a vehicle for improving organisational communications by bringing face to face different stakeholders in the evaluation process.

4.7 Praxis, Knowledge generalisation and Local utility

The knowledge and theories generated from this form of praxis [I use the term praxis from the Greek *Prâxis* meaning doing or action to indicate the dynamic nature of the research] offers a more complete verification on the basis of observations. Moreover, it is questionable whether any valid generalisations might be made by traditional standards of scientific inquiry. The uniqueness of interaction in social situations, involving a variety of actors or players each with their own individual or corporate value systems may make such generalisations meaningless or certainly of limited utility, relative to the utility gained through the generation of knowledge for use within the organisation and by participants to the process of knowledge generation, through developing shared meaning of the situation.

4.71 Alternative ways of knowing

In contrast to the positivist paradigm of theory generation through quantification and analysis, interpretation of the situation under study and the interrelationships

involved provides a basis for the development of theory grounded in reality.

Schneenkloth and Shibley have for example argued :-

Alternative ways of knowing do not lack rigour or specific address to the everyday problems of the world. On the contrary, such knowing appears to occur in the very centre of our day-to-day activity, focusing on current problems and future developments in a very real way....In many ways, the abstract generalisations of positivist insight (i.e. "knowledge out there") break dialogue, stopping opportunities to construct new insight into a specific situation.

[Schneenkloth and Shibley, 1990:8-9]

The phenomenological approach taken by myself in this thesis might be best described as following a grounded theory approach as advocated by Glaser and Strauss [1967]. This approach is primarily concerned with the generation of theory. Criteria of validity and generality (which are traditionally associated with the positivist paradigm) are concerned with testing theory, and as such are less applicable from a social constructionist perspective in which reality or multiple realities are held by participants to the process.

Approaching organisations from a systems perspective, in which each part is an irreducible component of a larger system. The infinite variety of variables in the social realm suggests the inappropriateness or indeed infeasibility of quantification and reduction of variables. Moreover the primary concern is that the meaning of the situation may be lost. That is not to suggest that the methodology applied and the relationships explored inductively are not generalizable, as the findings documented will add to the body of knowledge available to those seeking increased understanding of the relationship between people and the physical environment. In addition it seeks to demonstrate a means by which users might contribute to generating or rather relinquishing tacit knowledge, in so doing contributing to organisational learning.

Organisational Theorist Frederick Thayer [1973], despite being a reductionist asserted that "What we are able to know is grounded in the way we organise to know." Our ability to learn is accordingly restricted only by our capacity to generate new ways of designing research and practice and new ways of knowing.

Schneenkloth and Shibley [1990] described the issue of knowledge as central to the critique of any practice. They suggested:-

It [knowledge] is the cornerstone of "legitimate discourse" between professionals. It is the "currency" organisations establish to justify their actions in the world. Examining the question of knowledge, the ways that people "come to know", is an activity which warrants continued reflection in any field, including the conduct of building evaluation.

[Schneenkloth and Shibley, 1990:3]

I would question therefore the positivist claim that knowledge is based on only that which is observable and measurable and would argue that knowledge can be socially constructed and generated through reflective dialogues. Knowledge can be generated through user centred action based research which is qualitative in nature. Whilst such research may not be judged by traditional criteria of quantitative science, it is suggested that knowledge can be generated primarily with the intent of local utility, but can in turn be used to inform other contexts.

4.72 Transformative participation

Wisner et al. [1991:271-295], in reference to Lewin's view of action research discuss participation or praxis which stresses the process of participation itself rather than the physical outcomes. They distinguished between instrumental and transformative participation. The former is concerned with efficiency and effectiveness whilst the latter is seen to facilitate changing social consciousness. Wisner et al. concurred however with Foucault [1980], that participation itself need not necessarily imply a democratic process due to the inseparability of power and knowledge between research/designer and client/participants, this according to Kemohan et al. [1992:144] precludes the possibility of neutral relations and questions the possibility of co-equal participation between citizen and researcher alike.

As with the Design-decision research of Farbstein and Katrowitz [1991:297-318], this approach to design and management activities involves clients and building users as co-researchers working together to make sense of organisational

problems. As the researchers will also be co-subjects, participating in co-operative inquiry, they cannot be said to be objective by the criteria of positivist science.

Schneenkloth and Shibley [1990:20] assumed that "knowledge is socially constructed through dialogue within relationships. That knowledge is not an abstraction "out there" but is generated and confirmed within networks of relationships in a dialectic between concrete knowing and abstract knowing." By contrast, the traditional Newtonian model of providing knowledge, of determinism and objectivism, is characterised by the separation of user provider and researcher.

Schneenkloth [1987:307-334] observed that the results of researchers, designers and users operating remotely assumes a non-interventionist stance. Schneenkloth argued that, It uses scientific conventions on one hand and the application of knowledge on the other. As such, he argues, the relationship between the generation of knowledge and its subsequent use is discontinuous and time frame indeterminate.

In justifying their view that knowledge is socially constructed, Schneenkloth and Shibley [1990:5] referred to Belenky et al.'s [1989] the collaborative and its identification of different perspective of Knowing.

4.73 Construction of knowledge through Dialogue

Schneenkloth and Shibley [1990:17] propose that dialogue is a major method for the construction of knowledge in environmental design research and practice, arguing that knowledge is constructed socially in the process of dialogue. They suggest then that facilitating and maintaining the relationship between those who are generating the knowledge is the most significant work to be accomplished. The extreme danger they suggested however is in the implication that the relationship is the method of the achievement of knowledge, as they argue to use relationship in this manner would serve to objectify it. They concluded, however,:-

The entire process of building evaluation would become inverted if people (within organisations, between organisations, between consultants and people in organisations) and intimacy between people and places and ongoing relationships became the aim. This is not to

suggest that the construction of knowledge is without conflict. Rather it is the commitment to dialogue that offers the possibility of relationship and new forms of knowledge.

[Schneenkloth and Shibley, 1990:20]

They argue that dialogue, as a collaborative form of knowledge generation, challenges our existing notions of knowledge, both theoretical and methodological, expanding and transforming the idea of knowledge in environmental design research and practice.

Freire [1973] argued that dialogue to be successful requires two essential dimensions; those of reflection and action.

Kemohan et al. [1992:146], however, argued for the consideration of a further two dimensions relevant to the evaluation of facilities. The first of which is collaboration in which people agree to work together in a temporary alliance. The second is negotiation, by which people transform their reflections on the facility into practical recommendations for action. They argued that the combination of these four elements of reflection, negotiation, collaboration and action, characterises successful dialogue for evaluating facilities.

Their generic evaluation process is aimed at ensuring user experience, knowledge and values gain equal consideration to those of providers' interests which currently dominate. They argued that the production of better facilities will result from the dialogue generated in the evaluation process, suggesting the need to develop more cross-cultural awareness between users and providers. They concluded that the key to integrating user and provider knowledge is sharing knowledge through social negotiation.

Holmes [1989] identified five levels or 'stages' of awareness together with a set of intervening transitions in personal and group development of biculturalism. By biculturalism she means the ability for individuals, from alternate cultural groupings, to become cross culturally aware of the needs and values of other groups. Her stages from Unawareness to Beginning, Conscious, Consolidated and Transcendent provide transitions for growth towards cross cultural awareness and sensitivity. As such they provide a framework for conflict reduction through consciousness and awareness of alternative cultures and a commitment to better understanding among various groups.

Figure 4.2 Stages of awareness in personal and group development and biculturalism

Stage 1	UNAWARENESS	little factual knowledge about own group; unaware of presence of other cultural group. Someone opens our eyes to what is happening.
	Transition 1	This is usually sparked by an event of strong import - an impact.
Stage 2	BEGINNING	Cultural group or individual is at a state of awareness that its culture dominates (or is subordinate) amongst dominant culture, may be accompanied by denial of responsibility for the actions of people who have gone before. People in weaker culture become aware that they are less powerful, but have potential for power.
	Transition 2	Know self: primary identity with own group or self.
Stage 3	CONSCIOUS	Consciously and constantly aware of cultural differences; decision to learn about others' culture. May result in a sense of excitement, plus denial, rejection, sadness, feeling of powerlessness, anger or pain.
	Transition 3	Learn to value cultural diversity; recognise that all cultures have some ways of doing things that need to be changed, some which are worth valuing.
Stage 4	CONSOLIDATED	Committed to working towards a better understanding among various groups, and methods for achieving these are sought. Know other language. People who reach this stage may find themselves in a quandry - should they work to strengthen their own culture, or the other(s)?
	Transition 4	Primary identification with humankind, rather than own culture.
Stage 5	TRANSCENDENT	Awareness and sensitivity that have grown out of ability to seek and reflect on lessons from cross-cultural experience.

4.74 Learning through Group dynamics

Thelen [1985:114-115] suggested that the work that gave birth to the scientific field of group dynamics was political in intent. He suggested that Kurt Lewin, who was a refugee from Nazi Germany, wished to demonstrate experimentally and scientifically that life was much better under democracy than under authoritarianism. In so doing he proposed that small groups might be representative of society and that a leader might be able to produce both

democratic or authoritarian atmospheres within the group. The findings of Lewin and Lippitt's experiments on the study of autocracy or democracy reported in 1939 demonstrated that leadership styles could in fact influence members' behaviours, attitudes and beliefs.

Such experiments on laboratory groupings broke with the more descriptive clinical and historical methods which were being undertaken with natural groups at the time. According to Thelen, this led to a conflict between researchers as to the proper nature of social science research. Thelen argued that this conflict still exists today.:-

between 'hard' and 'soft' conceptions of scientific inquiry and of 'truth'. Whereas the 'hard' position is characterised by quantitative inquiry which was said to be rigorous, objective, paradigmatic, analytical and positivistic, the 'soft' position was that of the humanists or intuitionists - sloppy, subjective-phenomenological, heuristic, insightful, quasi-philosophical.

[Thelen, 1985:114]

Thelen argued that where sociology and economics leaned towards the quantitative and mathematical, anthropology and psychology leaned towards the humanist approach.

Lewin founded the *Research Centre for Group Dynamics* which later became the *National Training Laboratory in Group Development* in the USA. The principle means of human relations training was by use of 'T-groups' of between 12 and 25 adults who came together to learn how to participate more effectively in groups. Such sessions used the 'laboratory method' of enquiry and would also consist of a trainer knowledgeable on group dynamics whose role would be to facilitate opportunities for learning.

Diagnostic conferences, in addition to allowing individual participants to review and explore their values and beliefs, afforded the opportunity for theory development on group dynamics and individual cognitive processes. From a psychoanalytical perspective, the basic mission of diagnostic conferences was to construct theory, or a reconstruction of what happened such that individual participants' actions could be explained.

Thelen, observed of group dynamics however:-

...because of the unpredictability of micro level activity - the specific details of life - a fully deterministic social psychological science is impossible.

[Thelen, 1985:133]

The proper method of science he maintained is akin to history: Each group he contends "writes its own history. The task of historical research, by his definition, is therefore to reconstruct the culture and life of the group and give an account of it. Thelen [1985:129] asserted that the most valuable outcome of research is the participants experiences of enquiry. The diagnostic conference he suggested attempts to use dialectical processes in the quest for truth.

In general terms, Thelen [1985:134-135] describes the group conference process such that the group itself develops each option, point of view, action suggestion, or interest as fully and sympathetically as it can. Then it compares them with each other, noting the comparative costs and benefits, weaknesses and strengths, advantages and disadvantages. Thelen suggested that the group then imaginatively creates a further option that best captures those aspects of common reality upon which they agree.

Conclusions arrived at in this way he concluded are "the nearest approximation that can be hoped for of 'the facts' in the human social realm. It follows he suggests that "truth is local, emergent in each situation, experience based" and partially warranted by the quality of the dialectical processes employed in the process and construction.

Thelen [1985:135] suggested that new human-social science should be a philosophically oriented quest for better policies of inquiry and action. The justification for this, he argues, is that dialectical inquiry can develop theories at the higher organismic or holistic level. In addition through dialectical inquiry, recorded and experiential data are turned into evidence for local situational use. The two interdependent products of such a dialectic are, on the part of the participants the opportunity to conduct a dialogue in which to gain more practical wisdom, and, for the scientist to inform policies and practice of improving dialectical education.

Palmer [1985:274-303] concluded that there are a number of different learning contexts in group relations. In particular he emphasised the features of such contexts in group relations conferences on Organizational role analysis (ORS) and

PRS seminars which focus respectively on the person, the role and the organizational system in which the role was undertaken. In PRS seminars, members are considered to be experts as the subject matter is their own professional experience. The role of the facilitator is to assist them in examining their own concerns.

4.75 Learning contexts in groups

Palmer [1985:289-291] suggested that different learning contexts can be set up in a typology and described the two principal learning contexts as type R (in which R stands for role) and type P (in which P stands for person). He also suggested a third context type A (standing for activity) which is a more restricted learning context.

Briefly, in the Type A event, the primary intention is to increase the skill or knowledge of participants in respect of work activities in which they are involved. In such an event, the trainer is an expert, with skill and knowledge to impart to the trainee.

The type R event involves participants examining their organizational role within the organisation's culture. As a context, it is not therefore ambiguous according to Palmer, as the values, aims and convention of the organization can be taken as 'given'. Whilst the learning event may stimulate the participant to challenge such values, he does so under his own initiative and authority. In the type R event the participant is the expert.

In the type P event by contrast the participant, whilst committed to his organizational role, is prepared to look critically at the goals and values of the organization and the way in which they shape his role. In principal, Palmer suggested there are no experts in the type P event. In practice, however, participants may view the event facilitator (or consultant, trainer, whichever title is used) as a kind of expert, in which case, it signals a type A or type R learning context. In such a case the participants may operate under basic assumption dependency [Gustafson and Cooper, 1985:157-171] Under such circumstances, it

is accordingly necessary for the facilitator to be aware that participants are persons who are speaking from their unique awareness of the 'here and now' even if they are unaware of the this.

Palmer [1985:292] suggested that the different types of event and levels of learning associated with each can be conceptualised in a number of ways. He suggested that they can be loosely cross tabulated with Boxer's [1979] levels of management control. Namely, Operational, managerial and strategic. However it is possible to learn at more than one level in each event type.

Figure 4.3 Boxer's levels of management control

Operational Control	The activity which controls the task activities through which the organisation produces its product or delivers its services
Managerial Control	Concerned with integrating the different task activities into an organisations whole, by controlling the availability and use of resources ; money, manpower, machines and materials
Strategic Control	Concerned with the identification and formulation of these assumptions and of the nature of the task activities required to implement them

Figure 4.4 Comparison of Learning events and levels of Management control

Levels of Management Control (Boxer, 1979)	Learning Contexts in Groups (Palmer, 1985)
Operational Control (task control)	Type R Event (role analysis)
Managerial Control (task integration)	Type R Event (role analysis)
Strategic Control (task identification)	Type R or Type P Event (role analysis or personal analysis)

4.76 Theories of levels of learning

In addition, Palmer [1985] suggests that the distinction between the three learning contexts of type A, R and P can also be conceptualised in terms of Gregory Batesons [1979] theory of levels of learning.

Figure 4.5 Comparison of Learning events and levels of Management control

Learning Contexts in Groups (Palmer, 1985)	Levels of Learning * (Bateson, 1979)
<i>Type A event</i> (Activity)	<i>Learning I</i> (adaptation)
<i>Type R event</i> (Role)	<i>Learning II</i> (cognitive modification)
<i>Type P event</i> (Person)	<i>Learning III</i> (reflexive awareness)

* Note: Learning at all levels is possible in any context

Bateson [1979:279] suggested logical categories of learning and communication arguing that all learning is a communicational phenomena.

He argued for a theory of logical types in order to establish his levels of learning arguing that no class can in formal or mathematical discourse, be a member of itself. He asserted:-

A priori it can be argued that all perception and all response, all behavior and all classes of behavior, all learning and all genetics, all neurophysiology and endocrinology, all organization, and all evolution - one entire subject matter - must be regarded as communicational in nature, and therefore subject to the great generalisations or "laws" which apply to communicative phenomena.

[Bateson, 1979:283-283]

Bateson [1979:287] argues that all learning is in some degree stochastic (i.e., contains components of "trial and error"). He does however exclude within this assertion the notion of zero learning, a condition in which despite stimulus no learning occurs. This forms the basis from which his learning hierarchy

classification is built. Zero learning he argued is the label for those acts, simple and complex, which are not subject to correction by trial and error.

Bateson [1979:293] suggested the following definitions for his levels of learning:- *Zero learning* is characterized by *specificity of response*, which - right or wrong - is not subject to correction.

Learning I is *change in specificity of response* by correction of errors of choice within a set of alternatives.

Learning II is a *change in the process of Learning I*, e.g., a corrective change in the set of alternatives from which the choice is made, or it is a change in how the sequence of experience is punctuated.

Learning III is *change in the process of Learning II*, e.g., a corrective change in the system of sets of alternatives from which the choice is made. He considered however that demanding this level of performance of some men and some mammals is sometimes pathogenic.

Bateson [1979:293] argued that a *Learning level IV* would be a change in *Learning level III*, however it probably does not occur in any adult living organism.

Palmer's provided a useful recount of his interpretation of Bateson's learning levels, placing them in context for different learning events as noted below:-

Learning I

Trial and error processes through which the individual adapts to his environments, finds new responses or patterns of response to given situations. Learning practical or communicational skills takes place at this level. Learning at this level has its joys and miseries, as anyone who has sought to master, say, a musical instrument or a sport will know.

Learning II

Processes through which the individual comes to modify the way he views (or construes) the context in which he applies the knowledge and skills he has gained through learning I. For example, if a doctor comes to see his role as that of helping a person in physical distress, instead of that of repairing a faulty biological mechanism, he may begin to make use of his medical knowledge and skills in different ways. Such a reorientation may be very painful or a great release.

Learning III

Processes through which the individual learns to attend to, and hence bring within conscious control, the habitual ways of construing situations which are the outcomes of learning II.

Learning III involves reflexive awareness. Our imaginary doctor might for example learn to monitor the idea of his role which was implicit in the way he was dealing with patients with the possibility of continuing learning II. In so doing, he would be reflecting upon his deepest beliefs, about himself and his patients and about human life, suffering and death. Thus learning III involves the whole man or woman, and is likely to initiate change in other areas of his or her life. Such disturbance is frequently frightening and painful; and once again, it may also be a matter of joy or gratitude.

Palmer suggested that the design of an event can propose a level of learning dependent upon the organizational, behavioural and practical context in which it is defined. The typology of learning contexts equate therefore to the type A event proposing learning at level I, the type R at level II and the type P at level III. It is only at level II (and above) however that the tacit constructions of individuals can be made conscious and modified.

Gustafson and Cooper [1985:157] suggested however, that groups can go very well or very badly, including for these attempting to observe and subsequently interpret participant behaviour. They suggested that it is hazardous to have only one method of intervention to approach a group situation, as in some cases respondents may be unwilling to participate or split into factions of different social theories making interpretation difficult. They suggested that such an approach is akin to a surgeon who only knows how to do an appendectomy. When he proceeds to do the job he knows well, the results are at times spectacularly good. More often than not they are poor.

4.77 Dynamic Evaluation and Organisational learning

Allen [1990:14] considered dynamic evaluation as a means of managing change within organisations. In her work in socioanalysis and implementing social programmes, she suggested that managing organisations, or getting them to participate in public programmes to deal with problematic situations, involves

dynamic evaluation which focuses on two purposes, each of which involves different methodological elements,

First there is an *operational* goal, which involves the organisations managers and employees involved in the programme with a full set of real time information and analyses. These, she argued, should help them adapt the management of the activities in which they are involved. This goal corresponds to constituting the evaluation as an "instance for reflective criticism" that lets the actors take some distance from the practices they use.

Second, there is a goal which could be called *strategic* in that its purpose is to foster discussion among the actors about the meaning of the action in which they are involved. The opportunity exists to explore the way in which they contribute to production which is the reason for them being there. This goal, she considered, corresponds to developing conditions for transmitting information and for allowing individual points of view and discussion among these different points of view to emerge.

Allen [1990:13], argued however that dynamic evaluation is not a form of intervention, in that instead of being positioned inside the organisation, it is based on establishing a relationship between the organisation and its larger environment, attempting to create a dynamic for internal transformation by establishing a tension between the organization and the task it is supposed to fulfil. Socioanalysis by contrast is a method for intervening in organisations, the purpose of which is to analyse the way individuals relate to institutions in order to modify the way institutions function.

However, I would contend that Allen's assertion is somewhat generous if not naive. The purpose of any form of evaluation involving participants, is likely to raise individual levels of consciousness on the issue at hand. As such, regardless of the mandate of the evaluator, the perceptions held by individuals, and the desires of the facilitator, it can still be described as a level of intervention in that it involves a degree of interference in the affairs of others. Aspects of dynamic evaluation by Allen's 1990 definition, suggest that they are very close to

institutional analysis which is concerned more with the programming of public facilities.

Allen's' approach to managing change suggests that the level of moderator or facilitator involvement operates along a continuum between low and high involvement fulfilling three roles of maieutician, expert and mediator, all of which are aimed at creating a mediating interface among actors rather than the intervening figure for producing change as is the case in Socioanalysis.

The roles of maieutician, expert and mediator, role Allen argued for may constitute an opportunity for facilitating organisational learning by expanding the actors' systems and working on a group goal, through the conditions of co-operation which are developed and in the mediative role played by the evaluator.

4.8 Conclusions

Ayer [1956:35] concluded on the theory of knowledge that the necessary and sufficient conditions for knowing that something is the case are first that what one has said to know be true, secondly that one be sure of it and thirdly that one should have the right to be sure. Whilst this right may be earned in certain ways however, he concluded that they are philisophically challenged by questions over the legitimacy of the title 'to be sure'.

The traditional positivist notion suggests that the only truths, and consequently the only form of knowledge, are those that can be objectively proven by empirical observation. Such a notion however by attempting to scientifically reduce the individual to a set of variables denies the integrity and wholeness of human systems in which reality is socially constructed within a given context.

Reductionism it is argued denies acceptance of sense experiences which cannot be reduced in a linear fashion.

Knowledge then it is argued is neither absolute nor abstract but is given the meaning assigned by individuals. Such knowledge may be tacit, escaping articulation, verbalisation or other form of communication, but consists of the knowledge individuals possess in the form of rules, values, concepts and experiences that constitute personal knowledge.

Organisations have been described as distributed knowledge systems, within which there are canonical and non-canonical practices. The concept of learning organisations suggests that the distributed and tacitly held experiential knowledge of individuals should be made explicit. For learning to occur such knowledge has to be placed into the context in which it has meaning, it has to be socially constructed through narration and collaboration.

It is suggested that collaborative dialogue provides the platform for both making explicit experiential knowledge and reflecting on work practice. In so doing it provides the basis for both single loop or adaptive learning in that deviations from pre-set goals can be detected and corrected, but moreover provides the basis for double loop or generative learning in that underlying beliefs or values might be modified in the light of greater understanding of system complexities. Deurto learning is concerned with understanding behaviour in a given context and is considered to be a product of social elasticity or dynamics of the system.

I conclude that to a certain extent all organisations are learning organisations in that they adapt in response to changes in environmental conditions. It is through generative adaptation however in which true learning organisations might be created. Such a process means questioning the basic principles upon which the organisation is based in order to ensure achievement of its goals.

There are dangers in using dialogue to explore differences however, due to the assymetrical distribution of power within groups and the potential unwillingness of individuals and organisations to accept changes to existing views or praxis.

In conclusion, dynamic evaluation using groups affords the opportunity to elicit new understanding of organisational process and forms as a dialectic between espoused and actual practices. Dialogue forms the basis for sharing a common meaning of a situation, but demands both commitment from individuals and the organisation to suspend assumptions and relinquish power in pursuit of greater understanding.

The role of the dialogue facilitator needs to be considered carefully together with the degree of intervention he will have in the learning context as maieutician, expert or mediator, this in turn calls for specific skills of inquiry, advocacy and empathy by the evaluation facilitator.

Chapter 5

Theories of Research

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Chapter 5

Theories of Research

5.1 Summary

This chapters divided into four sections:-

Section A - Social Science Research

Section B - Environment-Behaviour Research

Section C - Factors influencing environmental evaluations

Section D - Facilities Management Research

This chapter draws together research in both the social and engineering sciences together with an analysis of both positivist and relativist research traditions and new paradigm approaches to the resolution of social problems. Issues of objectivity, validity and reliability in both qualitative and new paradigm research involving human inquiry are considered, in particular collaborative model of social science research within acting systems.

Research evidence relative to evaluation of built environments and service quality is explored and the notion posited that environment and service are inseparable in that individuals perceive of their environments holistically, including their relationship to the environment and other organisational factors.

The concept of context is explored and it is argued that context is both irreducible in the sense that it constitutes both the whole and influences the parts. In this sense organisations, as they are collections of individuals might be considered as 'holons', which have been described as all embracing social organisms consisting of a myriad of small social units each complete in itself and yet dependent on the others. The study of context is therefore the study of the whole. Organisations, and groups themselves express the configurations of the context of which they are part.

The chapter concludes by suggesting that research into facilities management should be action oriented, holistic and collaborative involving a wide variety of

stakeholders in the organisation, aimed at eliciting experiential and tacit knowledge of the occupation and management of facilities through group dialogue.

Validity it is argued is provided by means of contextual validity which is concerned with the way a piece of data fits with the whole picture. Convergent validity is provided when a number of measures or different viewpoint result in a similar picture. However notions of validity are based upon method, not on people, and method in itself does not lead to knowledge as inquiry is a human process. It is argued that the most valuable outcome of collaborative research is the participants experience of inquiry.

Section A

Social Science Research

A5.2 Introduction

Social science researchers involved in the study of human behaviour have received widespread, and often justifiable, criticism from lay customers and the academic community for their lack of success in solving the problems they claimed they could solve.

The question as to whether the role of research is to solve problems or eliminate them, in the writer's eye's presents something of a paradox. Social science problems are never solved but are resolved time and again which reflects the unique nature that characterises any situation involving people over time.

Therefore can any problems in social science ever be eliminated. The answer I would suggest is no. However social science research can build up knowledge on patterns of relationships which can help to make sense of complex situations and can be contextualised for a given situation.

A5.21 Resolution of Social Problems

Rittel and Webber [1973] suggested that the social science professions were misled somewhere along the line into assuming that they could be applied scientists - that they could solve problems in the way that scientists solve their sorts of problems. This error they suggested has been a serious one.

Those problems faced by planners and others involved in the design and management of the built environment are invariably societal problems and as such are inherently different from the problems faced by traditional science and engineering disciplines. Where problems in the natural sciences are often definable and separable and may have solutions that are findable, social science problems of policy and planning, resource allocation and equity are ill-defined and elusive in terms of resolution. The emphasis by Rittel and Webber is on problem 'resolution' not 'solution' as social problems are never solved but at best re-solved time and again reflecting the changing states of the environment, technology and social systems. Such dilemmas in a general theory of planning have been referred to as wicked problems - a term confirmed by Becker [1990:70] in reference to

Rittel and Webber. Adjectives such as malignant, vicious (as in circle), tricky or elusive and aggressive serve to personify the properties of social systems. The inherent wickedness of social problems must be further explored in order to develop a theoretical approach to the methodology and conduct of design evaluation.

Scientific approaches to problem resolution invariably demand exhaustive formulation of all pertinent information necessary for understanding and solving the problem. The information necessary for understanding a problem is dependent upon one's idea for solving it. In man-environment relationships however problem solving and problem resolution are concomitant to each other as it is invariably impossible to describe the problem (or variables) in sufficient detail in order to develop an exhaustive list of all conceivable solutions. It is therefore the process of problem formulation and conception of a solution which defy appropriate delineation which has perhaps led to such narrow studies of man-environment relationships within the social science disciplines.

Firat et al. [1987] argued that;

Under the pressures of technological and methodological precision (a consequence of the industrialised technological society and its accompanying approach to science characterised by positivism/rationalism/logical empiricism), the social science disciplines have compartmentalised themselves and lost touch with reality in favour of token precision.

[Firat, Dholakia and Bagozzi, 1987:XVI]

Any attempt made to establish a meaningful understanding of an organisation and the environment in an holistic manner must in conclusion adopt a systems thinking approach, as oppose to linear cause/effect approaches to understanding the complexity of social systems.

A5.22 Alternative paradigm of phenomenological epistemologies

The alternative paradigm of Phenomenological epistemologies have emerged over the last fifty years in response to some of the limitations of positivism towards the social sciences. They stem from the view that the world and reality are not

objective and exterior but are socially constructed and given meaning by people. Rather than seek to objectify and quantify patterns of action the role of the social scientist is to appreciate different constructions and to seek meaning of individual experiences. Perhaps the strongest attack levelled at positivism, however, has been on its assumption that it is value free, i.e. independent of bias.

The stance chosen by the practitioner as distinct from the academic theorist, towards the development of new knowledge (or greater understanding) might therefore be dependent upon the extent to which the problem might be capable of framing. The advances of science in producing increasing stores of information used formal notions of objectivity not only to *create knowledge* but also according to Feyerabend [1987] to *legitimise* it. In other words to show objectively the validity of already existing bodies of information. The actual practice of phenomena such as, complexity, uncertainty, uniqueness and value conflict, extant in organisations does not fit comfortably with the positivist model of technical rationality. As Schon [1983] asserted:-

From the perspective of technical rationality, professional practice is a process of problem solving. Problems of choice or decision are solved through selection, from available means, of the one best suited to established ends. But with this emphasis on problem solving, we ignore problem setting, the process with which we define the decision to be made, the ends to be achieved, the means which may be chosen.

[Schon, 1983]

A5.23 Relativism vs. Rationalism

From a practitioner's perspective, it is therefore necessary to attempt to make sense of often uncertain or poorly defined situations as a precondition for a technically rational solution. Technical rationality demands that the ends are fixed and clear in order that problems may be solved by the application of established theory or technique. When such aims are conflicting or ambiguous, however, as is the case with most problems in the social sciences, solution (or resolution) can only be attempted through the non-technical process of framing the problem and the establishment of boundaries.

Inability to frame the complexity of a problem in the absence of established laws and theories might suggest that some form of inductive approach may be necessary in an attempt to generate new knowledge based on observation.

That is not to suggest that such an approach should be devoid of structure, as the collection of data observed and recorded without selection or *a priori* estimation of relative importance may lead to insurmountable collection of data for analysis, in the absence of hypothesis or postulates. Once again as the observation statements form the basis of inductive theory derived, objectivity is challenged by the fact that both observation and inductive reasoning are themselves objective and free from the personal or subjective opinions of the observer. The only attempts at justification for the use of an inductive epistemology must rest on an attempt to separate the mode of discovery and the mode of justification (on theory developed from observation). Observation statements may, however, be theory-laden and hence fallible, in that they are not free from the value judgements of observers.

To that extent it might be argued that theory developed is dependent upon issues of importance to or valued by the individual or community in question. In other words, a relativist approach is adopted, which in contrast to rationalism, denies universality of its inductive support.

Whilst all social sciences interest themselves in human behaviour, the lines between the disciplines are drawn primarily based on their perspectives in studying human behaviour. As Marcuse [1964] observed;-

Sociology for example studies the structure and development of interpersonal and intergroup (social) behaviour, while political science looks at the power relationships between institutions and people. In many respects unfortunately, the social science disciplines have concentrated their efforts not around the perspectives which initiated them but only on certain variables, groups or institutions as their subject matters.

[Marcuse, *One Dimensional Man*, 1964]

Marcuse argued that the subject matter of any social science is the human being and the totality of the environment in which humans live. The limitation of the human being to single existential dimensions, such as economics or sociology or partitioning the human environment into interest fields dictated by researchers or

academics, he argued, leads to partial understanding, removal from reality, and irrelevance to the human condition.

The traditional Cartesian view within social science has preferred clear problems that have unambiguously correct solutions. As Brown and Kaplan [1981] observed:-

The process of much social science, at least in reconstruction, appears to be a linear development of theory building and data collection. The interaction of theory and data seems carefully controlled to produce logically defensible increments of knowledge and understanding.

[Brown and Kaplan, 1981:311]

This orthodox approach to research takes absolute determinism as the general model of explanation and is based on the principle that human behaviour is regarded as part of a deterministic order, as the exclusive effects of prior antecedent conditions. Like natural science the dominant commitment is to objectivity, the heuristic assumption that everything in the universe can be broken down and explained in terms of causality.

Kirk and Miller [1986:12] argued that this particular approach to problem solving has dictated those problems that have been studied ultimately at the expense of an holistic understanding of the social processes within the system as a whole. The commitment to objectivity however does not imply a desire to 'objectify' the subject matter by overmeasurement.[Etzioni, 1988] Understanding social science problems, however, requires an appreciation of objectivity in terms of the reliability and validity of its observations

The assumptions underlying the search for objectivity are simple. We live in a world of empirical reality, which, whilst open to individual interpretations and cognition, does not tolerate all understandings of it equally. The hypothetico-deductive method of theory testing, advocated by Popper [1959], by exposing empirical methods to falsification results according to my thesis in only incremental, partial improvements in understanding. Given that most confirmatory research in the social and natural sciences is aimed at presenting discovery,

research validity is achieved at the expense of discovery or confirmation is exactly the absence of insight.

Taking a more inductive stance, qualitative research is both a social and anthropological tradition of inquiry which relies less on empirical sophistication demanded to provide confirmation, but places emphasis on achieving objectivity through reliability and validity of observations, allowing the generation of new insight into social processes.

A5.3 Reliability and validity in qualitative research

Research involving the observation and interaction with people in their own language and on their own territory is a tradition of the social sciences generally referred to as qualitative and often seen to be Naturalistic Ethnographic and Participatory. [Kirk and Miller, 1986:9].

The term qualitative has however led to considerable misunderstanding as to the usefulness of such research in generating new knowledge as a result of the apparently questionable validity and reliability of research designs and methodologies employed.

Kirk and Miller [1986] challenged the convention that such qualitative methods are any less exacting than those employed in quantitative. They argue that as quality connotes the nature, as opposed to the quantity or amount of a thing, qualitative research by this limited consideration would denote any research which is distinguished by the lack of counting.

They contended however, that, whilst distinct in terms of methodology, the distinction between qualitative and quantitative research breaks down under close scrutiny. Their suggested approach to this paradox is to think of qualitative methods as procedures for counting to one. Deciding what is to count as a unit of analysis is fundamentally an interpretative issue requiring judgement and choice. Whilst highly interpretative, they argue that qualitative methods seek meaning rather than frequencies of occurrence, although it can be argued that frequency of occurrence in itself however can provide clues to dominant meaning.

They accordingly assumed that the interpretative acts in social research are based on an holistic understanding of the subjects, setting and environment, 'getting to

one' need not be as apparently subjective and intuitive as first imagined they suggested.

A5.31 Reliability in Qualitative Research

Kirk and Miller [1986:41] argued that reliability depends essentially upon explicitly described observational procedures. They distinguished between *quixotic reliability*, *diachronic reliability* and *synchronic reliability*.

Quixotic reliability refers to the circumstances in which a single method of observation continually yields an unvarying measurement. They argued however that in ethnographic research quixotic reliability frequently provides trivial or misleading information.

Diachronic reliability refers to the stability of an observation through time, and is conventionally demonstrated by similarity of measurements taken at different times. Its value is limited however to circumstances which remain relatively unchanged and, as such, has limited application in the study of sociocultural phenomena.

Synchronic reliability refers to the similarity of observations within the same time period. Unlike Quixotic reliability, synchronic reliability rarely involves identical observations, but observations that are consistent with the particular features of interest to the observer.

A5.32 Validity In qualitative research

Reason [1981] suggested a way to consider the notion of validity in new paradigm research on human inquiry should be to consider the different form of validity which may be subject to challenge. In addition to both external and internal validity he suggested the researcher can refer to:-

face validity which he describes as whether it looks right to the reasonably discriminating observer.

Convergent validity in which a number of measures which purport to measure the same thing point in the same general direction, or that a number of different viewpoints result in a similar picture. This in essence is a means of triangulation

Discriminant validity in which measures which are supposed to measure different things actually do generate a difference.

The more complex questions such as *construct* validity, he suggested, involves defining and measuring an unobservable or abstract theoretical notion through observable data, and whether these may be construed as more than one construct.

For field studies, as distinct from experimental studies, however, he maintained the notion of *contextual* validity which is in essence concerned with the way in which a particular piece of data fits with the whole picture.

Moreover, Reason contended that whilst notions of validity should not be ignored, most of the ideas on validity are borrowed from, and based upon, the kind of traditional logic which has been shown to be inadequate for human inquiry. Traditional notions of validity are all about *methods* and not about *people*, and method in itself does not lead to knowledge as inquiry is a human process.

The whole point about research, Reason maintained, is to check one's ideas against reality in so doing to get nearer to some notion of truth. He argued that "Such a notion of reality demands breaking away from the traditional subject/object split in which reality is either out there, objective and discoverable or all in the mind, subjective and ineffable". By developing the notion of *perspective*, Schwartz and Ogilvy [1980], argued that it is possible to move away from the universality of objectivity and the personal bias of subjectivity such that a personal view can be defined from some distance.

Reality then according, to Reason, is neither subject or object but emerges through dialectical thinking or self-contradictory development. It is both wholly independent of and dependent on the individual self.

Reason asserted that this means that any notion of validity must concern itself both with the Knower and with what is to be known; valid knowledge is a matter of relationship. It is also necessary to move away from the idea that there is *one* truth which exists at one end of a continuum with error at the other end.

Validity then, according to Reason [1981], requires consideration of an encounter with experiential knowledge in which, from an action science praxis, there is a collaborative encounter between the experience of the researcher and the experience of the subjects as co-researchers in pursuit of a common reality, or at least a recognition of multiple realities shared and accepted by others.

Torbert [1981] argued that as most practitioners act under conditions that are exactly the reverse of predefined, unilaterally controlled (and hence uninterrupted) experimental conditions, the conditions under which knowledge is gained, when following the canons of rigorous experimental research, are not generalizable to the conditions practitioners face.

Accordingly experimental research has limited utility in terms of developing knowledge relative to that which might be gained through participation in the problems setting in which the practitioner operates. Torbert argued for a kind of knowledge that practitioners can apply to their own behaviour in the midst of ongoing events, in order to help them inquire more effectively about their common purpose, and about how to produce outcomes congruent with such purposes. Such a practice demands a form of reflection-in-action in which they can learn the extent to which their actions and those of others are goal congruent. Dialogue it is suggested provides the platform for the exploration of such issues.

The other aspect suggested by Torbert relates to the complexity of organizational systems in which individuals lose sight of the organisations intent. He suggested that practitioners generally attempt to act well in situations which they do not fundamentally comprehend, and in pursuit of purposes which are not initially fully explicit. He asserted that as such their commitment may be initially ambivalent. Organisational intent however may be the definition of the situation held by those with power to improve the definition of others.

I argue, however, that organizational and individual goals can be made more explicit by dialogue and reflective inquiry in which discongruance can be identified. According the researcher should collaborate with practitioners such that they are sharing in a common reality. Through effective dialogue a shared meaning might be developed which allows participants to solve specific problems or clarify

assumptions and at the same time provides the opportunity for the researcher to develop greater understanding of the acting system.

A5.4 Model of Collaborative Inquiry

The model of collaborative inquiry begins with the assumption that research and action, despite being analytically distinguishable, are inextricably intertwined in practice. Given that knowledge is always gained from action [Polanyi, 1958], the starting point in terms of substantiating validity, according to Torbert [1981] is not how to develop a reflective science about action but to develop genuinely well-informed action. In other words how to conduct action science.

Through the process of action, the researcher becomes practitioner. And the practitioner researcher seeks to engage in a continuous inquiry-in-action aimed at functioning increasingly effectively. In order to do so, individuals and organisations require valid knowledge about both the outside world and about the acting system's own purposes. In addition, Torbert argued, they require valid knowledge about the interplay between the actor and the outside world as well.

Both Torbert [1972] and Argyris and Schon [1974] suggested that individuals and organisations in contemporary society rarely develop the quality of attention necessary to test whether their purposes, strategies and behaviours are congruent with one another. The consequent lack of goal congruency results in both espoused (what each believes in doing) and patterns of actual behaviour (what each actually does), canonical and non-canonical systems of rules, (what is said and what is done), and general ambiguity. As a result inquiry which seeks to understand how a system actually works, which is not collaborative, is essentially invalidated on the basis that findings do not constitute the reality as determined by individuals in practice.

Increasing knowledge of social situations can be gained as other actors collaborate in inquiry to make explicit the assumptions, theories, goals and purposes underlying individual behaviour and show how such theories in action impact on and are impacted by others. As such the opportunity to effectively

communicate such underlying assumptions and experiential knowledge of practice provides a mechanism for individuals and the system as a whole to modify behaviour through such feedback loops and adapt in response to required changes, such that goal congruency might be achieved. Individuals and the system as a whole might be said to learn in that behaviour is modified in response to stimulus. In this case feedback on goal incongruency.

Torbert [1981] suggested a number of assumptions which underlie the collaborative model of social science and which put it at variance with 'normal' social science. He stated;-

1. That researchers are themselves active participants in the situations researched and that the researcher-situation relationship deserves to be studied;
2. That the framework and variables of studies themselves change in the course of study; and
3. that an important way of testing the validity and significance of social knowledge is to feed data back into the setting researched, studying how this feedback influences further action.

[Torbert, 1981:437]

Together, he suggested, the three assumptions provide a framework for systematically learning in settings of organised action, a framework therefore for action science as opposed to a merely reflective science. Such a framework he maintained provides for a collaborative inquiry amongst all participants in a given setting as distinct from inquiry which is unilaterally defined by the researcher and undertaken *on* other respondents.

A5.41 Co-operative Inquiry

Heron [1981] described two quite different ways of interacting with persons in research. The traditional social science experiment or study involves interaction such that participants or research subjects make no direct contribution to formulating the propositions that purport to be about them or to be based on their sayings or actions. Subjects are kept naive about the research propositions and make no contribution at all to the stage of hypothesis-making, to final conclusions, nor anywhere in between. Inquiry in such a case is all on the side of the researcher and the action being inquired into is on the side of the subject.

action research. Whilst it may be possible to verify findings from previous research, theories should or can be generated or tested through praxis undertaken in earlier case studies.

The key to this argument is that findings are context specific and whilst theories generated may relate to a wider body of generalizable knowledge, they require to be contextualised and verified for each instance of use.

Reason and Hawkins [1988] present the notion of an overall model for explanation and expression developed around storytelling. (see also Boje, 1994)

They argued that storytelling is central to the hermeneutical process, the challenge, they suggested, is to derive meaning from storytelling as a means of inquiry. They suggested that explanation and expression should not be observed as competing modes, but as poles of a dialectic which complement each other and eventually come together. As such their model (figure 5.1 below) presents two paths of inquiry; a path of expression; and a path of explanation.

Reason and Hawkins [1988:83] argued that all modes of inquiry start with experience which is held firstly in sensory experience and memory and then collected as data in record or account. At that juncture they maintained the paths of explanation and expression divide.

For the path of explanation they adapted Diesing's [1972] general description for his account of holistic inquiry. Diesing considered that once social scientists enter a field situation they proceed by gathering information and identifying themes. These themes are weaved into a case study, which contains within it a pattern model of explanation. They then compare and contrast case studies such that they can develop a typology and the mid-range theory of typology leads to the development of general theory. Reason and Hawkins argued that all this usually takes place within a paradigm [Kuhn, 1962].

The other way - the way of co-operative inquiry - is for the researcher to interact with the subjects so that they do contribute directly at all stages of the research process. In the complete form of this approach, not only will the subject be a co-researcher, but the researcher will also be co-subject, participating fully in the action and the experience to be researched. Such co-operative inquiry is a form of action research which attempts the development of theory grounded on the basis of interaction with subjects as co-researchers.

A5.5 Generation of grounded theory

Grounded theory is an alternative to the traditional approaches to seeking generalizable data through quantification and analysis by attempting to interpret the situation under study. In grounded theory the researcher attempts to grasp the essence of a situation, and to become familiar with the concepts and language that are specific to it, through an interpretation of reality referred to as *hermeneutics*. [Granath, 1991]

Hermeneutics has been defined by Wilber [1981] as:-

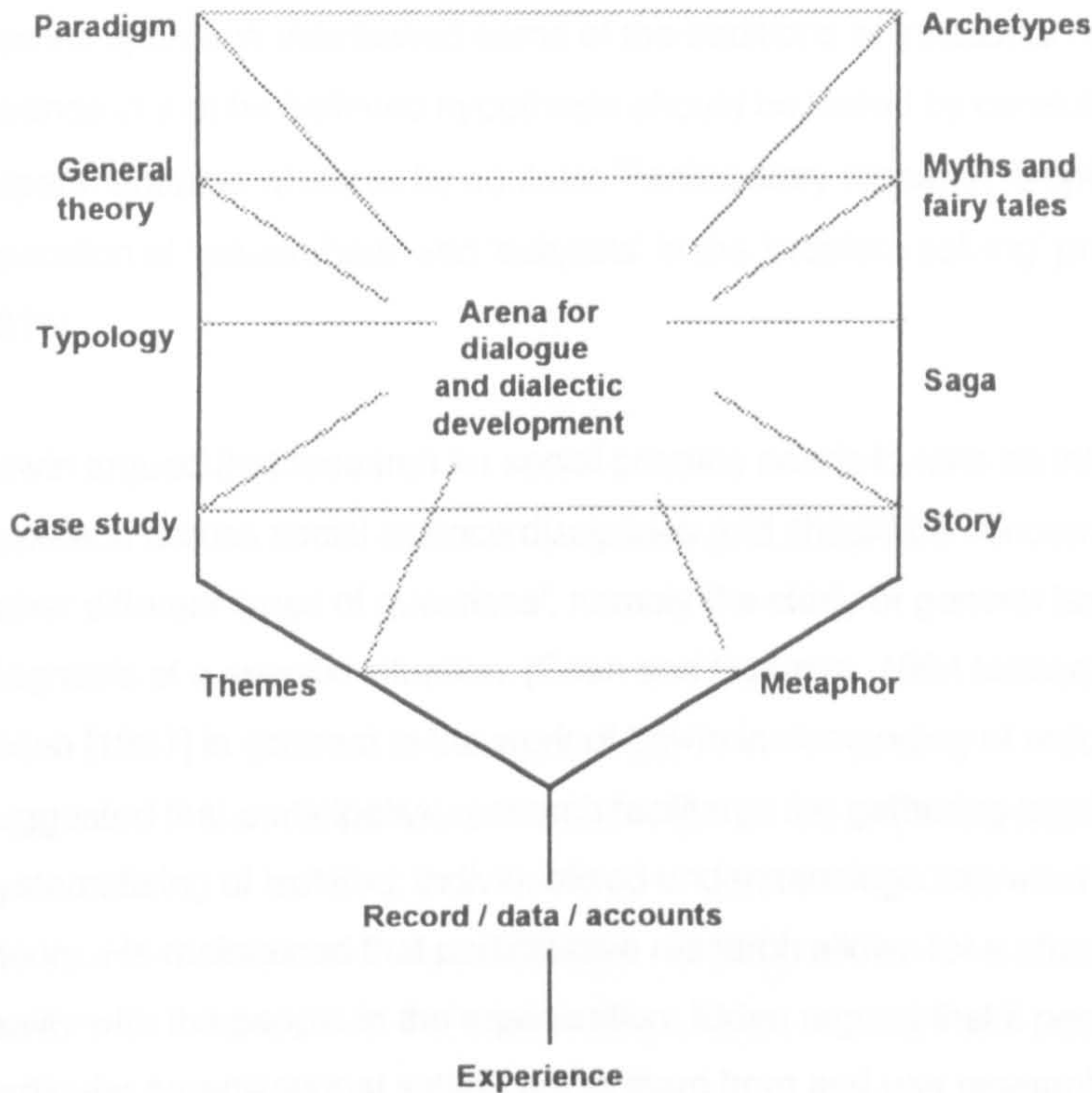
..the science of interpretation, or the determination of the meaning of mental productions (e.g. what is the meaning of MacBeth? of last night's dream? of your life?). As such it is a transempirical discipline, for no amount of analytic-empirical-scientific data, no matter how complete, can totally establish meaning....Rather, meaning is established, not by sensory data, but by unrestrained communicative inquiry and interpretation.

[Wilber, 1981:32]

Glaser and Straus [1967] suggested generating theory from praxis as a method of scientific enquiry in which theory and empirical study through practice alternate to generate and verify knowledge through reflection. The principal features of theory generated by grounded research approaches is that they must be capable of both verification and testing.

Granath [1991] argued however that Glaser and Strauss's reference to theory generation emphasises the generation of theory which may be verified through the modification or rejection of existing theory on the basis of additional data collated. By contrast the traditional criteria of validity, generalizability and so on are concerned with testing theory. In so doing he argued that the question of generalizability becomes meaningless in situations of social interaction such as

Figure 5.1 Model of explanation and Expression



Source: Reason P., and Hawkins P., 'Storytelling as Inquiry'; in *Human Inquiry in Action*; ed P Reason, Sage, London, 1988 p84

The path of expression, Reason and Hawkins argued, progresses through similar levels or stages of development, from account through metaphor to archetype. Between these paths they argue is a space for dialogue and for dialectical development, so that a theme may be illuminated by a story, or a theory may clarify a myth.

They argued that storytelling, when incorporated into co-operative inquiry, changes the way in which questions are asked and can be used for making sense of the experience of inquiry, including the development of explanatory theory.

A5.6 Action Research

Perhaps the most prevalent of alternative approaches to social science inquiry presently available is 'action research' [Lewin, 1946] Action research has

emphasised solving specific problems while generating general knowledge, and is widely held to have been first identified by Kurt Lewin in the 1930's. Whereas Lewin's approach maintained some of the traditions of traditional reductionist science in that he believed hypothesis should be tested by carefully controlled experimentation whereas by contrast 'Participatory research' emphasises the co-operation of 'researchers' and 'subjects' in the 'problem solving' process.[Hall, 1975]

Lewin argued that research for social practice needs to take an integrated approach across social science disciplines and should be concerned with 'two rather different types of questions', namely the study of general laws and the diagnosis of a specific situation. [Eden and Huxman, 1994 forthcoming] Elden [1981] in contrast to the work of Lewin in demanding of reductionist science, suggested that participative research facilitates the gathering together and systematising of isolated, individualised understandings into what he calls a local theory. He maintained that participative research allows for a shared definition of reality with the people in the organization. Elden argued that if people in a particular organizational setting are to learn from and use research, it should be both in their language and in issues that are of importance to them. This is more likely he suggests if the participants are involved in both the planning and conduct of the research. In addition to the production of new directly applicable knowledge, participatory action-relevant social science provides the opportunity for people to learn their own social science.

Similarly, Hall [1975] concluded that:-

...the research process should be based upon a system of discussion, investigation and analysis in which the researched are as much a part of the process as the researcher. Theories are neither developed beforehand to be tested nor drawn by the researcher from his or her involvement with reality. Reality is described by the process through which a community develops its own theories and solutions about itself.

[Hall, 1975:8:2]

Although grounded in a specific context, participative research departs from both orthodox science and its subsequent improvement of grounded theory. Despite this, Elden suggested that local theory seems to have general applicability, which

may be in part a function of the language in which the final report is written. If written in commonly held language, for example, grounding in a specific context would not appear to reduce its scientific value.

A5.7 Research findings Dissemination

This would hold well with the findings of a survey undertaken by Bardin, Blanchère and Davidson [1993] aimed at improving the efficiency and dissemination of building research results. This indicated that research results are rarely transferred to practitioners. One of the recommendations arrived at was that:-

Dissemination should follow a number of modes adapted to the habits and language of expected users.

[Bardin, Blanchère and Davidson, 1993:18]

Participative research, even that which is context specific, might be more widely applied, if disseminated in such a way that its meaning was more widely understood.

This would demand a clear description of the specific contextual conditions in which the research was set, demanding adequacy of the case study descriptions.

A5.8 Focus Groups in Qualitative Research

The hallmark of focus groups according to Morgan [1988] is-

the explicit use of group interaction to produce data and insights that would be less accessible without the interaction found in a group.

[Morgan 1988:12]

As a form of qualitative research, Morgan argued that, focus groups are basically group interviews, although not in the sense of an alternation between the researcher's questions and the research participants' responses. Instead the reliance is on interaction within the group, based on topics that are supplied by the researcher, who typically takes the role of a moderator.

The goal of focus groups is to get closer to participants' understanding of the researchers topic of interest

Whilst the origins of focus group reside in sociology, through the work of Merton [1946;1956] who used focus groups to examine the effectiveness of wartime propaganda, the work has developed more extensively outside the social sciences

in the field of marketing research by Lazarsfield [1972] and others. Focus groups, according to Morgan, have virtually disappeared from the social sciences because little research has ever been published that used the methodology, relative to comparative research using participant observation and individual interviewing. Perhaps because of the emphasis on simple convenience, group interviewing has never been developed systematically as a research techniques in the social sciences. To this extent Morgan [1988] concludes that group interviews in general, and focus groups in particular, are underdeveloped in the social sciences relative to the refinements that marketers have introduced in their work.

As part of a qualitative research methodology, focus groups combine elements from the more common approaches such as participant observation and interviews. Like all data collection procedures there are inherent advantages and disadvantages to their appropriate use. They are for example unlikely to be a suitable alternative data collection procedure for either individual interviewing or participant observation when the research question dictates the appropriateness of such procedures. However focus groups provide access to data that are not easily obtained by either of the other two methods.

A5.81 Focus groups and Participant Observation

Focus groups provide the opportunity to observe significant amounts of interaction on a topic over a limited period of time. The key to which is the observers control over the assemblance and conduct of the focus groups sessions. Such control however is possibly the largest disadvantage of focus groups in comparison to participant observation, in that they are often in unnatural settings. Whilst in participant observation, data may be collected on a wide range of behaviours in a natural setting, whereas by comparison focus groups are limited to the verbal behaviour during interaction with participants, and must be created and managed by the researcher. Accordingly, if the topic of interest demands relatively 'uncontaminated' statements of the research participants' experiences and perspectives, then participant observation is the closest approximation to this degree of naturalness. Locating and gaining access to such a setting however is a comparative weakness.

Both focus groups and participant observation share a common interest in group interaction, and each have their particular strengths and weaknesses. The principal uses of each according to Morgan [1988:17] is that focus groups are better suited to topics of attitudes and cognition's, whilst participant observation is superior for studies of roles and organisation.

A5.82 Focus groups and individual interviews

As opposed to individual interviews, a comparative strength of focus groups as an interview technique lies in their ability to observe interaction on a topic. A primary reason for the preference of such a method with marketers, is that in group interviewing the participants interaction amongst themselves replaces their interaction with the interviewer, leading to a greater emphasis on participants' point of view. Bellenger et al. [1976:7-28] argued for example that "the give-and-take of interaction leads to relatively spontaneous responses from participants as well as producing a fairly high level of participant involvement. Similarly, Levy [1979:34-42] suggested that hearing how participants respond to each other also gives insight, not just into their natural vocabulary on a topic, but also when they are willing to challenge others and how they respond to such challenges.

Focus group interviews can be conducted as free flowing, self managed groups, in which there is no pre-determined interview guideline, thus removing the researcher's perspective from the interaction. Self managed groups by contrast are likely to be chaotic in terms of data collection and may demonstrate little comparability between groups. Accordingly individual interviewing and focus group interviewing are likely to sit at opposite ends of a continuum from researcher controlled formats to less structured, participant dominated formats. The use of pilot focus groups could produce results which would serve as the basis for the creation of more structured interviews perhaps at the individual level, or could be pursued in more groups.

Focus group interviews can involve a higher number of participants in a short space of time and with proportionately less data than the same number of individual interviews. Research by Fern [1982] however, showed that in an equivalent number of interviews, groups produced only 70% as many idea as individuals. Whilst a considerable saving in time is gained, this is achieved at the

expense of a substantial loss of data. Certainly cross validation of the two modes of interviewing on the same topic will establish the better of the alternatives on a given subject. In the interim, the trade-off between methods will be dependent on the nature of the research question and the resources available.

A5.83 Appropriateness of focus group techniques of data collection.

Despite the apparent weaknesses of focus groups, namely the problems of setting and control, their principle strength lies in the opportunity to collect data from groups discussing topics of interest to the researcher. As the discussion topic areas are generated by the researcher, focus groups offer a higher degree of control over traditional participant observation in a natural setting. The preselected topic and participant groupings essentially ensure that the data is research-directed and controlled through the presence of the modulator or facilitator. In addition although there is a degree of control exercised by the facilitator, the participant defined nature of group interaction is less controlled than in individual interviewing. Focus groups accordingly occupy an intermediate position between the two principle alternatives of participant observation and individual interviewing. The appropriateness of focus groups in preference to the alternatives must rest on the extent to which participants are likely to actively and easily discuss the topic of interest. If there are potential barriers to interactions, this may require other data collection options. Morgan [1988:23] suggested the danger of lack of interaction may be overcome by building back-up data collection strategies into the research design.

A5.84 Participant Observation and Holism

In a review of *Patterns of Discovery in the Social Sciences* by Paul Diesing, Reason, [1981:183], referred to the four dominant patterns of discovery of - the experiment, the survey, the participant observation and the formal (scientific). Diesing's preferred role is that of a participant observer in which he sets out the *holist* approach to discovery. Diesing argues that the holist is interested in studying a 'whole human system in its natural setting'.

The holist standpoint includes the belief that human systems tend to develop a characteristic of wholeness or integrity. They are not simply a loose collection of traits or wants or reflexes or

variables of any sort...; they have a unity that manifests itself in nearly every part..This means that the characteristics of a part are largely determined by the whole to which it belongs and by its particular location in the whole system.

[Deising, 1972:137]

Reason [1981:184] argued that the holist goes further than arguing that wholes exist but seeks to provide an account of them by somehow capturing and expressing this holistic quality, i.e. not only the interactions among parts, but also the unique characteristics, distinctive qualities and patterns which differentiate the system from others.

Deising [1972:141] argued that holism is rooted however in a belief in the primacy of the subject, rather than in the traditional canons of scientific inquiry; it starts from a general attitude of respect for human beings' such that even a scientific reduction of a person to a set of variables is in a way disrespectful because it mutilates integrity.

Despite the above assertion, Diesing argued that a holist approach to inquiry can be scientific through appropriate method, logic and rigour that are distinctly different from other methods.

As Reason [1981] observes:-

Clearly a scientific study must produce an accurate representation of its subject, yet notions of validity and reliability as used by experimentalists are meaningless to the holist, implying as they do some impersonal, automatic truth.

[Reason, 1981:184]

A5.85 Contextual validity and Holism

The accuracy of data that is qualitative, fleeting and at times impressionistic involves pursuing the notion of contextual validity by means of comparison with other pieces of data.

Pursuit of contextual validity in this way does, not mean direct comparison to identical datasets, but a comparison of other kinds of evidence on the same point to assess the congruence between each. A second means of contextual validation

is to evaluate a source of evidence by collecting other kinds of evidence about that source to locate the characteristic pattern of distortion in a source.

Contextual validation enables the holist to use types of evidence whose independent validity might be middling to low by connecting themes in a network or pattern to explain information gathered in the field.

As Kaplan, [1964] observed of building pattern models;-

For the pattern model, objectivity consists essentially of this, that the pattern can be indefinitely filled in and extended: as we obtain more and more knowledge it continues to fall into place in this pattern, and the pattern itself has a place in a larger whole.

[Kaplan, 1964:159-160]

Unlike the traditional deductive model, which involves general laws which explain some phenomenon, the pattern model involves a number of phenomenon all of equal importance then seeks to explain the connections between them.

In the pattern model, prediction is not important. Deduction of unknown parts from the known parts is not possible, rather explanation lies in demonstrating the connections of a 'puzzling item' with other items and the whole pattern.

Thirdly the pattern model is rarely if ever finished, and finally, the pattern is subject to change in the course of its development as new data becomes available.

[Reason, 1981]

Information gathered in the field allows the holist researcher to build models, or patterns of connected themes which serve to *explain* the system through direct observation and interaction. Diesing considered this to be a borderline tactic belonging simultaneously to science and to action.

The interpretation of connections is based upon interaction between participant and researcher. Observations and connections made can be said to be discovered empirically rather than inferred logically; the result of which is an empirical account of the whole system. Diesing [1972:158] argued that this account explains the system because it describes the types of relations the various parts have with each other so that the relationship between one part and other parts serve to explain or interpret the meaning of that part.

However, despite patterns or themes being empirically based, in that they are discovered from data and linked together by pattern models, and subsequent

models may be grouped into typologies providing a higher level of explanation, general theories are not directly testable. As Reason [1981] observed:-

General theory is only testable indirectly by the empirical usefulness of its associated typology, which is testable by the adequacy of the case descriptions and so on.

[Reason, 1981:188]

In addition to being an approach to the development of theory from observation, the holist approach, according to Reason, provides information and ideas about the internal workings of human systems and as such enable the researcher to work within the system in such a way that the researcher might become an active participant in self development.

I would argue that researchers', by intervening in organisations as a facilitator of organisational learning, are provided with an opportunity to develop theory from observation and participation. The generalizability of such theory however will depend both on the extent to which theory generated is contextually valid and the ability of the researcher to provide adequate case descriptions. The notion of a holistic theory that is a universally quantified empirical generalisation and may be tested as such is as Diesing points out - "a nonsense". Diesing observed;

The holistic approach exhibits the most respect for human dignity and freedom because it enables a person to work with, not on, his case, to treat him (or them) as fellow human beings rather than as things.

[Diesing, 1972:264]

The holist approach, I would argue, is an equitable way to generate knowledge about and within social systems. Holism recognises the inherent openness of social systems in which reality is socially constructed. In so doing, it provides an opportunity to foster learning in a situation in which the 'researcher', by acting as a full participant, is provided with the opportunity to acquire knowledge that could not have been generated by detached objectivity.

A5.86 Generating Knowledge in social systems through participative research

Whilst traditional science involves puzzle-solving within the constraints and assumptions of a generally accepted 'paradigm' that defines the important problems and the methodologies appropriate to their solution [Kuhn 1962].

Brown and Kaplan [1981:311-312] argued by contrast, that participative research or collaborative enquiry is much messier. It is a collective attempt to construct reality and, as such, is an elaborate social process which brings together parties whose enquiry objectives, research methodologies and conceptual frameworks are very different. The result of this may be misunderstanding, ambiguity, or conflict.

Participative research emphasises joint investigation by researchers and subjects to produce new understandings of organisational realities and solutions to specific problems. A method, according to Brown and Kaplan [1981], that is well suited to the study of intractable social problems like long-term organisational change.

With sociological research, knowledge of the parts often distracts researchers from understanding the context within which variations are recorded. As Weiss [1988] argued, a methodology which requires us to search only for relationships among variables taken two at a time will find it difficult to make understandable such entities. This more analytic approach may well lead to important generalisations, but it will leave unexplained the characteristics of living systems, their organisation.

Phillips [1965], for example, in calling for new methodologies in sociological research suggested that moving beyond the accumulation of lists of variables towards a concern for how a system works requires greater participation within the system. He argued that if sociologists are really interested in process and interaction, and wish to study the construction of meanings and of social relations, then this can only be achieved through more active involvement and participation. Phillips [1965] believed that such participation, by allowing the researcher to become involved with, and fix on, the area of study, enables a greater awareness, by providing experience and allows one to obtain 'knowledge of' as well as 'knowledge about' a situation.

Whilst cultural phenomenon can be viewed from within, the notion of objectivity of the observer is however challenged. Given that there is a differential distribution of realities within any society, there are multiple realities, consisting of information believed by somebody to represent facts about the social world. The reality within which members of society construct their lives is, to a large extent, of their own

construction. The realities which constitute other people's definitions of a situation could accordingly be better understood, Phillips argued, by placing ourselves in their situation.

Moreover, Phillips suggested that such participation leads to the acquisition of knowledge which would not have been gained through detached objectivity. Such personal experiences, rather than be denied, should be utilised through introspection. Rather than a concern for new observations, he suggested emphasis on interpretation and meaning of what has already been experienced.

A5.87 The value of research to participants

This thesis is aimed at organizational intervention as a means of addressing organisation/environment dysfunction as a result of changing values technologies or user's needs. Responsibilities for reducing goal discrepancy lies often with the Facilities Manager in organisations, who invariably seeks to balance the often conflicting needs of stakeholders, shareholders, resources and the law through time. Facilities Manager's research needs are 'here and now'. They are primarily concerned with the action outcomes from organizational intervention. This does not diminish the need for improved understanding of the way in which the environment meets human needs through basic research but the appropriate research paradigm for facilities management research I argue should be that of action research.

Thelen (1985) suggested that the proper nature of human-social science, as suggested in the principles explicit in the theories of Bion and Dewey, are that:-

the most valuable outcome of research is the participants' experiences from the inquiry - as distinguished say from the demonstration and organisation of objective findings. The knowledge to which human science research contributes most meaningfully is within the personal culture of inquirers; and, as they interact and 'combine' with others in the joint enterprises of living, insights from their personal cultures tend to become shared and communally internalised within the culture of the social system.

[Thelen, 1985:129]

Such concepts relate well with that of Lewin's [1947] notion that the state of major variables in organisational or group life is that of a quasi-stable equilibrium maintained as a balance between centripetal and centrifugal forces.

Thelen [1985:130] contended that the quasi-stable equilibrium persists as long as it serves the survival and growth needs of the system. As these needs are met, others develop, making the condition maladaptive and straining the equilibrium beyond its parameters.

Similar to the Gothenberg study [Markus et al. 1994], this thesis considers that an appropriate methodology for organizational intervention is to maximise the use of self-knowledge.

Markus [1994] maintains that self knowledge which is being used and valued is obtained by and for themselves of those who need it, when and in the form that they need it. Their philosophy is that such a process can create a 'knowledge community' which they describe as "a network of generators and users (of knowledge) with shared objectives and values, and a shared experience of praxis".

A5.9 Needs satisfaction and environmental complexity

Management Scientists, Psychologists, Sociologists, Architects and Planners have conducted extensive research into individual and organisational productivity including the extent to which the physical environment supports organisational and individual needs.

Organisational Psychologists, whilst attempting to show that participative management can increase productivity through improved motivation and ability, have found that the relation between needs satisfaction, morale, employees' job performance, and productivity is much too complex for us to assume that satisfaction of individuals' needs will automatically lead to better job performance and productivity. [Seashore:1959:12]

I would argue that man-environment relationship research is fragmented and relates to individual components of individual and organisational performance. It is through a holistic evaluation of the working environment which addresses levels of satisfaction with the physical environment, social relationships and the

organisation of the work activities, that resources both human and non-human, can be addressed to optimise effectiveness.

Mullins, [1992] argued that, despite the differences among various organisations, there are at least four common factors in any organisation: people, objectives, structure and management. He argued:-

The interrelationship of people, objectives, structure and management, together with the efficient use of resources, will determine the success or failure of the organisation and the extent of its effectiveness.

[Mullins, 1992:2]

This research builds upon traditional methodologies for analysing the performance of built environments. The research proposes that traditional methodologies such as Post Occupancy Evaluation, (POE) Environmental design evaluation (EDE) and Environment-behavioural research (E-B) whilst useful techniques for feedback or feedforward to the design process, fail to address the needs of end users by considering satisfaction with the physical environment in comparative isolation. Whilst a database of the success (or failure) of building designs can be feedback and in turn forward to the design process, ideally providing for more efficient, effective and habitable buildings in the future, it is argued that such an approach acts as a filter which prolongs the improvement process. Buildings are typically occupied for around 40 years and in some cases longer. In the health service for example it is not unusual for buildings to continue in the function of health care delivery some 150 years or more after their original construction, despite the advances in technology, social expectations and changes in managerial style over that period.

It is argued that, rather than conduct evaluation on the physical environment for future design or for fine tuning existing facilities, evaluations should seek to address the immediate and short term fit between the individual, the organisation and the physical environment.

Moreover, traditional POE etc. have been the province of the expert - architects, sociologists, psychologists and the like. But the opportunities and necessity to retrofit a physical entity such as a building are few, relative to the needs to adapt

the organisation and its practices to meet the changing needs of society, individuals, technology and business.

If tools are to be developed for the analysis of the organisational environment, then they should be capable of use by those responsible on a day-to-day basis in the productive environment.

I suggest that participative evaluation involving users at each level of the organisation is more likely to yield results which lead to improvements in individual satisfaction and organisational productivity. Evaluation criteria should be determined by users of facilities in addition to management or expert consultants. Evaluation may then be conducted on the basis of what does happen rather than what should happen in the work environment.

Jockusch(1990) maintained that;

It may be a general misconception of the architect's duties that any performance failure of an institution may be cured by building.

[Jockusch, 1990:1:5]

Often however, performance failures are a result of poor working or management practices rather than a problem with the physical environment. He suggested however, that architects can help to change something in the workflow or management, (not from a determinist position) but through helping users to learn how to use their buildings for the benefit of their institution.

It is suggested that general dissatisfaction with social and psychological factors is inherent and, as a result of managerial structures, may manifest themselves in dissatisfaction misdirected towards the physical environment. Accordingly, means of establishing information of the extent to which the physical environment supports the needs of individuals and organisations must ensure that non-environmental variables and antecedents are accounted for in the data collection process. It is suggested that a participative approach to environmental evaluation provides the basis for negotiating the quality of the environment from the perspectives of all stakeholders in a social system or organisation.

Section B

Environment-Behavioural Research

B5.1 Environment-behavioural research and Productivity

The seminal work in the field of environment behavioural research was arguably the Hawthorne studies [Roethlisberger and Dickson 1939] and that of Elton Mayo at the Western Electric Plant. These attempted to explore the relationship between the physical characteristics of the work environment and formal organisational factors.

Such studies were developed under the framework of scientific management which in principle aimed to improve productivity through the substitution of mass manufacturing principles of standardisation of work units, tasks and practices in place of ad-hoc decision making and processes.

Becker [1981:60] argued that scientific management continues to influence the way in which environments are created in organisations, its role however is likely to diminish significantly with the increased democratisation of the workplace, increased employee autonomy and the growth of both the knowledge worker and project teams.

Current management theorists such as Moss-Kanter [1987], Handy [1989], Peters [1990], Hammer and Champy [1993], Malone and Davidow [1994], suggest that the fundamental nature of work and work processes is about to undergo a similar revolution to that of late 19th century. The new information age and service economy in which organisations (and individuals) will compete has variously been described as Post Fordism and Post Industrialism with the emergence of concepts such as the service factory whereby there is a shift in emphasis from product to product and service.

The Hawthorne studies have subsequently been challenged and widely criticised by many theorist including Sommer [1968], who argued that all the Hawthorne studies demonstrated was that a simple deterministic model for environment-behaviour effects is inadequate. They perhaps dealt a significant blow to the consideration of the role of the physical environment as a factor of production.

Sutermeister [1959] for example, in an edited collection of papers on people and productivity, concluded that the physical environment has little influence on individual motivation and work satisfaction subject to hygiene factors having been attended to. The Hawthorne studies, by focusing on and highlighting the critical role of the social processes of work, served to further belittle the role of the environment as a catalyst. The physical proximity of the workforce was in fact a prerequisite to the development of the social environment (and other factors) which contributed to improved productivity.

Becker [1981] argued that:-

The premise that single cause and effect relationships characterise behaviour, and can be identified and manipulated, made the interpretation of the physical setting data as having no effect almost inevitable. It also prevented the researchers from looking for more complex ways in which the scientific environment might relate to social phenomena. The Hawthorne studies demonstrate the power of scientific paradigms to control and limit the nature of scientific investigation and interpretation.

[Becker 1981:16]

Whilst Industrial psychologists have often stressed the importance of physical conditions on the job to employee performance. Noise, lighting, music, rest periods, ventilation, temperature, humidity have been seen as facilitators or inhibitors of employee performance. Studies such as the Western Electric Researches were, however, unable to demonstrate any relation between physical conditions and productivity, rather the attitudes of groups and individuals seemed to influence motivation and productivity. That is not to suggest that human physiological needs may be ignored.

Ruck [1989] for example argued that:-

Buildings create environments. They provide the temperature, humidity, lighting and ventilation necessary for people to live and work productively. Productivity is invariably the largest component of a building's contribution and it can be severely affected by human stress.

[Ruck, 1989:261]

Whilst this is a sweeping generalisation, as in some instances, it could be argued that the symbolic impact of a physical environment can outweigh its functional effects. e.g. a church, Ruck argued that design objectives should seek solutions

which give high priority to human needs and job performance while maintaining overall minimal costs.

The theories of both Maslow and Herzberg however reject the idea that a pleasant and satisfying physical environment can contribute in a positive way to job satisfaction.

Maslow [1943] in his theory of individual development and motivation, suggested that the physical environment can satisfy a person's basic needs but that it only becomes salient when it threatens not to. In Maslow's hypothetical Hierarchy of Human Needs, each individual has needs ranging from basic physiological to higher order ones. Once an individual's needs at a level of the hierarchy have been met, the person focuses on the next step of the hierarchy, the level attained no longer acting as a motivating factor. Despite the assertion that "a satisfied need is no longer a motivator", Maslow suggested that a lower level need not be fully satisfied fully before a subsequent need arises.

Alderfer's [1972] Existence, Relatedness and Growth Theory presented a modified needs hierarchy model, again applied to the organisational setting. This concurred with Maslow that lower level needs decrease in strength as they become satisfied. Alderfer's ERG Theory is presented as a continuum of needs of Existence, Relatedness and Growth rather than a hierarchy. Individuals may have stronger desires to satisfy particular needs rather than ascend through a hierarchy.

Maslow's work has been subject to doubt and criticisms. The theory is difficult to test empirically. Mullins, [1978:452-454], for example criticises the rather simplistic nature of the need hierarchy model. People do not necessarily satisfy their needs, especially higher level ones, just through the work situation but through their social and private lives.

However Sundstrom [1986] argued:-

The main implication of the hierarchy of needs is that people in an adequate work environment take it for granted and only pay attention to it when it fails to meet their basic needs. If so, workers may routinely underestimate the extent to which an adequate physical environment contributes to their satisfaction.

[Sundstrom, 1986:75]

Psychologist Herzberg [1966] included the 'environment' in his taxonomy of work related factors affecting job satisfaction and work performance. His two factor motivation theory describes hygiene or maintenance factors as dissatisfiers and motivators or growth factors as satisfiers. Working conditions, company policy administration, level of quality and supervision are described as hygiene factors which, if absent or inadequate, cause dissatisfaction but do not in themselves create a positive attitude or create motivation to work. He concluded that the opposite of dissatisfaction is not satisfaction but rather no dissatisfaction. The work environment to which Herzberg refers is its context however; the set of external factors that bears upon the individual in the performance of his or her tasks. These include salary, status, job security, company policy and administration, and working conditions. They are contextual or extrinsic, according to Herzberg, because alone they do not generate job satisfaction in the worker.

Herzberg concluded, not that the environment was unimportant, but that there is a psychological dimension of man's relationship to it that eludes conventional physical measurement.

Vischer [1989] suggested that implicit in Herzberg's theory, is the importance of psychological or subjective factors in the analysis of behavioural phenomenon, be it job performance or productivity or building in use performance and environmental quality. Vischer [1989:61] asserted that there are 'intrinsic', self motivating factors at work in people's reactions to and judgements of an environment just as there are in people's job satisfaction.

The relationship between organisations and the physical environment was explored by Steele [1983] who identified 6 dimensions of the interactive relationship between people and the settings in which they work. Steele described the dimensions of shelter and security, social contact, symbolic identification, task instrumentality, pleasure and growth, and emphasises that they should not be regarded as functions the building performs. They should be viewed as opportunities for interaction between people and their environment which can be used by the organisation in a positive and negative manner. Steele emphasised that the organisation should not underestimate the impact of the physical setting on the behaviour of workers. He argued that:-

Settings also have an impact on group growth, especially in the area of group norms and group problem solving ability.

[Steele, 1973:85]

The organisation, he suggested, can contribute to its own health by analysing, understanding, and responding to the effects of its building environment on its task processes and decision making.

Whilst working conditions can affect employees comfort at work, Sutermeister [1959] argued that there are many the examples of employees working under bad working conditions who maintain a high level of morale and, likewise, of employees working under 'the best' physical working conditions who have low morale.

B5.2 Co-operation between social and engineering sciences

The emergence of closer co-operation between both social science and engineering disciplines has according to Rabinowitz, [1989] "began to respond to the calls for more collaborative research into man-environment relationships." Such collaborative efforts he suggested were in response to the changing values, expectations and technologies for built environments, and began to emerge through post-occupancy evaluation studies in the 1960's. Rabinowitz, in charting the history and development of the field suggested that post occupancy evaluation studies were part of the wider field of environmental design research and were called "environmental analyses" in the USA or, in Britain "building appraisals". The seminal approaches to comprehensive studies examining buildings-in-use and the design process by which they came about were those conducted by Markus [1972] at the Building Performance Research Unit and the Pilkington Research unit [Manning, 1965]. This early work according to Rabinowitz, developed in parallel with ongoing research and the development of theory in environmental design, allowing concepts such as sociometrics, proximity, territoriality, and privacy to be applied to POE's. The 1970's saw the emergence of more systematic POE's increasingly being used and, by the 1980's, POE was a widely used activity by both private and public sector organisations as a standard operating procedure. [Rabinowitz, 1989]

Post Occupancy Evaluation has however been widely criticised (see later) in terms of methodology being described at times as both unscientific and of limited scope. This thesis argues for the inclusion of POE as part of a systems thinking approach to developing understanding of man-environment needs, in so doing developing new knowledge of system interdependencies. Post Occupancy Evaluation which considers the built environment in isolation, or as its primary focus, serves to delimit the potential of organizational intervention and to recognise more widespread patterns of dysfunction between, people, organisations and their environments. People conceive of their environments holistically and in so doing perceive of a wide variety of factors which may impinge upon their satisfaction or well-being. Post occupancy evaluation can be used as a means of intervening in organisations to explore the systemic nature of those factors and processes which support an individuals work, social, psychological and physiological needs. I argue that Post occupancy Evaluations could be extended in scope and renamed Facilities Performance Evaluation. In so doing they can seek to identify the processes which support individual needs in a more holistic way. Such an approach however demand an appreciation of systems thinking and the systemic nature of social organisations.

B5.21 Human Environment Relations in Perspective - Social Sciences and Design

The 1960's saw an increasing number of psychologists, sociologists, architects and urban planners attempting to explore the relationships between people and their physical settings. [Lynch 1960; Gans, 1968; Hall, 1966; Sommer, 1969; Proshansky et al.; 1970; Michelson, 1970; Altman, 1975]. Such studies were aimed at providing a solid empirical basis for future design decisions which would highlight the physical settings role in influencing and supporting the needs goals and aspirations of individuals, organisations and society.

In addition to the movement towards new forms of collaboration between the social science, design and management disciplines, such studies developed new explanatory research concepts by which designed settings and their use might be explored in a more holistic fashion. Such approaches attempted to develop

hypothetical constructs in cases whereby entities cannot be analysed into the sum of their parts without residue [Zeisel 1981].

The factors which led up to the establishment of systematic attempts to explore man-environment relations in the workplace is well documented by Sundstrom [1986] who charted an historical overview in the evolution of workplaces and exploration of the psychology of the physical environment in offices and factories, describing the evolution of workplaces through constantly evolving technology and changing values of society.

The social movements of the 1960's and 1970's, and the apparent failure of technology to solve human environment problems, caused people to challenge basic values concerning our environment, namely through the systematic study of Environment-Behaviour relationships.

Zeisel [1975] and others began positing notions about the ways in which the traditional architectural design process could be changed. He argued that the linear process did not allow for information to enter the design process and proposed the design cycle introducing both pre-design programming and Post Occupancy Evaluation (POE) into the process.

Markus et al. [1972] concurred that evaluation, as the final stage in the morphology of design, falls too late to alter the product (of design) radically and called for feedback throughout the design process.

Moreover, whilst such feedback loops can help the designer improve his/her own performance, they are perhaps of questionable value relative to the knowledge to be gained from the working building, whereby predictions, simulations, design process and choices might be verified through evaluation research.

Donald [1990] argued that since the Hawthorn studies of the 1930s, the importance of social processes and factors in negating and modifying environmental influences on people's behaviour has been apparent. Despite this, he argued that evaluation research is often conducted within what appears to be a social and organisational vacuum and as if it assumes that there is a correspondence between environmental conditions and parameters and people's evaluations and experience of them. Donald asserted:-

This perspective is problematic, and the need to incorporate the influences of social and organisational processes in evaluation research is one of the many issues which needs to be addressed.

[Donald, 1990:1:2]

B5.22 Fragmentation of Man-environment Relationships

The suggestion that traditional man-environment research is fragmented, was proposed by Cohen [1990], who developed from consideration of the physical environment to consider the social and individual factors as antecedent and situational conditions which should be considered. Cohen proposed a paradigm for environmental analysis, suggesting that the concepts of human stress and adaptation provide a useful framework for modelling some man-environment relations, despite certain conceptual and environmental limitations.

Similarly, Vischer [1987:63] suggested that in the field of study of person environment relationships, there has been no acceptable methodological approach to building evaluation based on the systems view of user and building. She suggested that the lack of a practical building-in-use methodology is attributable to four factors;-

The first is a general reluctance on behalf of researchers to deviate from conventional social science methodology, the data gathering and analysis process of which dictates an analytical approach.

The second is that methods that have attempted to capture the 'wholeness' of the building user system are cumbersome, and do not lend themselves easily to field application by untrained people [Barker, 1970; Margolis, 1981; Ventre, 1988].

The third factor is the predilection of social scientists to analyse and report building users' behaviour (i.e. their satisfaction) without reference to the specific environmental factors being evaluated, that is, emphasising psychological factors at the expense of information about building performance research.

And finally, as long as trained researchers perform building evaluation in lieu of the people who actually design, build, own, and operate buildings, they will exercise ultimate control over the information yielded by the studies, trading off its practical ability in favour of research integrity.

[Vischer, 1987:63]

B5.23 The integrity of personal environmental events

Moore et al.[1985] considered that Environmental Design Research resists thinking of people or settings independent from each other, in the same way that research and application should not be separated. They suggested [1985:28] that all events involve the characteristics of people and the settings in which they are embedded in a form of transaction, of which it could be argued that environment-behaviour is transactional unity or single unit of analysis. Such a notion, I would argue, is reminiscent of Barker's [1968] ecological psychology and its notion of standing patterns of behavior which can be identified with, if not constituents of, or the sum of, the environment.

Lewin [1936] and Barker [1968] suggested that behaviour in everyday settings is the result of the joint processes of human forces and situational factors. Whilst Rapoport [1976] would argue that the field comprises of three axes of people, space and culture. Moore [1976] suggested however, that events are affected by internal or orgasmic factors including intrapersonal and interpersonal processes of individuals, groups, and cultures, and situational or environmental factors, including social, cultural, and physical environment.

It is apparent that the adoption of a systems perspective to understanding the mutual interdependence of system elements, rather than focus on partitioned dimensions or processes such as perception or cognition, provides for a fuller understanding of the system as a whole.

B5.231 Environmental Design Research Defined

Environmental design research is concerned with a wide range of research activities and applications from basic research and the construction of explanatory theories of environment and behaviour, to applied research and applications to the environmental disciplines. It has been defined as:-

... the study of the mutual relations between human beings and the physical environment at all scales, and application of the knowledge thus gained to improving the quality of life through better informed environmental policy, planning, design and education.

[Moore, Tuttle and Howell., 1985:;4]

Despite this somewhat utopian definition from an individual user perspective, the efforts of EDR, I would argue, are also directed towards the effectiveness of the built environment from an organisational perspective.

It should be clarified from the outset the context with which the term design is utilised here. As much environmental design research is concerned with applications of environmental policy, planning, resource allocation and education, the term *design* should not be restricted to the physical setting. *Design* is used in the broad sense of the invention and disposition of the parts of the environment according to purpose and plan.

Villeco and Brill [1981] highlighted the distinction between design practice and environmental design research, suggesting the former utilises existing knowledge to a single building which may improve the firm's knowledge base but does not seek to generate new knowledge. EDR by contrast seeks to generate new knowledge towards the advancement of the field.

EDR can be distinguished from other forms of research in that its emphasis is on the relationship between people, the physical environment and quality of life, as such it is multilevel, involving basic research and applied research applications.

Moore et al. [1985:21] argued that Environmental Design Research is value explicit, as its conduct is determined by certain assumptions and values, which, as they can often be in conflict, require to be made explicit from the outset. They argued that whilst the historical view of science was of it being value-free, and that the enterprise of science was a search for truth in which personal or societal values should not play a role, Contemporary philosophers of science acknowledge that science is not value-free, but rather that it should be value-explicit.

Moore et al. maintained that when conducting environment design research:-

..the decision of which environment-behaviour interactions to study is fundamentally driven by individual and social values...since consensus and conflicting values systems determine decisions about research and interventions in the designed environment, these value must be made explicit.

[Moore, Tuttle and Howell., 1985:21]

The inevitable conflict between long and short term benefits of research in the built environment, and between the goals of the marketplace and those of optimising environmental quality for human growth and well-being, may serve as a 'healthy tension' subject to both directions being adequately supported.

Senge [1990:42] for example referred to the juxtaposition of vision (what we want) and reality (where we are relative to what we want) as generating a form of

'creative tension' which is a force which attempts to bring them together, caused by the natural tendency of tension to seek resolution. The gap between vision and current reality calls for either a move to pull reality closer towards the vision or pull the vision towards reality. Without a gap there would be no tension and consequently no need for action. Accordingly Senge argued, the gap is a source of creative energy which can be used to generate energy for change.

Similarly the nature of the relationship between the research and practice communities may create conflict as a result of the potentially divergent objectives of research. As Moore et al. suggested:-

...the criterion by which quality or qualities are defined remains a major philosophical difference among researchers and probably constitutes one of the major differences in perspective among designer-practitioners, managers of the designed environment, and researchers.

[Moore, Tuttle and Howell., 1985::23]

As such they suggested viewing such differences as creative tensions rather than conflicts as this produces an atmosphere by which improved communications can occur. They argued that the field is deeply committed to communication between research and application or to the human sciences and design professionals.

As Zeisel [1981] has argued however, the complexity and interdependence that characterises social systems, calls for multidisciplinary collaboration if knowledge of man-environment relationships is to extend beyond mere communication and joint participation towards a language rooted in an integrative theory of environment-behaviour-design relations.

B5.24 Design research

Farbstein and Katrowitz [1990] suggested that:-

Design is a process of creating, exploring, and testing physical options to accomplish a given set of objectives, based on the designer's experience, skill and knowledge. Research is (and should be) only one source of knowledge.

[Farbstein and Katrowitz, 1990:1:2]

They suggested that the traditional epistemology of design research, in which research-based knowledge is applied to a design problem is analogous to placing a Band-Aid on a bruise. Band aids are useful and important - but not sufficient. This paradigm alone does not adequately describe either recent developments in research-design practice or its future potential. Under the traditional paradigm research is a separate activity from design and research precedes design. They suggested that;-

...the reason that much design research has had limited acceptance is due to its nature as essentially divorced (in time and persona) from the arena of design decision making.

[Farbstein and Katrowitz, 1990:1:1]

Duffy [1992] in *The Changing Workplace*, argued that:-

... designers must demand applied research that is useful, that is not too difficult or expensive, and that is conducted within a framework of a model of relationships between job, worker and building. We need to know more facts.

[Duffy, 1992:49]

The design profession is not alone in this respect however. Schon [1983], writing on professional knowledge and reflection-in-action, asserted that research is institutionally separate from practice, connected by carefully defined relationships of exchange. Whereas researchers are supposed to provide the basic and applied science from which to derive techniques for diagnosing and solving problems of practice. Practitioners are supposed to furnish researchers with problems to study and with tests of the utility of research results.

It seems evident therefore that new paradigms and methodology must be developed in order to close the divide between the research and design communities. As the boundaries which delineate between design and research practice and associated disciplines such as facilities management blur, research-

based knowledge is permeating throughout project activities to programme based activities such as ongoing facilities management.

Farbstein and Katrowitz [1990] described such new multidisciplined and faceted research as "design-decision research", which is aimed at better informing the decision maker, rather than generating new knowledge, which arguably, although of greater generic value does not inform the decision making process. Such design-decision research, as described by Farbstein and Katrowitz, has also been described as demand driven Post occupancy evaluation [Zimring et al.,1988].

B5.25 The value of Design Research

In calling for useful research for the design community, Duffy [1992], one of the pioneers of Post Occupancy Evaluation, asserted:-

What is striking, looking back, is how little this field has advanced in the last 20 years. Studies of environment and behaviour are still stuck at an extremely elementary level of inquiry and yet, paradoxically, the few useful results that do exist are quite neglected.

[Duffy, 1992:37:Editorial]

The extent to which architects should involve themselves with social conditions, Duffy [1992] argued is a question which should not be taken lightly. The conflicting viewpoints extend from architectural determinists, who motivate themselves by believing that buildings determine peoples behaviour, to those who regard buildings as something independent of human activity. Whilst the architectural determinists may find some empirical support from the social sciences to substantiate their stance it is from a more paternalistic perspective that they approach design. As Duffy [1992:37] argued in "the belief that they are somehow doing good". Social scientists by contrast, whilst admitting that buildings may influence behaviour, regard environmental variables as a "parallel rather than shaping force".

Duffy [1992:47] suggested that ones' attitude to social conditions may be represented as opposite ends of a continuum representing 'cheerfully paternalistic' at best and 'grimly exploitive' for the sake of higher productivity at worse. He suggested a model for architects and scientists to select their own attitude towards the social and behavioural sciences. (see figure 5.2)

Figure 5.2 Model variables of the organisation, behaviour and building form

<p>Organization of work - <i>the job</i></p>	<p>whatever is directly to do with getting the work done, e.g. the task to be completed, the line of authority and responsibility, work communication channels, management style, equipment used, numbers of visitors, etc.</p>
<p>Behaviour at work - <i>the worker</i></p>	<p>the social consequences of getting work done, e.g. display and prestige, work expectations, visitor expectations, informal groupings, communications, sex, age, income, education of the workers, secrecy required, etc.</p>
<p>Building form - <i>the building</i></p>	<p>the physical consequences of job and worker, e.g., location, space and equipment standards, disposition of groups and workers in plan, arrangement of equipment, size of room, use of partitions, screens, room dividers, etc.</p>

Duffy [1992] in introducing the rationale for his model variables stated;-

Buildings provide a framework for behaviour. They exist only to allow people to do what they want to do.

[Duffy, 1992:38]

He conceded that buildings often fail in this task. The needs of a wide variety of differing stakeholders expectations from the built environment are diverse. Rather than neglect the relationship between building organisations and behaviour on the basis of the insurmountable number of variables, sub-hypothesis and value systems, Duffy [1992:38] suggested, that buildings and organisations should be designed to permit all possible behaviours to coexist without coming into conflict. Whilst perhaps, by his own admission, an impossible ideal, it does he argued provide the basis for the generation of generic data from the social sciences, providing applied research data based on the classification of types of work which can then be used to influence building design. He argued [1992:40] that such information can only be generated by techniques of operational research to enable the connections between organisational and behavioural variables and generic building characteristics, relationships and patterns.

The work of Christopher Alexander on Pattern language demonstrates through the grouping of patterns, the predictability of behaviour from certain organisational groupings and the extent to which physical forms are appropriate. Whilst pattern-language may be criticised on the basis of its generalizability and inability to take

account of heterogeneous conditions, Duffy contended that the essential relationships between the variables are more likely to be transformed not destroyed, as a result of localised circumstances, resources and preferences, as the patterns themselves are based on the smallest isolatable relationship which resolves a conflict. Further, he suggested [1992:44] substantiation of the interrelationships extant by the use of a *trident* test which demands that all three sets of variables, organisational, behavioural and physical, are accounted for in any empirical experiment.

B5.3 User Design Participation / pluralism

According to Goodman [1972], early results of approaches where people designed their own environments will probably not suit the people who made the design; the experts will probably reject their efforts and call for more professional help. But as people use their own environments over time, they can be expected to know more about what designs are useful and which ones aren't. They won't need elaborate 'user studies' to find out what's wrong since they, in contrast to the absentee expert, will, after all be living in the environment they create.

The limitation with his argument is of course that user's may know what they want but are, unable however to articulate or externalise this.

Research evidence has shown that increased employee involvement, in decisions relating to the design of their environments, is associated with greater satisfaction with the work environment and a stronger commitment to decisions made about it [Becker 1988, Margulis and Konar 1984, Frogat 1985, Wandersman 1989]

Given the above evidence the lack of user involvement in the design of their environments seems incredible, perhaps indicative of the assymetrical distribution of power within organisations.

However as Goodman observed;- the crucial question is not whether people can become technical experts in systems of buildings but whether or not people know enough about their own requirements for the use or architectural space to avoid being subservient to professionals. [Goodman, 1972]

Goodman argued that by raising the possibilities of a humane way of producing places to live (and work), by phasing out the elitist nature of environmental

professionalism, we can move towards a time where we will no longer define ourselves by our profession, but by our freedom as people.

He argued that advocacy planning, the use of experts representing the poor in decisions affecting their environments, did not result in socialism but became a sophisticated weapon to maintain the existing control under a mask of rationality, efficiency and science. He argued that 'we could play the game of citizen participation as long as participation was limited to amelioration'. The basic distribution of real wealth and power he maintained remained constant and the economic structure intact.

He observed:-

In trying to achieve a pluralist society through advocacy planning there is an attempt to balance off the interests of those with financial power... against those that can merely ask what they want.

If those who already controlled the economy and the government were willing to share power, then the problem would be one of articulating and arguing the needs of different interest groups.

[Goodman, 1972]

Jencks [1971] suggested that in a pluralist society the obligation (of designers) is to recognise the variety of conflicting claims and to articulate the social realm for every different person in every different social situation. Such a process he argued demands a willingness on the part of those who possess power to relinquish some in the interests of the greater good. In practice however, even a willingness to recognise the needs and aspirations of others does not necessarily mean that an individual would be willing to sacrifice 'wealth' or relinquish power.

My own experience of practice both in design and facilities management suggests that there prevails an attitude in professional practice that users either don't know what they want, are incapable of articulating their needs, or will always tend to maximise at the expense of others in pursuit of finite resources. The reality of the situation however is not well founded in my opinion. My previous experience, and both the pilot case and principal case studies presented as part of this thesis,

suggest that users not only know what they want but are able to articulate it. Moreover their demands are more often than not reasonable, given the expectation of them from the organisation.

The problem I would contend resides with an unwillingness to relinquish power, to be seen to be subservient or in the service of users such that an individual's status self esteem and professional integrity might be challenged.

B5.4 Post Occupancy Evaluation

The term Post Occupancy evaluation is a misnomer. POE's are not evaluations of buildings after they have been occupied - Post Occupancy - but rather are evaluations of buildings-in-use [Vischer,1989]. The acronym POE is however according to Zeisel [1989:168] an acceptable term for a very common sense approach to learning about buildings and how to run them, from how buildings actually work. Despite general agreement on the meaning of the term POE the research field is variously described by a range of titles such as Environment-Behaviour or E-B research [Zeisel 1984], Environment and Behaviour, or E & B, Environmental Psychology [Proshansky et al, 1970], Environmental Design Research, or EDR [Sanoff and Cohn, 1970] [Farbstein and Katrowitz,1990] and Environmental Design Evaluation, EDE [Friedman, Zimring and Zube, 1976]. Sime[1990] argued that E&B research, POE and EDE have many overlaps with each other but are not synonymous. E-B research does not necessarily concern itself with the design process or the product of the design process; the designed building. POE by inference, he argued, is concerned with the design cycle in which the results of the POE should feed-back or forward to subsequent designs. The focus of a POE is however essentially the assessment of a physical setting in use.

EDE connotatively implies evaluation at the pre - brief stage and/or during the design and longitudinally after a building is in use. As the term EDE has the words Environment, Design and Evaluation in it, the building itself being a physical entity is suggested as a focus of attention, albeit in terms of people's reactions.

EDE research is usually aimed at identifying settings with a problem in terms of the fit between people and a setting and, despite the desire to generate valid

findings through strict methodological design, it should still address conclusions and recommendations demanded of the client organisation as a primary objective. Bechtel [1987:200] argued that design research should now be differentiated into Pre-Design Research (PDR) and Post-Occupancy Evaluations (POE's). Whilst POE is retrospective i.e. the design decisions have already been made, PDR is prospective, seeking the necessary information upon which decisions can be made.

As POE evaluates the behavioural response of a building's occupants to the building, as they experience it, it is a performance measure, because it measures whether the building is performing as intended. POE can thus be used as a means of quality assessment in building design. PDR by contrast, whilst often relying on data from previous POEs identifies the requirements of users of future buildings, and whilst also a performance measure, must await a POE for confirmation as a tested performance standard.

What POE, EDE and E-B research all have in common is that they use the physical setting as the basis for evaluations. The assertion of this thesis however is that they rarely focus upon the organisational context issues resulting in imbalanced evaluations.

There have been many definitions put forward for POE for example Bechtel and Srivastava [1978], Brill [1974], Friedman et al. [1978], Gutman and Westergaard [1974], Ostrander and Connel [1975], Zeisel and Griffin [1975], Zimring and Reizenstein [1980], Persia et al. [1988].

There is a general level of consistency across definitions therefore I offer the succinct definition provided by Zimring and Reizenstein [1980], this is:-

The examination of the effectiveness of occupied designed environments for human users.

[Zimring and Reizenstein, 1980]

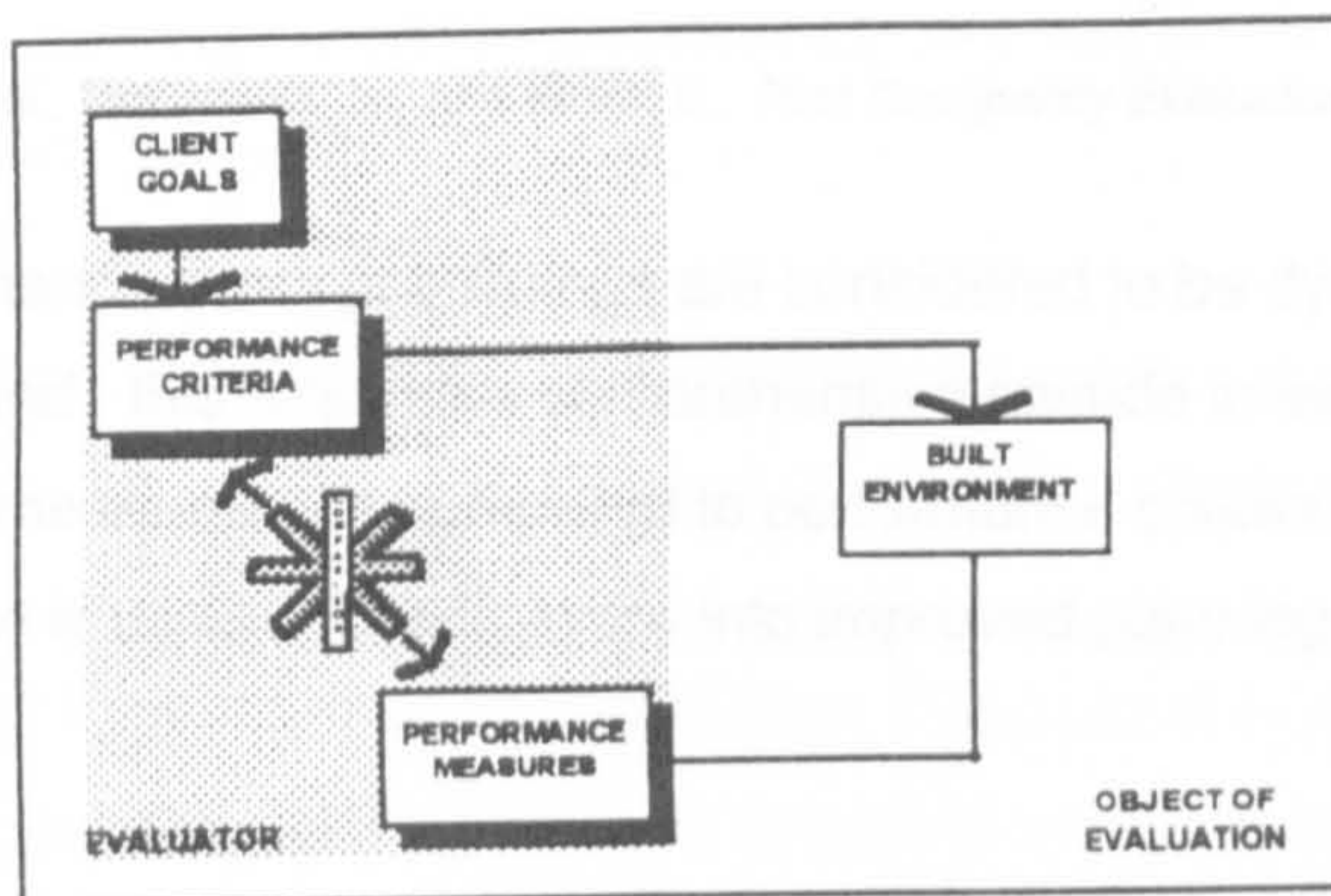
Effectiveness includes the many ways that physical and organisational factors enhance achievement of personal and institutional goals.

This definition has often been interpreted fairly narrow, suggesting that the use of the term evaluation denotes that the activity is applied, problem-focused and intended to be used in a given setting. Brink [1990:1:2] suggested this form of

applied research is intended to improve the environment for users by providing information to all actors involved with designed environments including, users, designers, planners, builders, financiers, managers and decisions makers.

Prieser [1988] suggested that POE is part of a higher order type of evaluation called building diagnostics. He suggested that the theoretical foundation for POE is a Performance Concept whereby client goals and performance criteria are established as the basis upon which performance might be evaluated. (see figure 5.3)

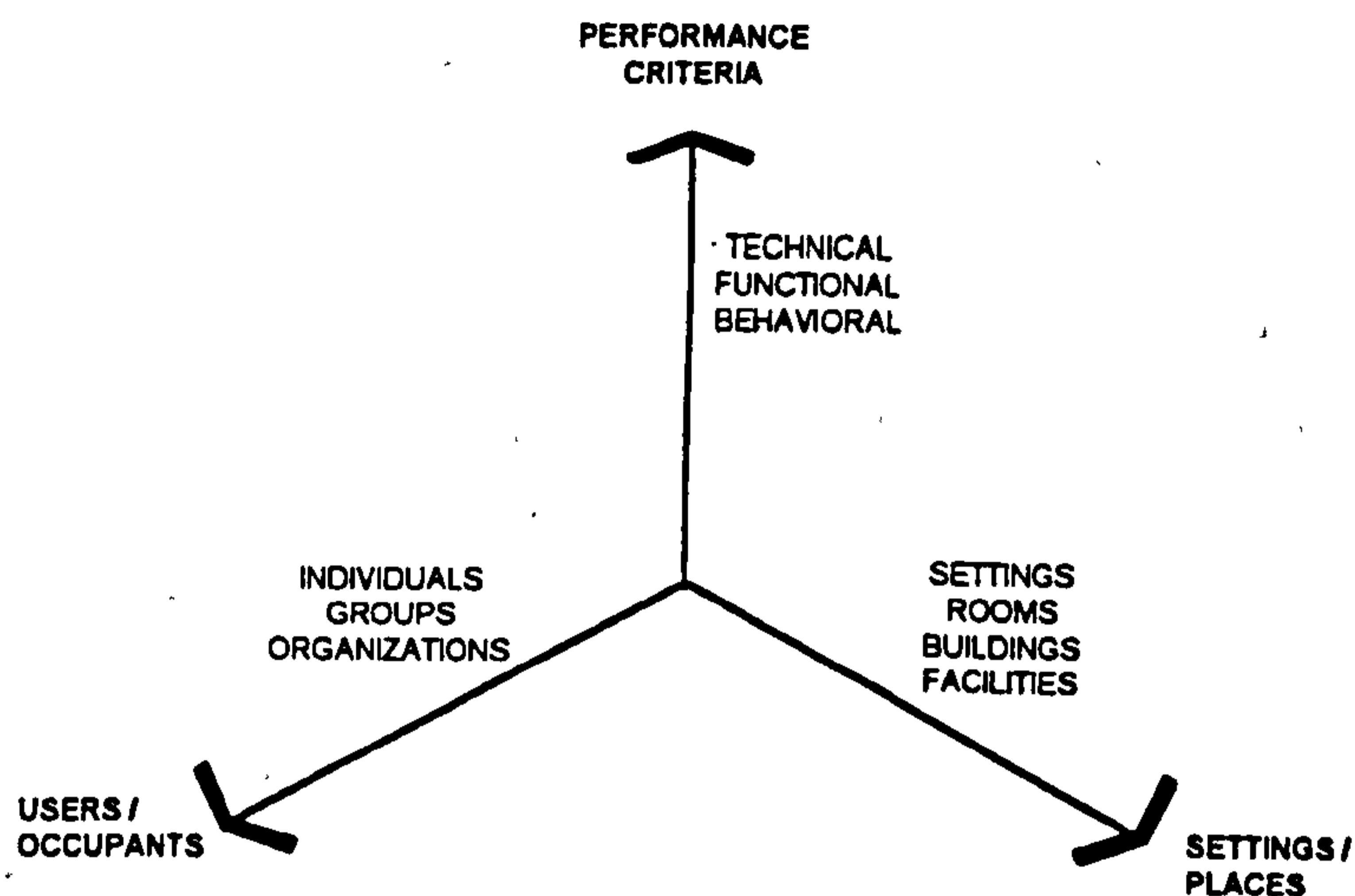
Figure 5.3 The performance concept in the building process



Source: Prieser, W., Rabinowitz, H., and White, E., *Post Occupancy Evaluation*; Van Nostrand Reinhold, NY, 1988

Prieser argued that the elements of performance most important to be measured fall into three broad categories; Technical, Functional and Behavioural. (see figure 5.4)

Figure 5.4 Elements of Building Performance



Source: Preiser, W., Rabinowitz, H., and White, E., *Post Occupancy Evaluation*, Van Nostrand Reinhold, NY, 1988

In the performance concept buildings are considered to be dynamic entities. As such, he argued, this requires a comprehensive attitude in evaluation in which performance measures are compared to performance criteria. The differences between these is used as feedforward into improved planning design and construction.

Preiser [1988] suggested that POE have both diagnostic and prognostic capabilities and may be used to evaluate buildings in use and for short medium and long term implications.

The term 'research' by Brink's [1990] definition is reserved for broader and more theoretical studies of designed settings [Connell, 1986; Zimring 1987] and would include theoretical as well as applied research in environment behavioural relations including controlled experiments.

Keys and Wener [1980] suggested however a more interventionist and action oriented definition. They suggested that:-

Post Occupancy Evaluations may be viewed as a data-based method of environmental intervention, characterised by a deliberate effort by a change agent to use data as a means of initiating change in an organisation.

[Keys and Wener, 1980:12:4:533]

McGrath [1982] provided a categorization of general goals of research. This provided a basis which is dependent upon the goals of the research which in turn determine the methodological decisions. Zimring [1987] interpreted McGrath's categorization concluding that POE have three basic goals;-

Setting sensitivity

This is to learn as much as possible about a specific setting, including its specific users, history, structure, and so on.

Generalizability

This is to be able to generalise as accurately as possible about some larger category of settings, users, or times.

Precision

This is to be able to make statements of research outcomes that are as unambiguous as possible - that discount all plausible alternative explanations.

Three types of POE have evolved over time. The uses of POE has been characterised by research traditions of; providing a voice to the non-paying client (POE as a tool for social action), researching theoretical questions (traditional POE) or aiding management decision making (demand driven POE). Each of these according to Zimring [1987], brings their own complex methodological approaches to problems but can be characterised in terms of their research goals.

B5.41 Traditional POE

These have tended to be academically based studies examining how users behaved in buildings. Many are theory driven. Researchers are concerned with objectivity, methodological soundness and tightly focused studies. Such studies tend to be highly specific, pertaining to specific buildings and users. For example McCain et al.[1976], on the relationship between illness and crowding complaints in a prison environment.

B5.42 Demand-driven POE

Commissioned by client organisations who build, manage or operate buildings. The object is to improve decision making during the design, construction or operation of the building to improve cost-effectiveness. The generalizability of findings, is however usually restricted to the case organisation.

Preiser, Petronis and Vigil [1989:95-111] have identified the use of project focused workshops which they describe as "Activation". They suggested an *activation process model* for preparing people and a new facility for move-in and operation, as bringing a new focus to and expanding the use of Post Occupancy Evaluation. Moreover, they suggested that workshops provide a unique opportunity for knowledge transfer and action research by applying the lessons learned in facility activation's to those future facilities that will benefit from them. The process activation model describes the significant phases - decisions, interdependencies, resources, policy and procedural guidance and time expenditure - that are involved in activation.

Rather than simply be a tool to aid decision-making, Zimring [1989:122] argued that research has been justified on the basis it provides more efficient learning process for organisations and architects. That is POE not only supports specific decisions but it helps decisions improve over time; organisations "learn how to learn". The study conducted by Zimring [1980] with the California Department of corrections on prison evaluation was directed by their own admission on 'single loop learning' [Argyris, 1976] in which specific questions were addressed on achieving goals. They did not however address reflective 'double loop learning' whereby the questions focused on whether the goals or objectives were appropriate.

Generation of effective dialogue in evaluation may afford the opportunity to challenge the underlying goals and assumptions about the appropriateness of goals such as environmental or service quality levels.

B5.43 POE as a tool for social action

Such studies are motivated by commitment to improving the environment for users and as such are intended to influence policy, relating to environmental or social

matters. These POE take on the nature of a service. Research results are used as diagnostic tools and instruments for negotiating action. [Allen, 1990]

B5.44 POE scope, methods and models

POE research studies tend to focus on a single type of research setting. By contrast, most psychological or sociological research focuses on broadly based social processes such as crowding or attribution [Altman, 1975], that are presumed to operate in all settings. Although models have been developed for use across settings [Marans and Spreckelmeyer, 1981], [Zainy, 1994], they tend to be of limited generic data application. A further complaint about POE is that it tries to describe rather than manipulate, as evaluators often lack control over the setting they are evaluating and accordingly must use non-experimental or quasi-experimental research designs.

Prieser [1988] attempts to counter discontent over validity by the use of multi-method techniques of data collection. Convergent validity is provided as the strengths of some methods compensate for the weaknesses of others. Generally POE calls for a range of techniques to capture various aspects of a social-physical system as demonstrated by Friedman et al.[1978], Berker [1975], and Knight et al. [1978].

B5.45 Walk through Interviews

The technique of unstructured interview procedure known as Walk through Interviews has been proposed by Bechtel and Srivastava[1978], Zeisel [1981] and forms the basis for the touring interview evaluations developed in New Zealand by NZ Works. Daish et al., [1988].

This technique, developed in conjunction with Victoria University of Wellington, by contrast to serviceability [Davis and Ventre, 1990], does not rely on prescribed evaluation topics but focuses on the softer, non-physical aspect which are raised by different user groups. It uses the physical environment as a prompt to help respondents articulate their reactions to a setting.

Topics that are raised are done so because they are sufficiently important to the users to warrant mention. The walk through procedure reflects the New Zealand group's view that the opinions of building users are more important than expert

judgements; participants are asked open, unstructured questions to determine what is important to them in a building.

Davis [1990] suggested that in reports from this kind of evaluation, the observations are about equally divided between the physical and non-physical aspects of a facility.

Bechtel and Srivastava [1978] proposed that the walk through be used at early stages of a POE to help define the major issues in the evaluation. It can also be a central part of initial data gathering followed by more directed methods such as questionnaires or observation. Conversely, Daish et al. [1988] use the walk through as the main data gathering instrument in the POE.

The strengths of the walkthrough are that it is relatively inexpensive, it covers what is important for users, and helps the client become more committed to the evaluation as the process is seen to be active.

A potential weakness however, according to Zimring [1987:286] is that comparability between sites and over time is difficult, as different systems, organisational cultures and personalities of walkthrough participants may have coloured the responses.

The touring interview procedure culminates in participant workshops as a means of combining information gathering with the provision of feedback to the client. Such sessions present a forum where intergroup differences may be aired and considered, providing a means for improving inter-organizational communications. Workshop sessions help to clarify important criteria as judged by the various groups who are participants to the evaluation process.

Zimring [1987:286] suggested however that workshop sessions share the potential pitfalls of other self-report measures in that social pressures may cause respondents to misrepresent personally or professionally sensitive questions. In addition the presence of dominant personalities may strongly influence the course of the workshop session unless the moderator or facilitator is careful to draw out other participants. In addition Knight and Campbell [1980] highlighted the difficulty of mediation within groups in which extreme power differences exist.

B5.46 Researcher Oriented Models (ROMs)

Process or Researcher Oriented Models are essentially those which describe the process of evaluation research and design research projects [Keys and Wener, 1980], Shibley, [1985]. Kenny [1983] argued that process models provide a rationale for the approach taken when investigating a particular setting. This is in contrast to the alternative of User Oriented Model (UOMs), which are descriptive of evaluation as a psychological phenomenon i.e. concerned with evaluation from the users perspective.

Keys and Wener's [1980] approach to a research oriented model of evaluation placed emphasis on the researcher and the research act itself. Their approach is aimed at using data generated through intervention as a means of initiating change in the organisation. In this, the researcher is considered to act in the capacity of change agent. Keys and Wener's four phase approach to evaluation described the process and problems to be encountered by researchers at the four stages of; entry into the system, research planning, data collection and analysis and feedback;

An alternative approach was suggested by Friedman et al. [1978] which they call *The Structure process model of evaluation*. This method separates the structure, which is a conceptual scheme for the organisation of the researcher's knowledge, from the process of the evaluation conduct.

Both Keys and Wener's Model and that of Friedman et al. provide useful guidelines for researchers on research conduct, but according to Donald [1990:13] do not represent a theory of evaluation but a model of administration rather than a psychological model.

B5.47 User Oriented Models of Evaluation (UOMs)

These are models of evaluation which provide a description of user evaluations. Their intention is to provide an adequate description as the first step towards the development of taxonomies as a means of understanding a phenomenon. They aim to describe the cognitive experience of people in evaluating settings. They provide a greater potential for understanding the relationship between people and their environments by considering evaluation from the user's perspective.

Theoretically oriented models such as Russel and Pratt's [1980] *Model of Affective Assessment* attempt to develop taxonomies in order that settings might be classified according to the affective qualities attributed to them. These environmental psychology approaches, are primarily concerned with the internal structure of attributes, rather than the relationship of these attributes to external variables such as the physical environment, or provide process models of how such assessments might be made.

Canter's [1983] *Purposive Model of Place Evaluation* is a development of the work conducted by Markus et al. [1972] at the Building Performance Research Unit (BPRU).

Canter argued that in order to evaluate an environment, it is necessary to consider the criteria against which it is to be evaluated, and these are the purposes and goals of the users. Canter defines evaluation as a measure of the extent to which the attributes or constituents of an environment facilitate or hinder a person's goal directed actions.

The purposive model is founded on the belief that there are basic processes which underlie environmental experience that will be consistent across settings despite important variations in observation of individuals and between different environments, they argued that the general structure of the experiences is universal and perhaps even lawful, Donald and Canter [1986] argued that the model has been empirically tested and found to be predictive across a variety of settings.

B5.48 Purpose Driven Model for Building Assessment

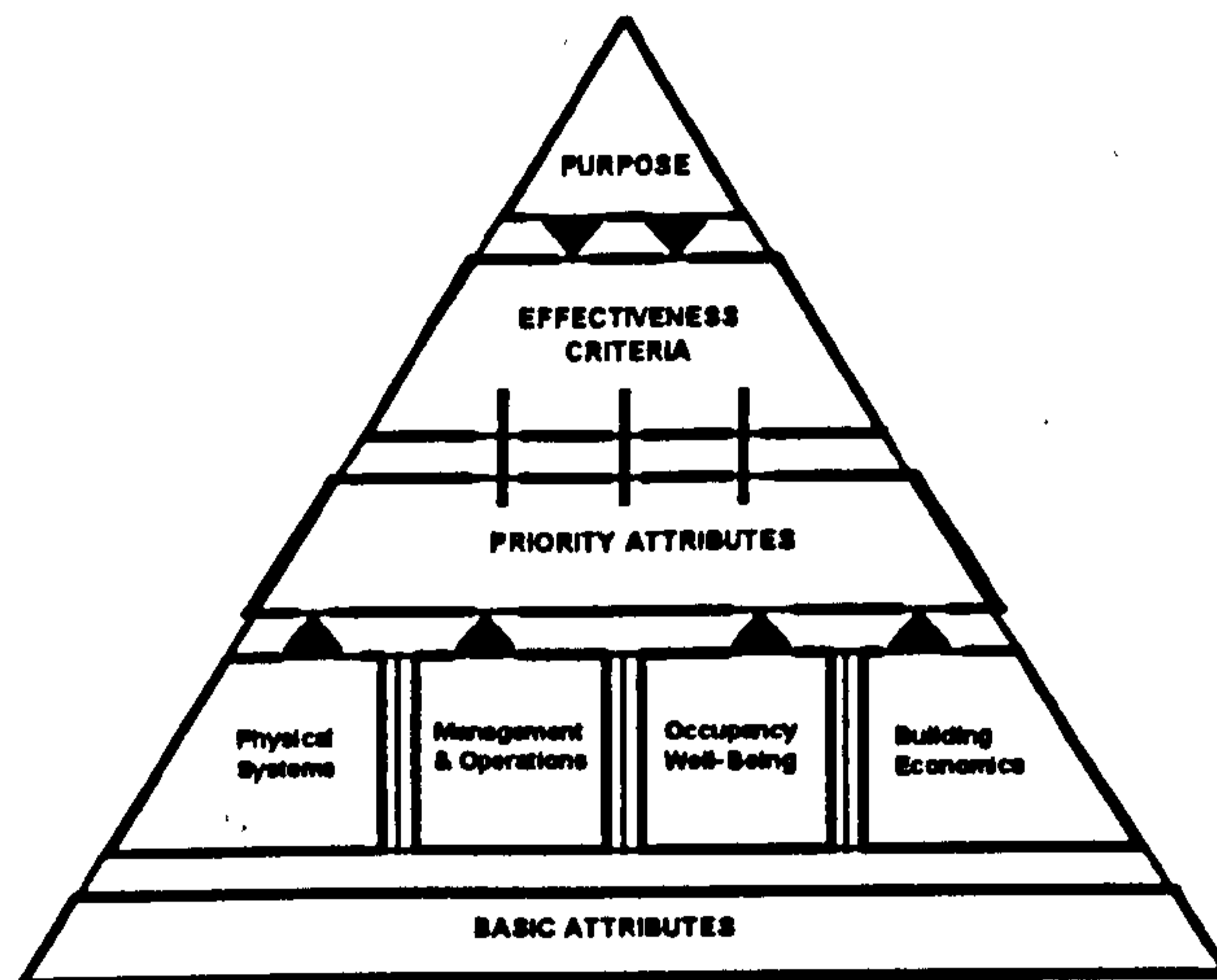
Zeisel, [1985] suggested a purpose-driven model for building assessment in which attributes, which have meaning in terms of an organisation's effectiveness, are assigned priority in an assessment methodology.

He suggested that the key to measuring building effectiveness is to understand the particular purpose for which a building is used. He argued that in order for a building to be effective in meeting its purposes, certain basic attributes must be met more efficiently, and with higher priority than others. Zeisal argued that the interaction of a building's purposes, effectiveness criteria, and priority attributes

determines what makes it a better or worse building compared to other buildings with similar purposes.

Figure 5.5 shows the *Purpose-driven model of building quality* proposed by Zeisel [1985], who suggested that basic attributes of buildings can be organised into four clusters whose relationship determines the functioning of the building as a socio-physical system.

Figure 5.5 Purpose Driven Model of Building Quality



Source: Zeisel, J., 'Building Purpose the Key to Measuring Building Effectiveness'; *Building Diagnostics Inc.* Boston, 1985

The four clusters represent its physical components and systems, its operating and management systems, the well-being of the organisation and employees it houses, and its economic value.

These basic elements in essence form the basis for the determination of priority attributes from which the effectiveness criteria in meeting a building's purposes, can be measured and quantified. The purposes established may seek to address corporate, group, individual or societal needs. He suggested that the selection of appropriate priority attributes, both specific and generic, for measurement can be identified through systematic interviews and observation.

Building purposes and the purposes of parts of the buildings can be associated with generic building types such as offices, hospitals, housings etc., particular building types such as corporate headquarters, sales offices, teaching hospitals or housing for the elderly. Accordingly purposes may be generic to type or specific to

site or organisation. The particular combination of purposes that a building represents determines what makes it an effective building and thus what criteria to use in determining its effectiveness. It can be argued however that unlike individuals or organisations, buildings in themselves do not have purposes other than that which they come to represent on behalf of organisations. However, such purposes can be made concrete through buildings.

Zeisel [1985], in questioning the usefulness of quantifying the degree to which attributes fulfil effectiveness criteria in meeting building's purpose, suggested that standards, norms, and thresholds are three independent performance measures, each of which is developed differently and is based on a different model of knowledge.

His distinction suggested that *Standards* are formal quantified levels of performance against which performance can be compared. Standards assume an *experimental model of knowledge*; namely that objective measurable levels of environmental performance are applicable to particular building attributes in the same way in different situations and at different times. An example of these would be the thermal comfort standard developed by ASHRAE. The universality of such standards however is questionable.

Norms represent organisational and social expectations of environmental conditions based on what employees and decision makers feel is appropriate for themselves and others in their situation.

Norms assume an *organizational model of knowledge*; namely that organizational history and employees' attitudes reflect corporate culture and determine what management think is the appropriate level of environmental quality.

Threshold values of attributes, according to Zeisel, represent conditions that decision makers feel need to be improved either because they are significantly below standard, or because they limit the buildings ability to meet its purpose.

Thresholds take into account norms, standards, and the availability of resources.

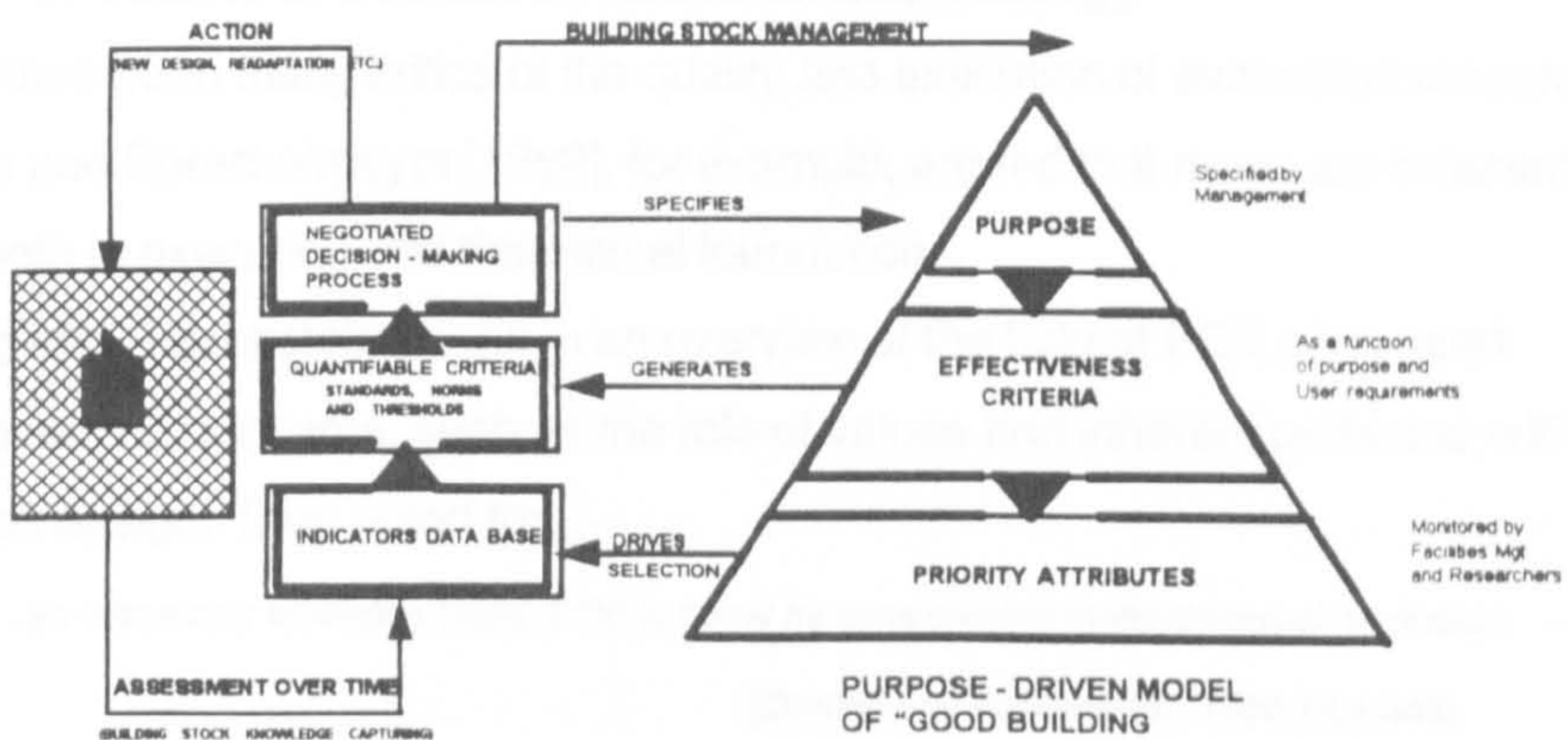
Accordingly, thresholds assume a *management action model of knowledge*; namely that managers need to understand at least the organisation's direction, its

resources, its priorities, and its goals for a building in order to decide whether to improve a particular physical or environmental condition.

Zeisel suggested that a purpose-driven model invites managers to intervene to improve building quality without themselves becoming either designers or researchers, as the process directs management's attention towards questions of building purpose and effectiveness criteria, leaving to others the translation of such policy directives into research and design actions.

He proposed a Framework for Management : Building Assessment which incorporates the purpose driven model of "good" building together with research and design activities undertaken throughout the buildings stock management process in an overall integrative framework. (see figure 5.6)

Figure 5.6 Framework for Management: Building Assessment



Source: Zeisel, J., 'Building Purpose the Key to Measuring Building Effectiveness'; *Building Diagnostics Inc.* Boston, 1985

Zeisel's approach, by collecting information on the quality of the building and how well it works for users in terms of the purpose(s) of the building for the user organisation, incorporates the organizational context such that information acquired is meaningful to those responsible for management decision making. Vischer (1989) suggests that "this approach has the effect of rendering building performance problems readily understandable to the administrative decision

makers who are not *a priori* interested in facilities. By providing information about users needs from the built environment, it can facilitate decision making about building change and improvement. This according to Vischer is a different means of defining environmental quality. Whereas in the building in use assessment (see below), environmental quality is integral to the interaction between users and their built environments, in the Purpose-driven model, environmental quality is not defined as such. Buildings are considered to be satisfactory if they perform adequately to the purpose ascribed to them by the occupying organisation. Where the building in use attributes a psychological component to environmental quality, the Purpose-driven Model invokes the culture of the organization. In this regard, environmental quality using Zeisel's model, might be described by Juran's definition of quality, which is "fitness for purpose".

B5.5 Criticisms of Evaluation Research Methodology

There have been many critics of the quality and execution of evaluation research. Marans and Spreckelmeyer [1982], for example, argued that many are inherently weak both in execution and theoretical foundation.

Zimring and Reizenstein [1980] in an overview of the field of POE discussed several related concerns, such as the role of values and inherent problems with research design. They noted that;-

as with many emerging fields, POE is beset by considerable methodological confusion.

[Zimring and Reizenstein, 1980:12:4:349]

Bechtel and Srivastava [1978] go as far as to question the relevance of evaluation studies.

The justifiable questions over theoretical foundation and methodology reached a peak at The Actes du Critical Seminar in Paris, 1990. This signalled a growing dissatisfaction with environmental evaluation which according to Donald [1990] had been growing for perhaps a decade. The seminar entitled Critical Approaches of Environmental Design Evaluation drew together academics and practitioners from around the world specifically to address those areas of discontent. It provided an opportunity to review the role of EDE and give a uniform direction and

framework for what was recognised as a wide range of unconnected and independent studies.

Donald [1990] concluded that whilst criticisms of the quality and approaches of evaluation were on the whole valid, focus on those aspects alone would serve to divert attention from what many (i.e. Canter [1983]; Donald and Hedge, [1984]; Friedman et al., [1978]; Marans and Spreckelmeyer, [1985]; Peterson, [1976]; Wener, [1982]; Wohlwill, [1976]; Zimring and Wener, [1985]) see as the fundamental problem, which is that the field is lacking both a conceptual and theoretical framework.

Section C

Factors influencing environmental evaluations

C5.1 The role of social and organisational processes in environmental evaluation

The need for information about the social and organisational context in which evaluations are made, and the social and organisational processes which impact upon them, has been highlighted by Donald [1990]. He considered that people's environmental experience and subsequent evaluations will be influenced by the social and organisational processes of which they are part. Calling for a sound theoretical base in evaluation research, Donald argued for a review of the content of evaluations, as well as that of sub-populations of building users. He cited examples which demonstrate not only that different people will experience and respond to the same environmental conditions in different ways, but goes further to reveal that the differences in the responses and experiences people have, are based not only on the objective characteristics of the environment, but also the processes which brought it about and their relationship to that process.

Donald [1990] argued that the way in which a building will be experienced by its users may be established before it is occupied; - i.e. before its future users have directly experienced its physical properties, and even before those physical properties exist. He advocated the need for increased participation and communication between providers and users of facilities, throughout the procurement process. In some cases lack of communication has manifest itself in participant complaints about the environment as a medium, despite being consciously unaware of the basis for their evaluations. Evaluation research to be effective should accordingly take into account the organizational politics of design.

C5.2 Group Cultures

Social and organisational group cultures can also influence group evaluations. Studies by Ellis [1986] demonstrated the important influence of factors other than 'objective' environmental conditions on peoples experience and evaluation of their environment. Ellis [1986:242] found people had difficulty separating their

evaluations of the lighting from their feelings about the management, and the management processes by which it came about. In addition to the 'objective' colour characteristics and general aesthetic qualities of lighting, both the symbolic role the lighting plays in organisational life, and in particular, whether users were involved in its introduction influenced user's perceptions.

Social and group contexts, together with attributed meanings which grow out of them, should therefore be taken into account in attempting to understand evaluations. Accordingly evaluation should seek the meaning which participants attach to evaluations by seeking to establish a dialogue between those responsible for the provision, design and management of facilities and all those who legitimately use them.

Kernohan et al. [1992:11] referred to the two cultures of users and providers, based on demand and supply respectively. Such cultures they contended hold different values, rarely make contact and often conflict. The resulting mismatch between supply and demand they argue demands participatory processes which bring together users and providers together in negotiating the quality of facilities.

C5.3 Organisational climate and work orientation

Organisational climate, the sum of a worker's perceptions of an organisation, and people's work orientation (involvement and flexibility towards work), also affect their environmental evaluations.

Donald [1990:6] referred to a study in which he used fixed response rating scales taken from the perspective of three sets of goals, namely:- Organisational, departmental and individual.

He found that people's evaluations of their office environment related to their perception of their company and their orientation toward work within it.

From Donald's analysis it was not possible to state whether the perceptions of the organisation resulted in or from people's evaluations of the environment but does show that people's perceived organisational context is directly related to their environmental evaluations, as is their orientation towards work.

C5.4 Temporal Factors in Office Evaluations

Time is a critical element in evaluation for a number of reasons. Evaluations are an emergent experience in that they develop out of their social and environmental context over time. In addition the needs of both organisations and individuals are dynamic, and accordingly environments needs, to be evaluated in response to these changing needs. In expressing this view Donald [1990:7], proposed the concept of the *organic office* to describe workplaces in which such intrinsic pressures are brought to bear and in which time is a critical factor.

The organic office is intended to be a measure of the flexibility of the environment to respond to changes in individual and organisational needs with the minimum of unwanted disturbance throughout the rest of the enviro-organisational system.

Generic and flexible office layouts have been advocated for some time by Becker [1988] Duffy [1989]. Evaluations of the flexibility of environments however can be misleading as research evidence has shown that the perceived inflexibility of environments can be a result of organisational practices and processes which inhibit modification through bureaucracy, rather than through inherent capability of the environment.

Evaluation research therefore requires an understanding not only of the environment but of the policy and practice of facilities management which may have an impact on an individual's capacity to implement change or modify the environment.

The above studies by Donald and Ellis demonstrated that people psychologically construct the world upon which their present experience and behaviour is based. From which, the conceptualisations and constructs that form the basis of their experience and influence their evaluations of environments, is made. Evaluation research therefore requires an understanding of workers' experiences and the organisations' management and social processes and context. To that extent they considered environmental studies conducted in artificial settings or other simulations to be of limited use relative to evaluations conducted in the organisational setting.

C5.5 Selecting Sub-Groups in Evaluation Research

Identification and definition of subgroups within a population of users is essential in order that a representative view of environmental quality might be achieved. As Donald [1990] observed:-

If preferences and evaluations were homogeneous across people research would be unnecessary; by asking one person their opinion the consensus view could be obtained.

[Donald, 1990:17]

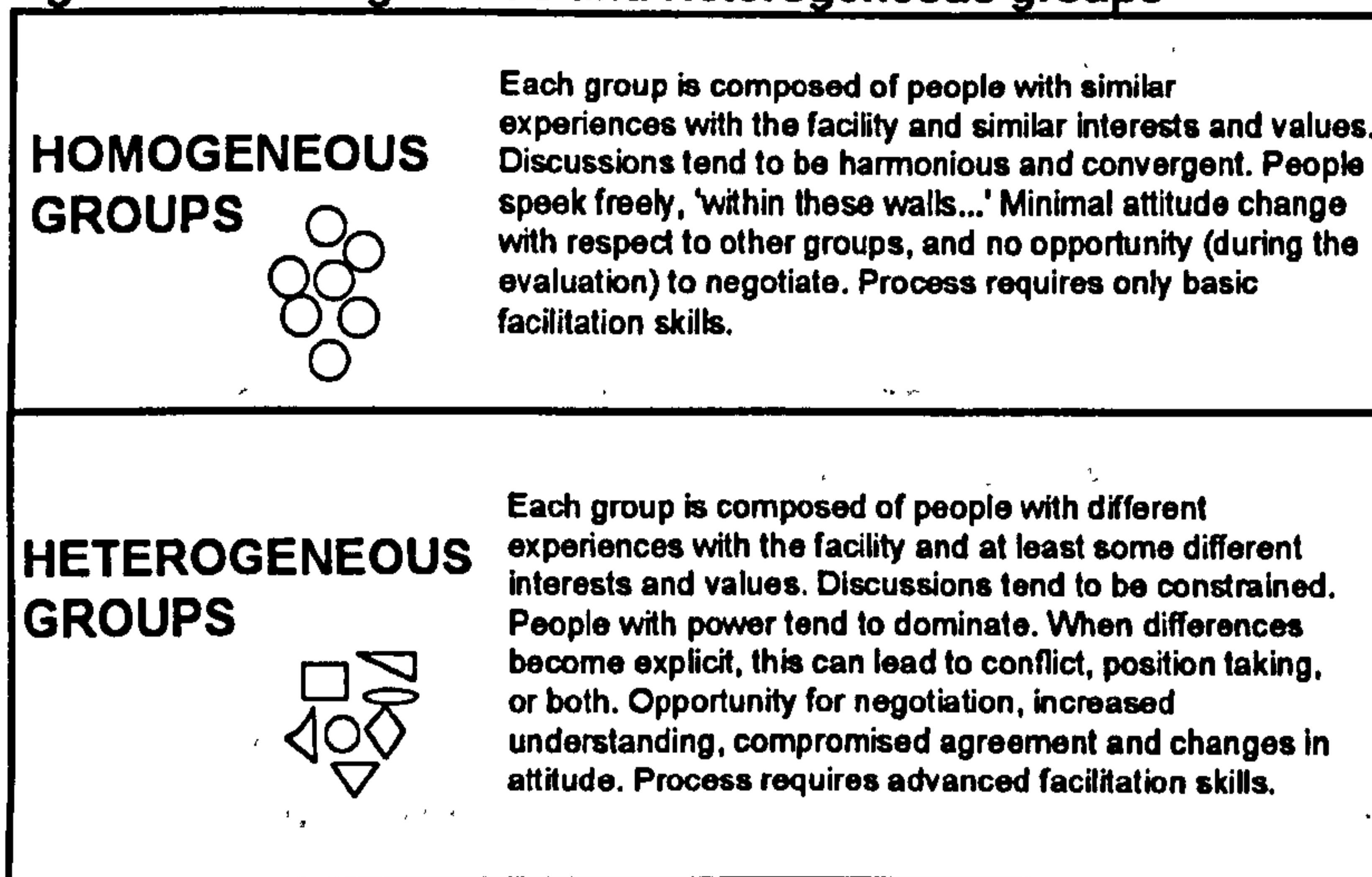
He argued that, given the individual conceptualisations and meanings people ascribe to particular psychological and behavioural environmental loci, a place may only be described fully or evaluated through the experience and conceptualisations of individuals or relatively homogeneous groups.

The definition of sub-populations should, he argued, be made according to the particular domain under consideration. In traditional environmental design evaluation this would accordingly be the place or environment. However if the evaluation exercise is to serve as an opportunity of developing organisational knowledge, consideration may be given to the selection of sub-populations which could actively foster a dialogue on matters such as internal communication. These more heterogeneous groups could be used to develop an awareness of conflicting or divergent needs and opinions of other sub-populations.

Accordingly, the use of heterogeneous groups might afford the opportunity for developing increased understanding of such conflicting needs and serve as a basis for negotiating the quality of the environment between users and providers. Such groupings are unlikely, however, to be as tension free as homogeneous groups.

Kemohan et al suggest a model for defining homogeneous and heterogeneous groups.

Figure 5.7 Homogeneous and Heterogeneous groups



Source: Kernohan D., Gray J., Daish J., with Joiner D., *User Participation In Building Design and Management*, Butterworth-Heinemann, 1992

A theoretical rationale for the selection of sub populations is therefore a prerequisite to evaluation conduct. The use of increasingly heterogeneous groups, whilst increasing the opportunity to improve organisational communications and understanding of inter-group needs, may do so at the expense of an appreciation of the needs of particular sub-populations.

The use of predetermined classifications of sub-population might be borrowed from other disciplines. Such categories should be relevant from an environmental context. Typically simple categories such as age, sex, race and organisational position are used to identify sub populations and whilst convenient however, may have little relevance to the justification of such groupings. As groupings should be selected according to interactions with the environment.

Donald [1990] argued that role can be subdivided by; social and professional role, Environmental role and Personal role, each of which he argues may affect individual evaluations of the environment. He quotes Canter and Walker [1980] as having contended;-

...as a result of his role defined environmental interactions, a person will build up over time, a conceptualisation different from those who perform other roles within that setting...Individuals with...similar environmental roles within a given place are likely to have broadly similar conceptualisations, and hence evaluations of that place.

[Canter and Walker, 1980:1 in Donald, 1990:22]

Evaluations are therefore conditioned by activities and social and organisational processes in addition to experience of a particular place. It seems reasonable to suggest therefore that role with regard to the environment may play a significant part in evaluation from both a user and a provider perspective.

C5.51 Expert vs. Participatory Evaluations

Davis et al. [1990] considered the choice of whether the evaluation should be expert or participatory as too simplistic and suggested that it is the appropriate mix of participants appropriate for a particular evaluation, together with a combination of approaches, which will give reliable and valid information.

They considered however, that in most organisations, facilities managers operate in a unique position as custodian of the organisation's resources on one hand and negotiating the quality of the environment with users on the other. In so doing the facilities manager might be described as *informed* client. This is a person who *understands* the issues, has noted the essence of the different sets of requirements of the users, and has noticed where there are conflicts of interest.

C5.6 Environmental Perception - The inseparability of Environment and Service

When evaluating the physical environment, care must be taken to ensure that it does not serve as a focus for the manifestation of dissatisfaction at a range of other factors, such as organisational or social processes, as there is sufficient research evidence to suggest that it may. I argue that traditional forms of survey research used in evaluation may be unable to separate genuine dissatisfaction with the physical environment from other aspects which impinge on user's perceptions.

Accordingly, I argue that a measure of peoples' perceptions of the quality of the management of facilities might serve to highlight those areas of genuine failings in the built environment which require attention. I consider the process or 'service' of facilities management to be a factor which is likely to have a direct bearing upon peoples' evaluations of the physical environment.

It is important therefore to highlight the characteristics of service quality as distinct from physical goods such as buildings in order to understand how the perceived

service quality of the facilities management service may impact on evaluation of the built environment.

Building performance is therefore considered as a subset of Facilities Management performance. This in turn is, an amalgam of the whole process by which peoples' perceive of their environments, and subsequently evaluate them.

C5.61 A systemic approach to understanding service quality

The systems approach adopted in this thesis calls for an understanding of the interdependency between product and service, individual, organisation and environment (physical). A perception of service quality questionnaire will be used which measures the holistic way in which individuals perceive service quality. Moreover, the use of participative evaluation through dialogue, as distinct from survey data collected through questionnaires, provides an opportunity to ensure that general dissatisfaction - perhaps with the general organisational environment - is not misdirected towards the facility or the way in which it is managed.

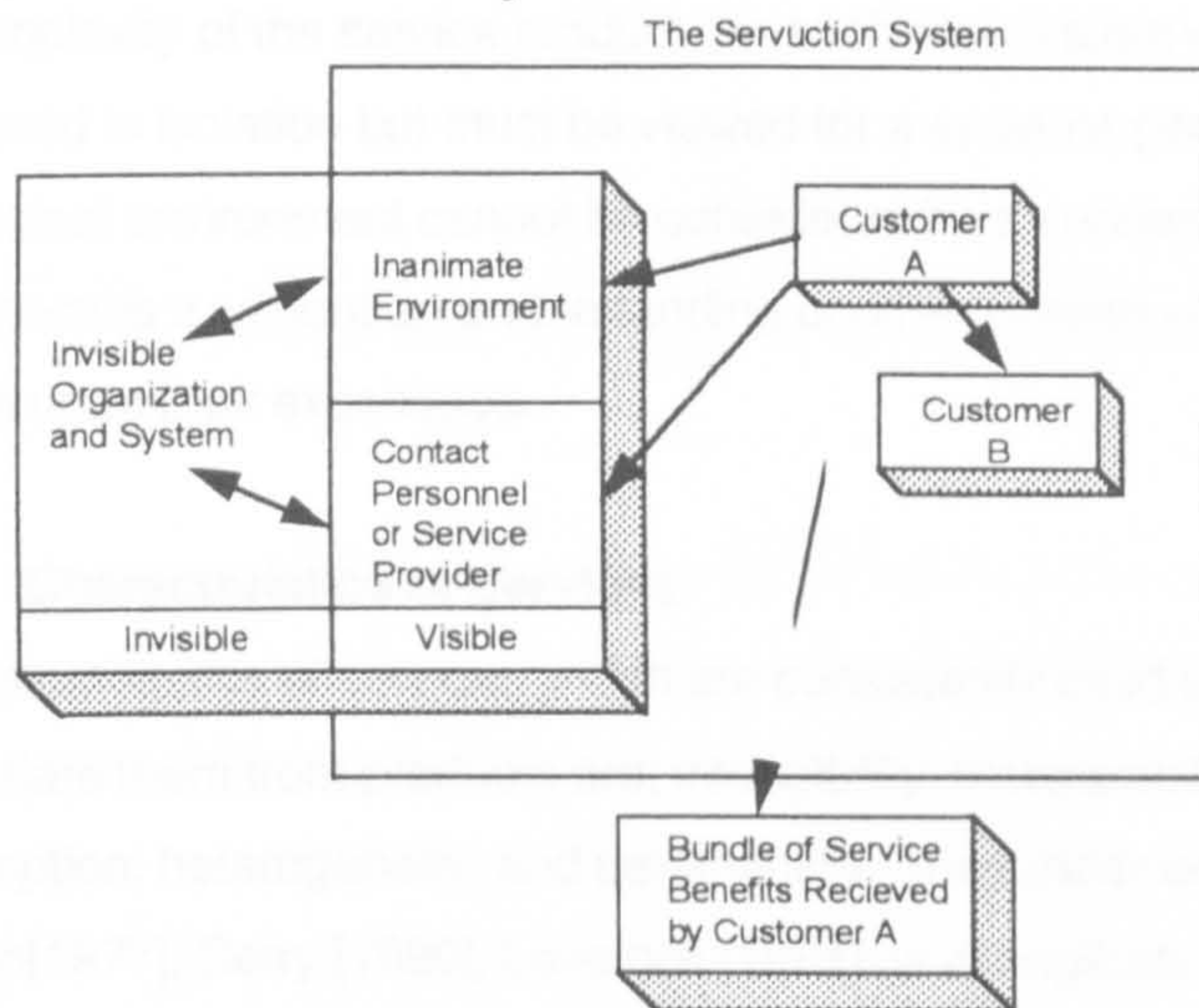
C5.62 The Concept of Service

Service is a complicated phenomenon with many meanings ranging from personal service to service as a product. The provision of a building or facilities might be termed a service to users as customers rather than a product. Whilst still a physical good, the provision of a product specifically designed and managed to meet the needs of users is a service. There are a range of definitions of service which tend on the whole to look very narrowly on service phenomenon, in general defining services as those activities rendered by service firms. i.e. are principally concerned with marketing. [Regan, 1963]; [Judd, 1964]; [Bessom, 1973]; [Blois, 1974]; [Stanton, 1974]

There are many variations on the definition of service. Bateson (1989) suggested that as all products, be they goods or services, deliver a bundle of benefits to the consumer. The *benefits concept* is the encapsulation of these benefits in the consumer's mind. The determination therefore of what comprises the bundle of benefits - the benefits concept transcends both goods and services.

The benefits which consumers derive from a service result from an interactive process or experience with the visible environment together with invisible components which create the service experience. Langeard et al. [1981] described such a process in terms of a *Servuction system* which is based on a systems perspective of thinking about the production and delivery process. They suggest a Servuction system model which is developed from the view that, as services are experiences, it is inappropriate to consider the notion of delivering them. The Servuction system creates the experience and the experience creates the benefit. Moreover the consumer, in order to receive the benefit must be part of the system in other words must interact to create the experience (see figure 5.8)

Figure 5.8 The Servuction System Model



Source: Langeard E., Bateson G., Lovelock C., and Eiglier P., *Marketing of Services: New Insights from Consumers and Managers*, Marketing Science Institute Report No. 81-104, Cambridge, Mass., 1981

The Servuction model demonstrates that consumers are an integral part of the service process. Bateson [1989] suggested that their participation may be active or passive, but participation is always there. Identification of the Servuction system however is more difficult than it first appears as Bateson suggested that many firms underestimate the number of points of contact between themselves and their customers, or underestimate the importance of secondary or support functions such as telephony or accounts which have a direct bearing on the customers' experience of the service.

He suggested that flowcharting the system provides an opportunity to identify the numerous points of contact and understand the Servuction system.

A further problem associated with the creation of the service experience is that in many cases contact personnel are the product, or are inseparable in the minds of the consumer, from the product their action seeks to generate. Unlike physical goods, which may be the result of a service, people are not inanimate but have feelings and emotions which are apparent to the consumer. The creation of a real time experience poses many problems which differ significantly from the problems arising from the creation of a mere physical good [Bateson, 1989].

The complexity of the service product are such that system variables cannot be considered in isolation but must be viewed for a systems perspective. Accordingly the physical environment cannot be considered by an understanding of peoples' views towards it without an understanding of other system components which impinge upon their experience.

C5.63 Characteristics of Services

The characteristics of services which are consistently cited in literature which differentiate them from products are; intangibility, inseparability of production and consumption, heterogeneity, and perishability. The fundamental difference cited by Bateson[1977], Berry [1980], Lovelock [1981], is intangibility.

Because services are performances rather than objects, they cannot be seen, felt, tasted or touched in the same manner in which goods can be sensed.

Intangibility, according to Bateson [1989] is *the* critical goods-service distinction from which all other differences emerge.

Zeithaml et al. [1989] provided an analysis of the unique characteristics of services together with selected references and strategies for solving problems. (see figure 5.9)

Figure 5.9 Unique service features and resulting marketing problems.

Unique Service Features	Resulting Marketing Problems	Selected References Citing Problems
Intangibility	<ol style="list-style-type: none"> 1. Services cannot be stored. 2. Cannot protect services through patents. 3. Cannot readily display or communicate services. 4. Prices are difficult to set. 	<p>Bateson (1977), Berry (1980), Lorange et al. (1981), Sasser (1976)</p> <p>Eigler and Lorange (1975, 1976), Judd (1968)</p> <p>Rathmel (1974)</p> <p>Dearden (1978), Lovelock (1981), Thomas (1978)</p>
Inseparability	<ol style="list-style-type: none"> 1. Consumer involved in production. 2. Other consumers involved in production. 3. Centralized mass production of services difficult. 	<p>Booms and Nyquist (1981)</p> <p>Bateson (1977), George (1977), Gronroos (1978)</p> <p>Sasser et al. (1978), Upah (1980)</p>
Heterogeneity	<ol style="list-style-type: none"> 1. Standardization and quality control difficult to achieve. 	<p>Berry (1980), Booms and Bitner (1981)</p>
Perishability	<ol style="list-style-type: none"> 1. Services cannot be inventoried. 	<p>Bateson (1977), Sasser (1976)</p>

Source: Zeithaml V., Parasuraman A., and Berry L., 'Problems and Strategies in Services Marketing'; in *Managing Services Marketing: Text and Readings*, ed. Bateson G., Dryden Press, 2nd edition; Orlando, 1989

Inseparability of production and consumption refers to the simultaneous process of production and consumption which characterises most services which causes the process to be highly interactive [Gronroos, 1978].

Heterogeneity concerns the potential for high variability in the performance of services as a result of direct interaction between producer and consumer of service.

Perishability suggests that as services are performances that cannot be stored or saved but must be created and consumed. As such excess capacity to supply cannot be reclaimed.

Studies by Kotler, [1973]; Lovelock et al., [1981]; Zeithaml et al., [1985], have highlighted the importance of institutional image and the use of tangible cues such as physical facilities and personal appearance to enhance peoples' perceptions of service quality. Zeithaml et al., [1985] suggested that additional investigation of such issues as the use of uniforms, the role of architecture in the marketing mix, and the nature of the building of corporate image would be useful to many service companies.

As such factors have an affect on the way in which people evaluate a service experience, then they must accordingly be an area for consideration when evaluating peoples' perceptions of facilities services.

C5.64 Determining Customer values

Parasuraman et al (1987) suggested a conceptual model of service quality which is based upon the three stages of consumer purchase consisting of pre-purchase, consumption and post-purchase.. Whilst the model is aimed at developing understanding of factors which both impinge on customers' purchasing behaviour and experience of service, it may serve as the basis for determining those aspects of service valued by facilities users by way of benefits for which the organisation, rather than the individual consumer, pays by way of resource allocation.

The pre-purchase stage refers to all consumer activities occurring before the acquisition of the product. The stage begins with an individual recognising a discrepancy between a desired state and an actual state, the recognition of which implies a potential purchase. The individual then searches for information from both internal and external sources, arrives at a set of solutions to the recognised problem and finally selects the option considered to be the best.

From an organisational perspective, this equates with defining appropriate service levels.

The consumption stage follows the pre-purchase stage and the resultant decision to purchase. Expectations are generated for the performance of the product (or service) The activities of buying using and disposing are grouped together and termed the consumption process. At this stage the consumer is interacting with the service provider, the consequences of which (experience) are likely to influence an individuals' subsequent evaluation of the service. Aspects of this stage are frequently referred to as the 'service encounter' [Czepiel et al, 1985] in which there is a face-to-face customer-service interaction.

As Parasuraman et al. [1989] pointed out, this has drawn most attention from service marketers as the part of the client-company interface that has the most obvious impact on the customer. However they suggested that the significance of non face-to-face interactions as well as the quality of the service environment

must also be stressed. The impact of the physical characteristics (e.g. interior design) and the social characteristics (e.g. crowding) of a service environment on the customer need to be considered.

They argued that the conceptualisation should be extended to include all kinds of possible interactions involving the client-company interface. They suggested that consideration should be given to the *service experience* rather than the *service encounter*. Consideration of the service encounter in isolation would be non-systemic thinking.

The Post-purchase stage affords the opportunity for the consumer to compare performance to expectations engendered in the pre-purchase evaluation stage. From a marketing perspective, this postpurchase evaluation determines consumer satisfaction and is generally proposed to be a function of the difference in actual and expected performance. The post-purchase evaluations serves as an internal information source or point of reference for future purchases and as such is a main determinant in the probability of repurchase.

Parasuraman et al stressed, however, that the purchase process model makes no assumptions about the underlying decision process used by respondents. It assumes only that individuals are able to create comparisons across product categories or subsets and to create some measure of performance based upon their experiences of consumption. Similarly, the post-purchase evaluation or satisfaction stage involves a comparison of actual performance against a set of internal expectations. They describe the process of how performance ratings and expectations are held within an individual's head as immaterial.

The Servuction system concept suggested that benefits are arrived at through the experience of an interactive process, so the expectations of individuals will be different by nature of the heterogeneity of the service experience and as such will provided for different value sets upon which performance will be judged. Two individuals sharing a service experience may therefore differ in terms of their evaluations by virtue of their past experience and cognitive reasoning.

In contrast to the view that evaluation only occurs after the event, Fisk [1981] suggested that there exists a dynamic, ongoing and cumulative post-choice

evaluation process, which is modified through experience. Parasuraman et al suggest that the evaluation is influenced by the unavoidable interaction of a substantial number of social, psychological, and situational variables. Service quality relies not only on the properties of the four elements of the Servuction system - contact personnel, physical support and environment, clients, and internal organisation system - but also on the synchronisation of these elements in the service production/consumption process."

The complexity of the service experience has resulted in the development of multi-attribute models to simulate the evaluation process of tangible goods. Such models cover a range of concerns which relate to the service experience.

Generic attributes of service quality have been suggested by Sasser et al. [1979] and Parasuraman et al, [1985] which form the basis for their conceptual gaps model of service quality. (see page 207 below) Aspects such as reliability, responsiveness, competence, access, courtesy, communication, credibility, security, tangibles and understanding or empathy have all been found to have a significant bearing on service quality evaluations.

C5.65 Perceived control and service satisfaction

The perceived control perspective on the service experience has been suggested by psychologists who argued that the need for control over situations is a major force driving human behaviour given that, in a modern society, an individuals basic physiological needs have been met. Sells [1970] for example suggested that the primary cause of stress in everyday life is lack of control.

The concept of control was first introduced by Batesman [1987] to explain the service employee and customer responses to the service encounter.

Parasuraman et al. [1989] suggested however that, rather than being treated as a service attribute, control can be conceptualised as a superfactor or global index that summarises an individual's perceptual experience in the service encounter. The basic argument underlying this perspective is the higher degree of perceived control by an individual, the stronger will be their satisfaction with the service. It is

pertinent to consider therefore the influence that the degree of control of users over their physical environments is likely to have on peoples' evaluation of them.

Research evidence for example has suggested that individuals who participate in the design of their environments (and are able to exert some level of control over them) are more likely to have higher levels of satisfaction with the environment [Becker, 1988; Konar, 1984; Wandersman, 1989].

The concept of control seems to emanate from a desire to reduce individual exposure to risk rather than simply to optimise. Averill (1973) suggests that there are three forms of control; behavioural, cognitive and decisional.

Behavioural control is defined by Averill [1973] as:-

the availability of a response which may directly influence or modify the objective characteristics of a threatening event.

[Averill, 1973:286]

Cognitive control refers to the way in which a potentially harmful event is interpreted and may be defined as:-

the processing of potentially threatening information in such a manner to reduce the net long-term stress.

[Averill, 1973:293]

Cognitive control is made up of two elements. *Information gain* which refers to the predictability of a problem and its anticipation; and *Appraisal* which has an evaluative component and involves the evaluation of events.

Averill's third form *Decisional control* is defined as:-

choice in the selection of outcomes or goals.

[Averill, 1973:289]

Individuals may reduce their stress by changing their focus of achievement perhaps in the absence of behavioural control.

Langeard et al. [1981], in investigating consumer decision making processes for services, demonstrated that control of the situation was a major determinant in individuals' choices to use a service provider or undertake a task themselves. It might be argued therefore that individuals loss of control, say over the quality or

reliability of a facilities service provider, may in effect result in them undertaking some tasks themselves.

Langer and Saegert [1977] demonstrated the impact of cognitive control to ameliorate the impact of crowding, by exposing respondents to information on the negative affects of crowding. Respondents conceptualised this information in terms of increasing cognitive control and modified their subsequent behaviour accordingly. As such perceived control is seen by consumers to be an important variable in consumer behaviour, and is a dimension along which consumers evaluate services. Similarly, Sherrod [1974] proposed that perceived control or its lack, was the critical variable mediating the effects of density in crowding. The implications of this, again from a facilities service perspective, are that knowledge of those aspect over which users desire a degree of control, can be used to influence the use of FM services through effective communications.

Bateson [1987] suggested however, that a problem in using perceived control as a research concept is that, in most of the existing studies, the control variable has generally been treated as an independent variable that is manipulated by the experimenter. In most cases the high and low conditions of levels of control are taken as givens. The study of service encounters, he argued, should be based on perceived control rather than actual control.

The extent to which phenomenon are determined by individual characteristics has been suggested by Hiroto [1974], who looked at *locus of control*, as a potential predictor of the impact of changes on control. He used a locus of control scale, which is a measure of the degree to which individuals believe events are in their control or idependent of it. This scale was developed in social psychology by Rotter [1966]. Hiroto found that an external control group was much more sensitive to an uncontrollable stimulus - inescapable noise, than the internal control group. The degree percieved control users possess over the service is likely therefore to have an impact on their evaluation of same.

C5.66 A systems perspective for understanding service quality

Quality is an elusive and indistinct construct with definitions from a number of approaches including:-

transcendent - in which quality is neither mind nor matter but something which defies absolute description;

user based - in which quality is defined by way of derived utility;

value based - in which quality is defined by the presence or absence of attributes or ingredients;

product based in which quality is defined by way of specific features; or

manufacturing based in which quality is defined by way of conformance or consistency to requirements

Despite the prevalence of definitions and approaches to the definition of product quality, the unique nature of services requires an appreciation of the interaction of the myriad of variables which constitute the service experience. Quality evaluations in the service environment involve both outcomes and the processes by which outcomes occur.

Sasse et al. [1978] discussed three different dimensions of service performance; Levels of materials, facilities, and personnel. Implicit in this trichotomy is the notion that service quality involves more than the outcome; it is also the manner in which the service is delivered.

Similarly Gronroos [1982] suggested that two types of service quality exist; technical quality which involves what the customer actually receives from the process by way of an outcome and functional quality which is essentially the manner in which the service is delivered.

The closest to the perspective put forward by this thesis is that of Lehtinen and Lehtinen [1982] who suggested that service quality is produced in the interaction between a customer and elements in the service organisation.

The distinguishing quality dimensions are *physical quality* which includes the physical aspects of the service such as equipment and buildings;

corporate quality which involves the company's image or profile; and

interactive quality which derives from the interaction between contact personnel and customers as well as customer to customer interaction. Moreover they

differentiate between the quality of the service delivery process and the quality associated with the outcome of service.

C5.7 Conceptual Model of Service Quality

The conceptual model of service quality developed by Parasuraman, Zeithaml and Berry [1985] was used in this research to measure the service quality component in the principal case organisation, and to provide convergent validity with findings from the group evaluation sessions.

Parasuraman et al's conceptual model of service quality together with its implications for future research was developed for use in the service sector however in principle it can be developed for use in most fields in which there is a degree of service interaction - such as facilities management.

In developing the model they considered the current literature on service quality not to be rich enough to provide a sound conceptual foundation, they conducted an exploratory qualitative study using focus group interviews with consumers and in-depth interviews with executives. In addition to the development of a conceptual model of service quality, they were in particular attempting to gain insight into the following questions;

What do managers of service firms perceive to be the key attributes of service quality? What problems and tasks are involved in providing high quality services?

What do consumers perceive to be the key attributes of quality in services?

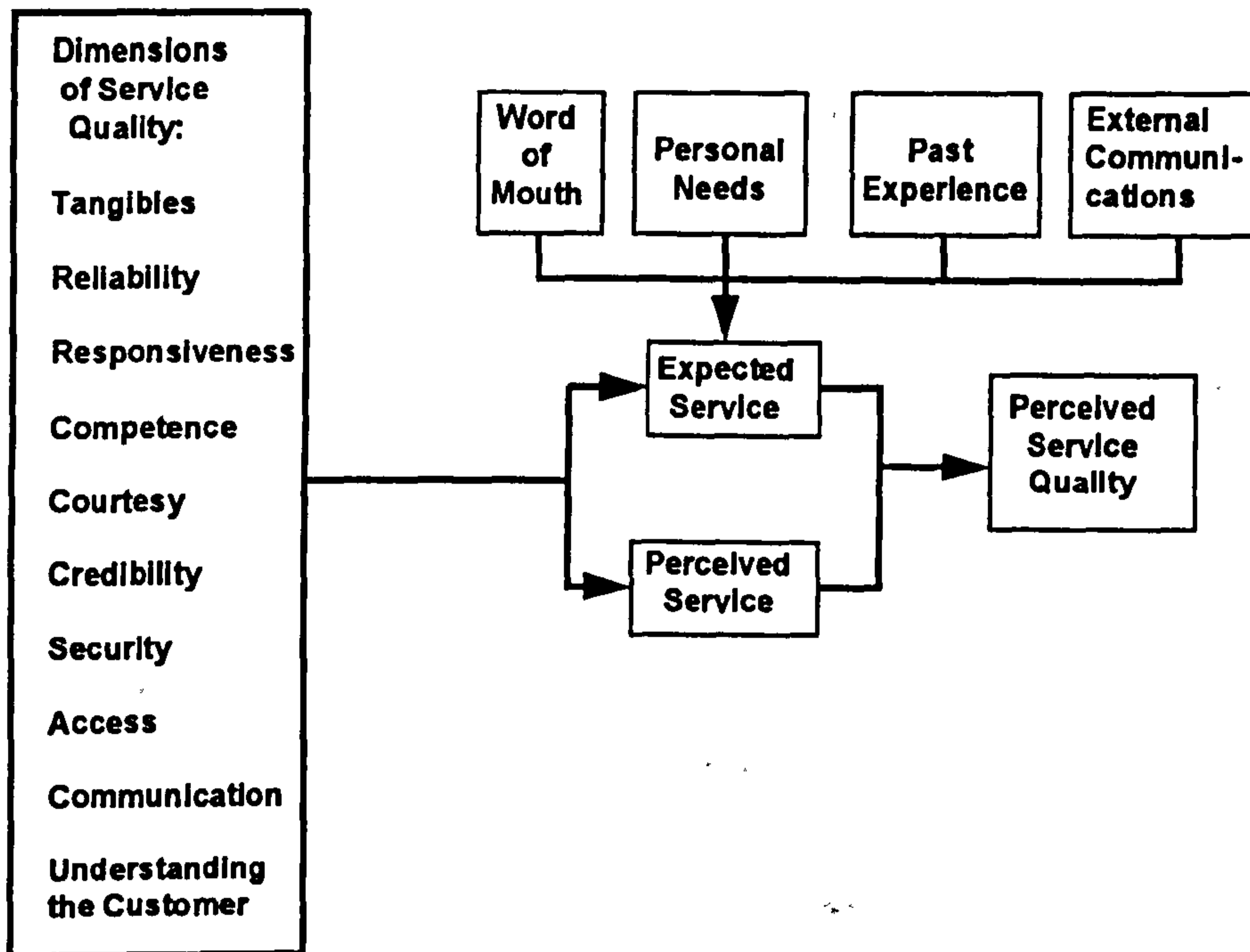
Do discrepancies exist between the perceptions of consumers and service marketers?

Can consumer and marketer perceptions be combined in a general model that explains service quality from the consumer's standpoint?

Parasuraman, Zeithaml and Berry [1985] found remarkably consistent patterns from the executive interviews, together with commonalities among the different industries represented in the study, to the extent that they were able to develop a

industries represented in the study, to the extent that they were able to develop a general model of service quality.

Figure 5.10 Customer assessment of Service Quality



Source: A., Zeithaml V, and Berry L., 'A Conceptual Model of Service Quality and Its Implications for future research'; *Journal of Marketing*, Vol.49, 1985:41-50

The basic proposition of Parasuraman et al. is that customers expectations of service are a product of their actual needs, previous experiences both with this and other organisations and word of mouth communications and communications made to them by the service organisation. All of which will influence perceptions and consequent service expectation. They argued that service quality as perceived is a product of both expected service and perceived service. In addition these are influenced by ten dimensions of service quality.

These dimensions can be consolidated to five dimensions of Tangibles, Reliability, Responsiveness, Assurance and Empathy.

They described Tangibles as the appearance of physical facilities, equipment, personnel, and communications materials.

Reliability as the ability to perform the promised service dependably and accurately.

Responsiveness as willingness to help customers and provide prompt service.

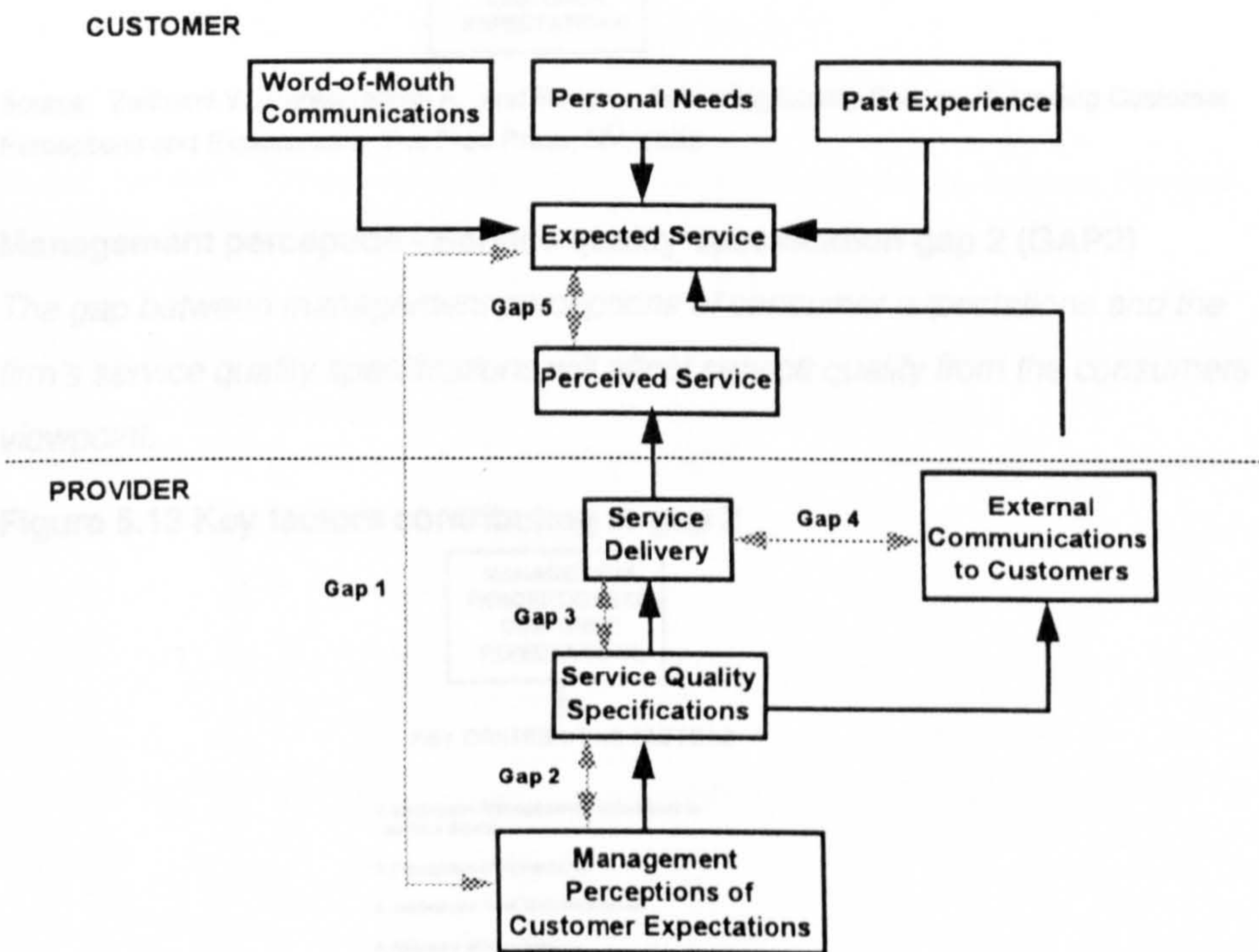
Assurance as knowledge and courtesy of employees and their ability to convey trust and confidence.

Empathy as the caring individualised attention the firm provides to its customers.

The most important insight they maintain from the analysis of the executive responses was that a set of key discrepancies or gaps exists regarding executive perceptions of service quality and the tasks associated with service delivery to the consumers. These gaps they concluded can be major hurdles in attempting to deliver a service which consumers would perceive as being of high quality.

The gaps are represented on the lower part of their service quality model. (fig 5.11)

Figure 5.11 Conceptual Model of Service Quality

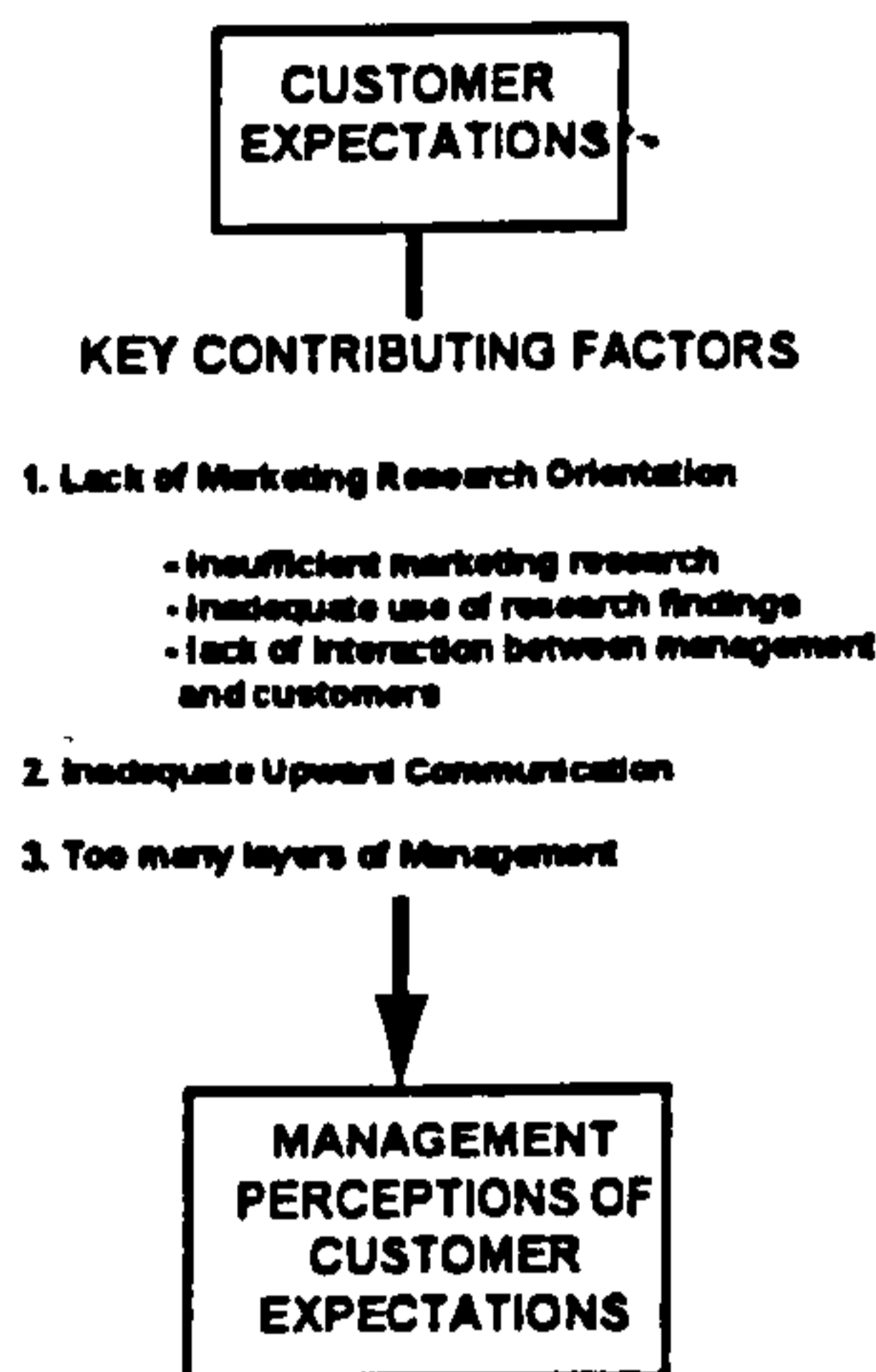


Source: A., Zeithaml V, and Berry L., 'A Conceptual Model of Service Quality and its implications for future research'; *Journal of Marketing*, Vol.49, 1985:41-50

Consumer expectation - Management perception gap (GAP 1)

The gap between consumer expectations and management perceptions of those expectations will have an impact on the consumer's evaluation of service quality.

Figure 5.12 Key factors contributing to gap 1

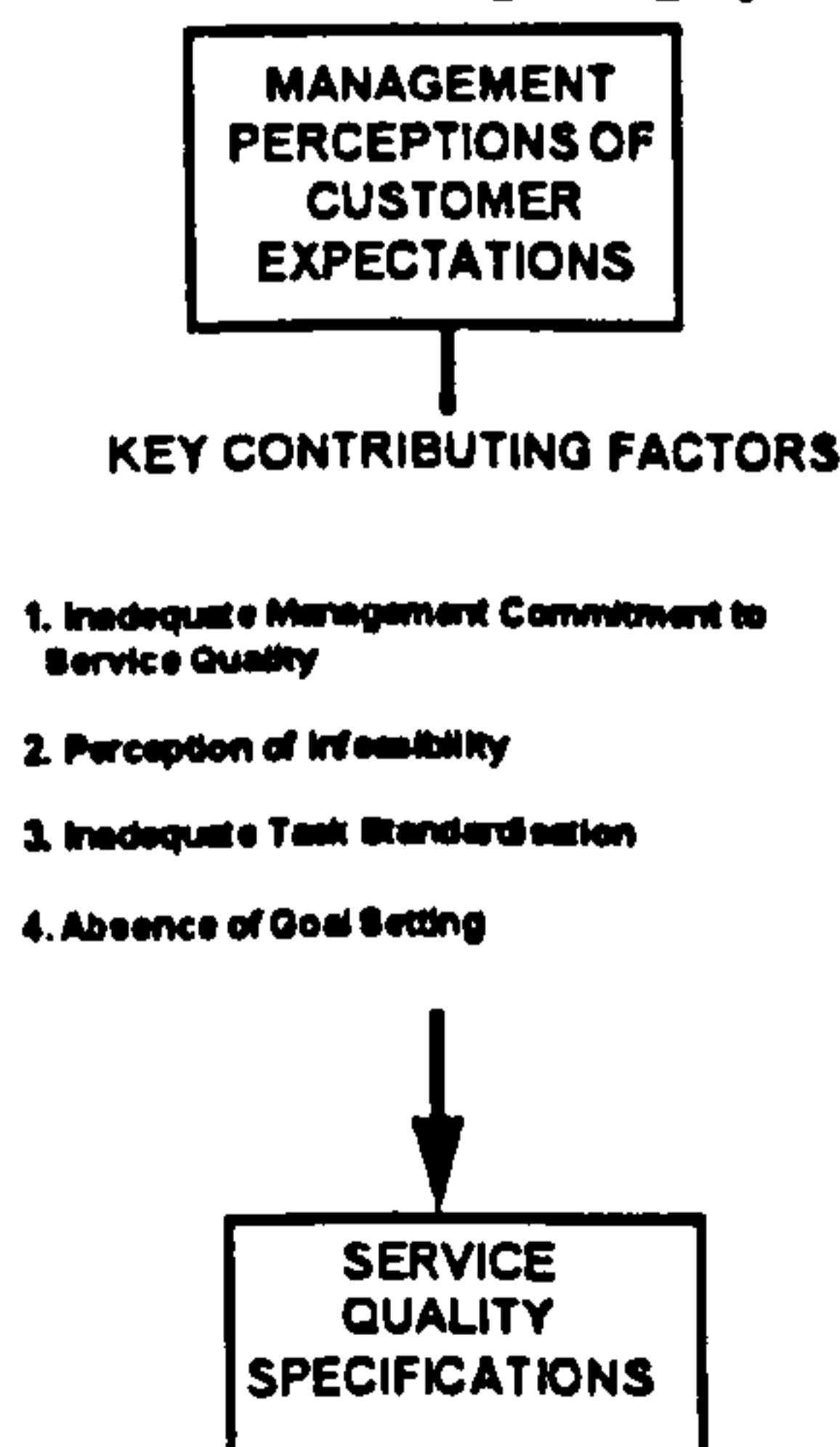


Source: Zeithaml V., Parasuraman A., and Berry L., *Delivering Quality Service: Balancing Customer Perceptions and Expectations*; The Free Press, NY, 1990

Management perception - Service quality specification gap 2 (GAP2)

The gap between management perceptions of consumer expectations and the firm's service quality specifications will affect service quality from the consumers viewpoint.

Figure 5.13 Key factors contributing to gap 2

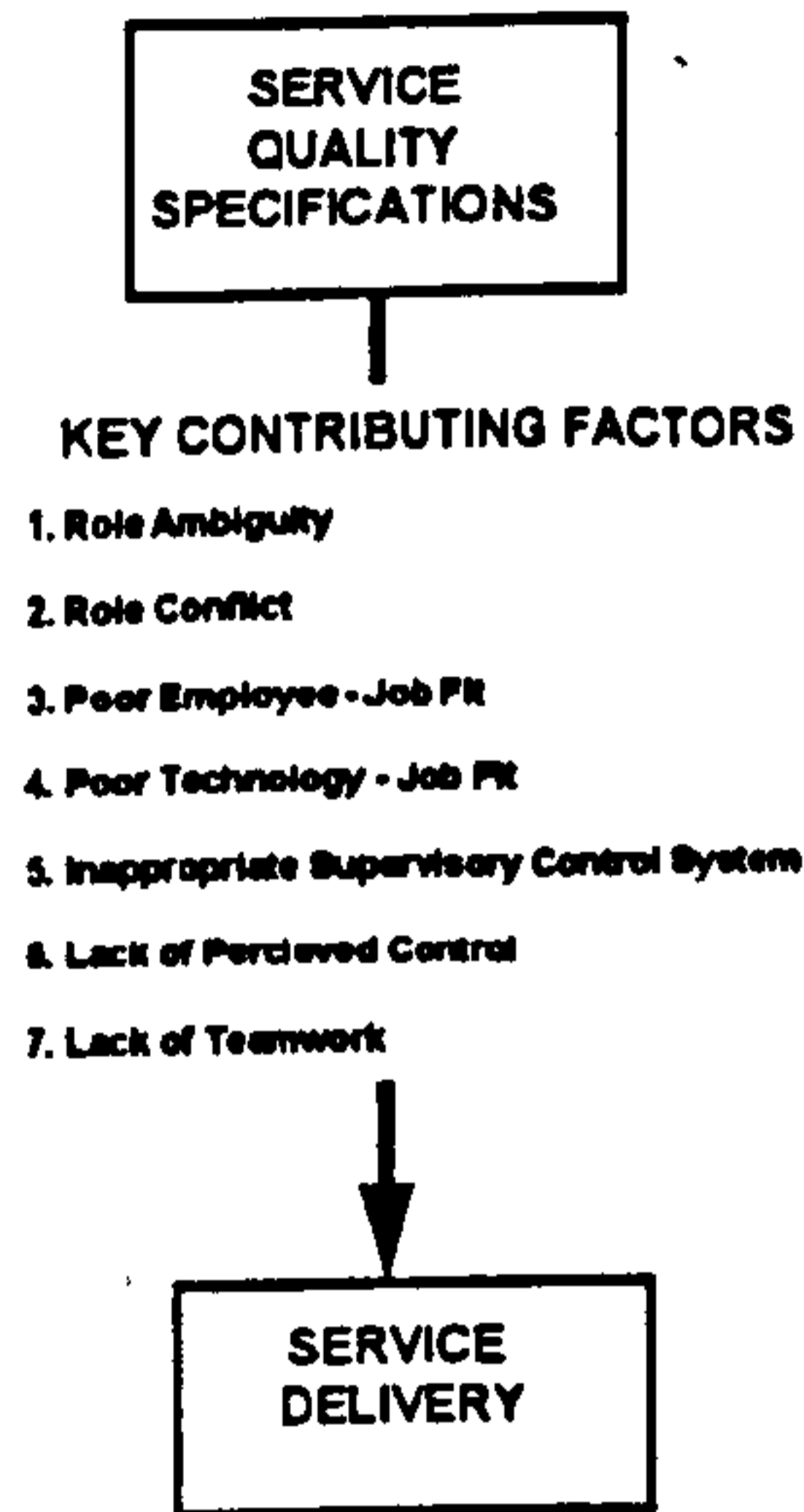


Source: Zeithaml V., Parasuraman A., and Berry L., *Delivering Quality Service: Balancing Customer Perceptions and Expectations*; The Free Press, NY, 1990

Service Quality Specification-Service Delivery Gap (GAP3)

The gap between service quality specifications and actual service delivery affect service quality from the consumer's standpoint.

Figure 5.14 Key factors contributing to gap 3

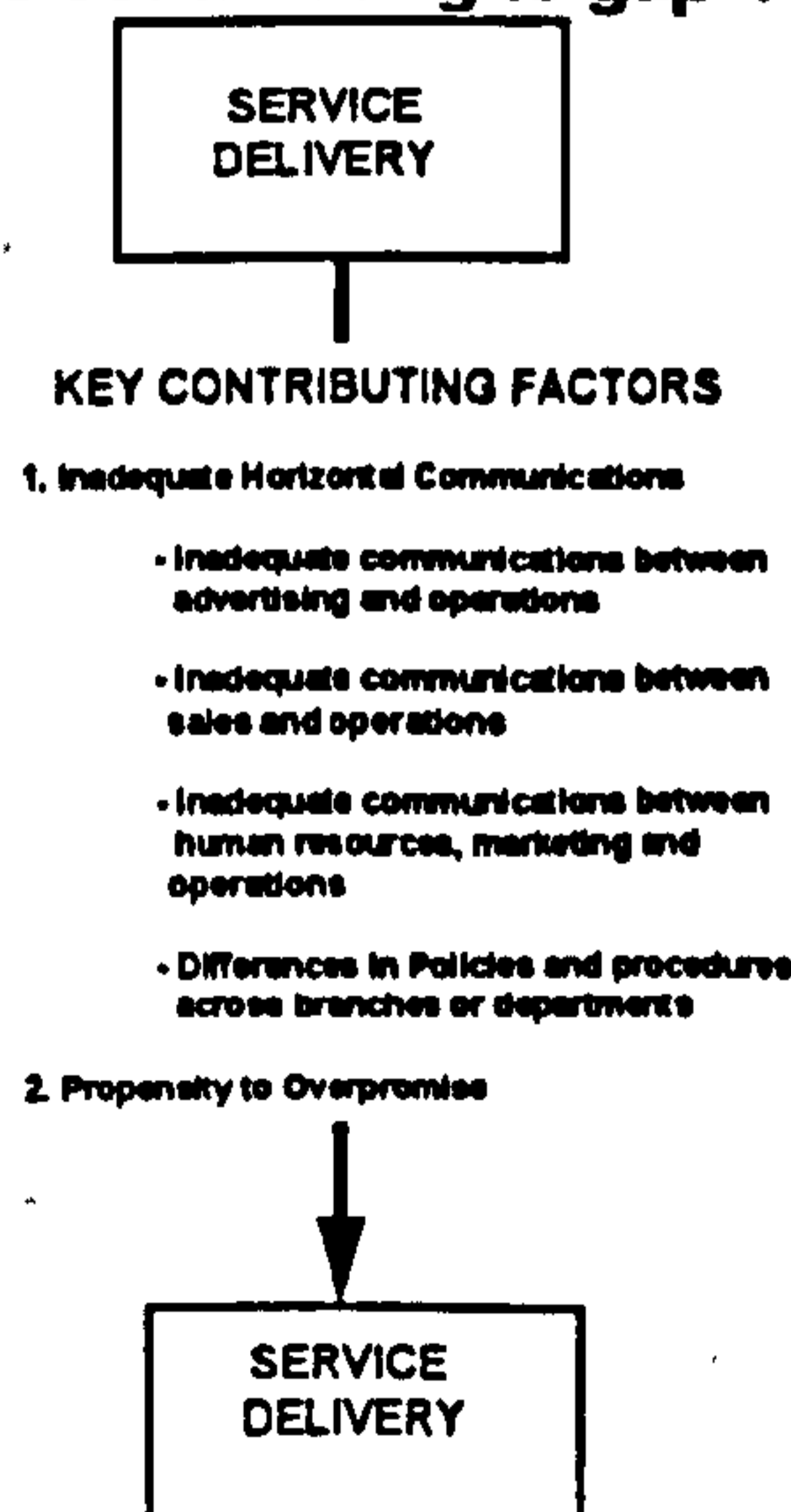


Source: Zeithaml V., Parasuraman A., and Berry L., Delivering Quality Service: Balancing Customer Perceptions and Expectations; The Free Press, NY, 1990

Service Delivery - External Communications Gap (GAP4)

The gap between actual service delivery and external communications about the service will affect service quality from a consumers standpoint.

Figure 5.15 Key factors contributing to gap 4



Source: Zeithaml V., Parasuraman A., and Berry L., Delivering Quality Service: Balancing Customer Perceptions and Expectations; The Free Press, NY, 1990

Expected service - Perceived Service gap 5 (GAP5)

The quality that a consumer perceives in a service is a function of the magnitude and direction of the gap between expected service and perceived service.

Parasuraman et al. [1985] used insights obtained from the executive interviews and focus groups to form the basis of a model determining the nature and determinants of service quality as perceived by consumers, the foundation of this model is the set of gaps demonstrated in figures 5.11 to 5.14 above. They concluded that service quality as perceived by consumers depends upon the size and direction of GAP5 which in turn depends on the nature of the gaps associated with the design, marketing and delivery of services.

Proposition 6 is accordingly;

$$\text{GAP5} = f(\text{GAP1}, \text{GAP2}, \text{GAP3}, \text{GAP4})$$

C5.71 The perceived Service Quality Component

Parasuraman, Zeithaml and Berry (1985) found that regardless of the type of service, consumers used basically similar criteria in evaluating service quality. They classified the criteria into 10 categories labelled service quality determinants (see figure 5.10), demonstrating examples from each of the service industries involved in the study. These were subsequently reduced to the consolidated dimensions of service quality noted above (page 207) The study found that few of the determinants could be classified as search properties [Nelson, 1974] which are attributes which can be evaluated prior to consumption, or credence properties [Darby and Kami, 1973] which are characteristics a consumer is unlikely to be able to evaluate even after consumption. Their proposition 7 concluded therefore that;-

Consumers typically rely on experience properties when evaluating service quality.

Consideration of either the physical environment or the service experience in comparative isolation may accordingly provide an incomplete understanding of the performance of either in facilitating achievement of an organisations goals.

Facilities management is a service function responsible both for the management of the physical environment and the provision of services in support of individual and organisational needs. Evaluating facilities performance from a user (or consumer) perspective should involve the study of the interrelationships and interactions between environment and service. Traditional means of either man-environment research such as post occupancy evaluation, or marketing research such as consumer satisfaction, tend to focus on environment or service rather than environment and service. The two however are not mutually exclusive but as demonstrated from the above studies mutually dependable.

Section D

Facilities Management Research

D5.1 Facilities Management Research

Alexander [1992] described Facilities Management as a service to an organization which is essentially demand-led, and is concerned with delivering and sustaining quality operating environments and services to support the achievement of key organizational objectives.

Facilities refer to the range of buildings, services and systems which support an enterprise. In the broadest sense, facilities include the infrastructure, space, environment, information and support services necessary to support achievement of an organisations objectives.

Discussing an Agenda for Facilities Management research, Alexander suggested:-

All research aims to identify key variables and establish relationships between them Facilities management researchers must attempt to find the relationships between the facilities service and processes and organizational effectiveness. New knowledge that emerges from this research should be effectively disseminated to influence practice and must be capable of assimilation into evolving systems and procedures.

[Alexander, 1992:Vol.10:7:6]

The first EuroFM conference in Glasgow in 1990 concluded with an agenda for professional development in the field of facilities management, to which according to Alexander,:-

research must contribute by identifying better:-
ways of organising the team (FM) to meet business needs;
understanding and means of expressing user needs;
tools for evaluating the extent to which these needs are being met, and;
tools for generating management information and providing decision support.

[Alexander, 1992:Vol.10:7:6]

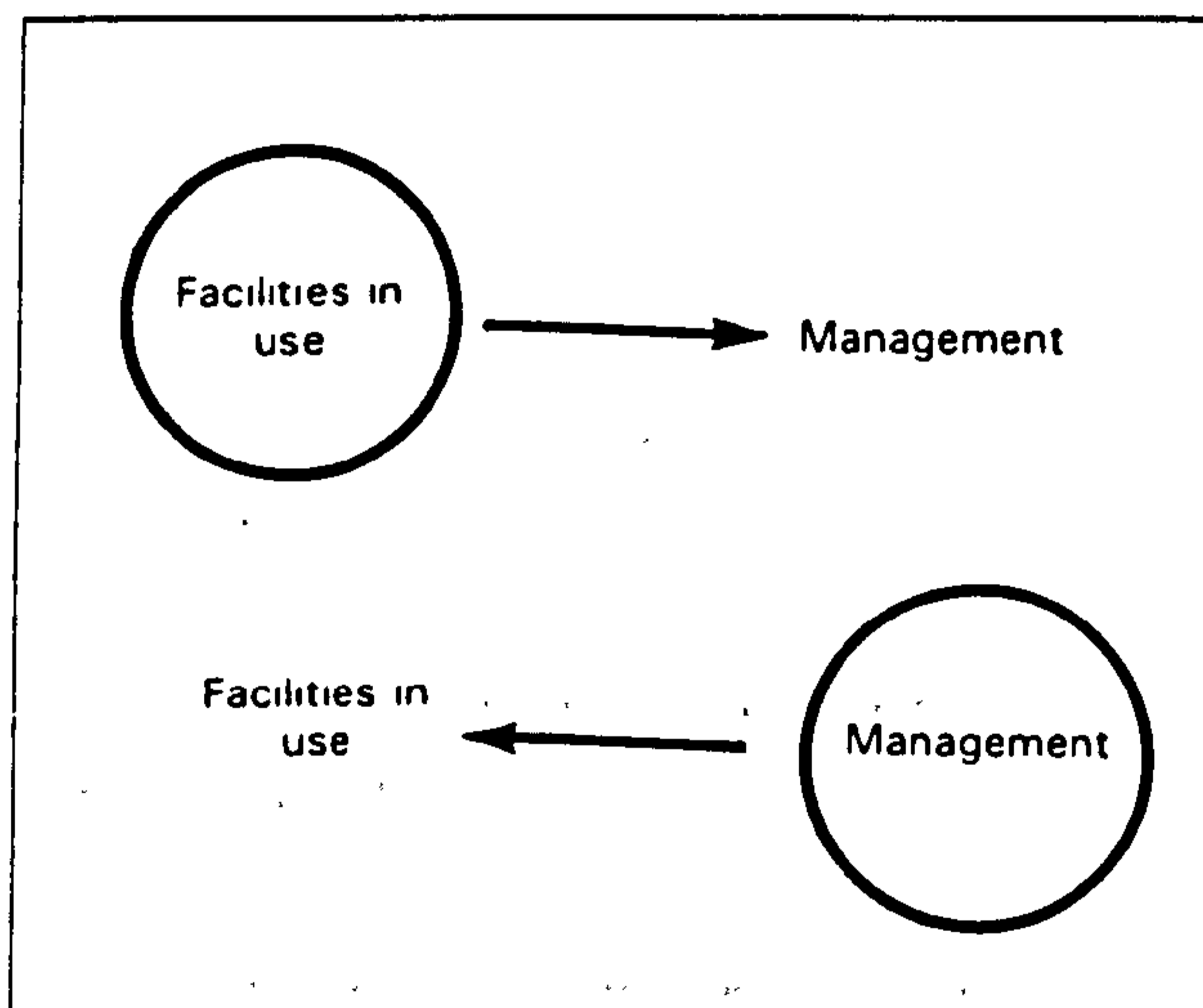
McLennan and Nutt [1992] suggested that:-

as yet the Facilities Management profession does not yet have a coherent research approach
However any research agenda to be useful must be linked directly to gaining benefit for the
profession as a whole, the organisation, the individual facilities manager and the end users.

[McLennan and Nutt, 1992, Vol 10:7:13]

They suggest a context model of research focus which (figure 5.16), in addition to the primary research areas of supply-led, by academic communities and the demand-led research initiated by end users to solve specific problems, includes a facilities-in-use focus on the investigation of physical elements and a management research emphasis for investigation of social science issues, related to facilities in use.

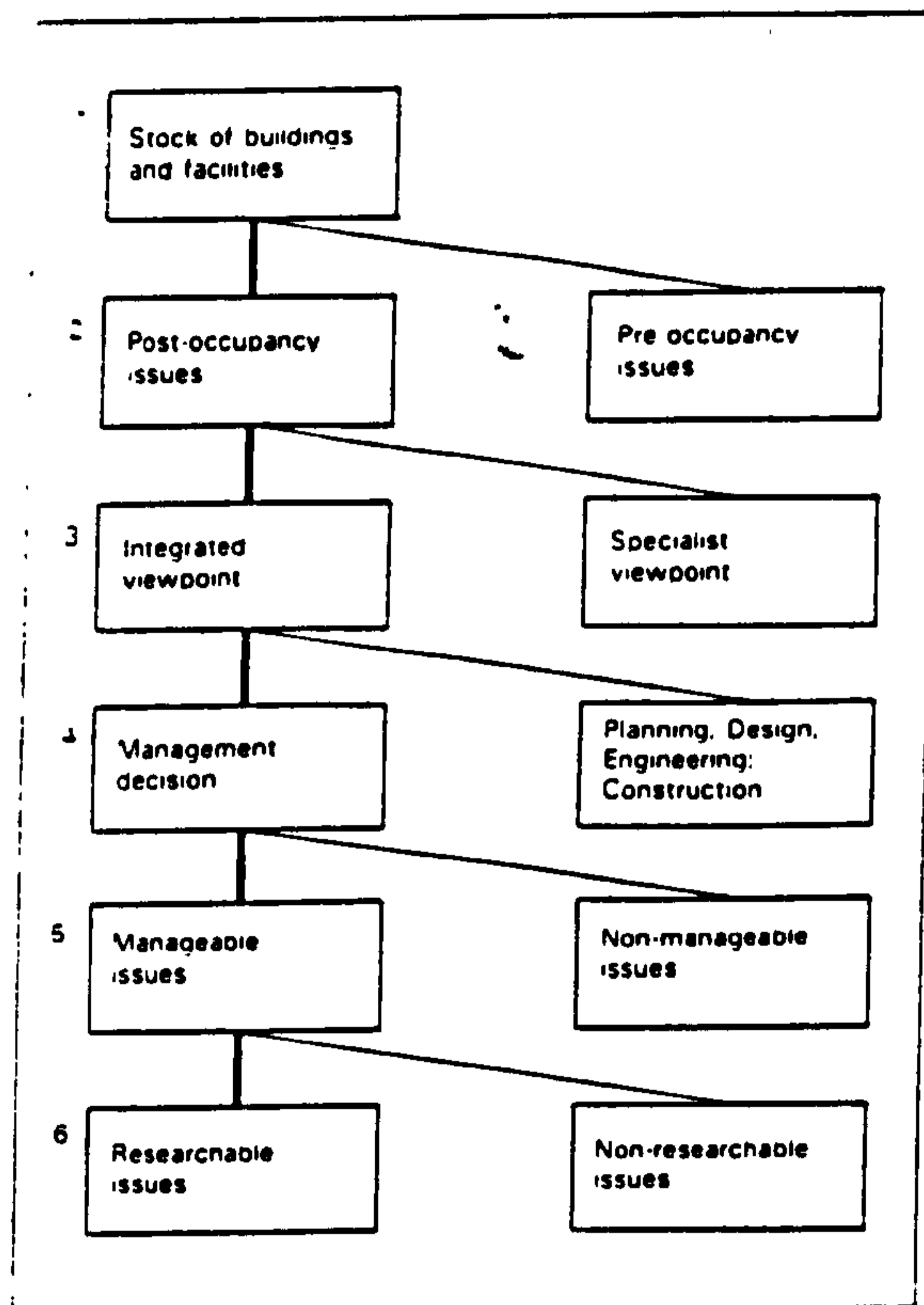
Figure 5.16 Context model of research focus



Source: McLennan P., and Nutt B, 'Facilities Management Research Initiatives'; *Facilities* Vol. 10 No 7, 1992:13

They attempted to provide a focus on the core concerns of facilities management research which is distinguished from building and management research generally. (see figure 5.17)

Figure 5.17 The Field for Research



Source: McLennan P., and Nutt B, 'Facilities Management Research Initiatives'; *Facilities* Vol. 10 No 7, 1992:13

McLennan and Nutt offered six stages of clarification in their model of the field for Facilities Management research.

Firstly, they suggest that research should be directly specifically at problems relating to or arising from the management of buildings, their facilities, environments and support services, in so doing they call for a fundamental distinction between facilities management research and business organisation and management research. Whilst I agree with this statement generally, I would contend that the partitioning facilities management into an research field distinct from management and social sciences may limit understanding of the systemic nature of the relationship between the occupation and management of facilities and the organisational environment. As they interrelate and are affected by one another, an holistic understanding of systemic interdependencies is more appropriate.

Secondly, they suggest that the focus of facilities management research must be directed to the post occupancy problems of the facility user, rather than the pre-occupancy concerns of the design and engineering professions. Once again, I contend that many of the problems of buildings in use may stem from lack of feedback to the design process by which environments come about or indeed as research evidence has demonstrated through lack of user participation in the design process. Multidisciplinary approaches to facilities design involving designers, facilities managers and users serve to increase understanding of the various stakeholders concerns at design stage. Accordingly design issues should not be jettisoned from facilities management research simply to justify a separate professional research speciality.

Whilst it is accepted that buildings in use provide a 'live field' for research, and the praxis offered by this own thesis is one of action, post occupancy, it is argued that the process of evaluation affords the opportunity to feedforward to the design process by involving those responsible for facilities management at the briefing stage of new design or refurbishments.

In so doing the research need not be aimed at post occupancy problems rather ensuring that such problems are eliminated at the design stage through involvement in briefing and articulating users needs.

Thirdly, they suggested that facilities management research will need to encompass the human, physical, spatial, environmental and financial dimensions of real world problems in an integrated way. They contended that established research specialisms have little relevance within the field of facilities management. That current research approaches fail to recognise the integration and interdependency of a wide variety of dimensions within a social system is central to this thesis.

Fourthly they suggest that the central rationale for facilities management research is to support and inform real management decisions. In so doing research must concentrate on those aspects of facilities performance that are manageable through time and subject to change by management decision and action.

As such they may have been advocating a stance of action research, they did not however suggest that new theory might be generated for the wider design and management communities outwith that of the case organisation.

Fifthly they suggested that research should concentrate on managerial issues and aspects of facilities performance through time. On this point I concur.

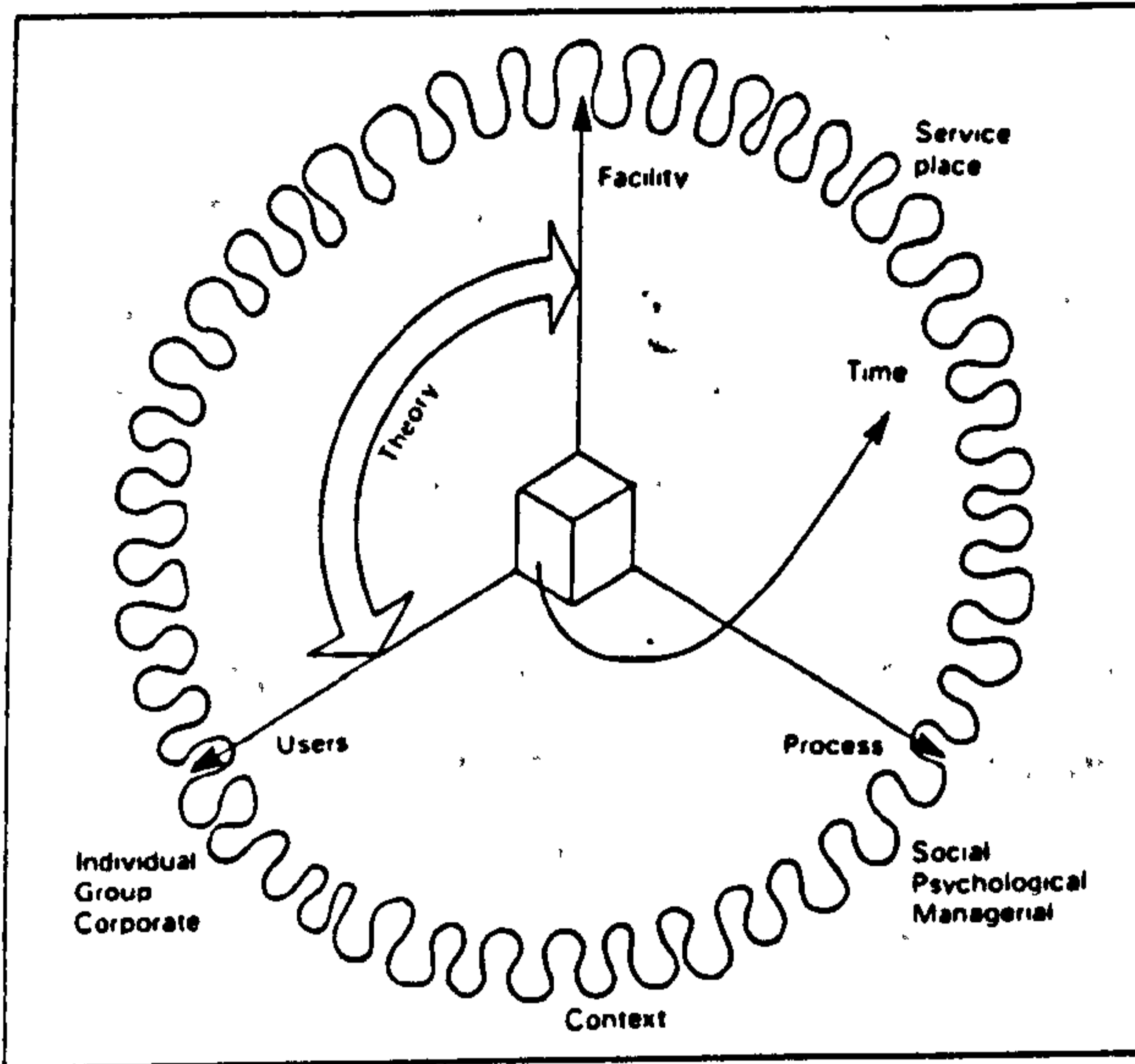
Finally they suggest that only areas which can be investigated properly and with the benefit of systematic study should be undertaken. Such a deterministic approach may deprive both the research and practice communities from gaining insights into issues which may be generated into aspects of complex systems which may not otherwise be accessible by traditional paradigms.

Adopting the approach of holism by contrast suggests that the uniqueness of the system makes generalisation impossible accordingly challenging the positivist notion of science suggested by McLennan and Nutt. By contextually validating themes in networks in a pattern model which contain a range of phenomenon, interpretation can provide an understanding of the connections between them.

Alexander [1992] suggested that in addition to the supply led research, facilities management must seek to establish links between organizational, human, environmental, physical and economic aspects of delivering quality operating environments and services. In so doing he suggested two perspectives for consideration in an overall research framework. Those of the users, and the business perspective. Facilities management practice he argued involves mediation between the different perspectives.

Alexander adapted the EDRA conceptual model of Environmental Design Research (see figure 5.18) to account for the broader scope of facilities management, suggesting that its research must extend beyond the interface between people and the built environment to consider the ways in which the environment and services are managed.

Figure 5.18 Facilities Management Research



Source: Alexander K., , 'An agenda for Facilities Management Research'; *Facilities* Vol. 10 No 7, 1992:9

The dimensions of the model are extended to account for both the scope of facilities management as a service component and to include the management dimension. The model accordingly has five dimensions;

- (1) User groups (e.g. individual, operational units and corporate)
- (2) Facility (e.g. service and place)
- (3) Process (e.g. socio-psychological and managerial)
- (4) Context (e.g. business) and
- (5) Time (e.g. life cycles)

In the EDRA conceptual model for Environmental design research, with dimensions of place, people, socio-behavioural phenomena and the dynamic interaction of the three over time, Moore et al. [1985] suggests that any one of the four dimensions might be used as a prime focus of research. Despite reference to the contextual issues within which environmental design research takes place, context does not serve as a focus of research in its own right.

Alexander's [1992] model however, implies that context should be a dimension for consideration as a fifth dimension by consideration of the business perspective, identifying five levels of facilities management consideration namely;

- (1) Business - meeting strategic objectives
- (2) Service - supporting human processes of work
- (3) Function - sustaining health environments and quality services
- (4) Property - acquiring, disposing of, operating and maintaining physical assets
- (5) Economy - adding value through each process

The contextual issues in the EDRA model are defined by the critical nature of social, political, economic, cultural as well as physical environmental trends facing industrialised and developing nations (Moore, 1985). They are considered to be contextual circumstances and trends which shape the context for environmental design research rather than be a focus for study or dimension in their own right. The systemic nature of an organization as being a 'living' entity which interacts with and is influenced by its environment suggests however that the environment must be a critical dimension for study as it can be seen to be modifying factors on the variables of place, people and process as the organization adapts to changes in environmental conditions.

Alexander's model of Facilities Management Research, whilst intimating business context as a dimension for research, appears to place emphasis on process or strategy which organisations might undertake in pursuit of goals. This is not reflected distinctly in the model as a dimension of study and suitably distinguished from the EDRA model to highlight the inclusion of a fifth dimension.

In contrast the fifth dimension suggested in this thesis is to consider the interrelationships of the components which constitute the environment of the system under a framework dimension of organisation which is in itself the context. (see below p.220)

In other words, the consideration of organisational needs has to proceed from a combination of factors of place, people and process in an open system in response to environmental context. *Organisation* therefore is considered to be the system as a whole which constitutes all of the interrelationships, of places (facility),

user groups (people) and socia-phenomena (process) over time and in interaction with the external environment which redefines its context in a dynamic manner. The effective combination of each dimension of people, process, and place, over time are manifest in the way the system organises itself in response to internal and external conditions, as the systems seeks homeostasis or dynamic equilibrium. Study of organisation seeks therefore a more dynamic means of modelling environment-people relationships than the linear models above.

D5.2 The concept of context

In order to identify how context might be conceptualised as a research dimension it is necessary to explore problems in its ambiguous interpretation from both an individual and organizational perspective.

In formal terms, Hopper, [1992] argued, 'Context' refers to those parts of a text which precede and/or follow a particular passage, and which are sufficient in number to enable a person to determine the meaning or meanings which the author intended.

The concept of context was explored succinctly by Earl Hopper [1992:330-354] in a clinical illustration and theoretical discussion of the problem of context in group-analytic psychotherapy. I accordingly draw heavily upon his argument below.

Hopper suggested; The prefix *con* is related to *cum*, meaning 'together', 'together with', 'in combination' and 'in union', and further, 'altogether', 'completely', and 'intensive' or 'in depth'. It is closely related to such words as 'community', 'communion', and 'common' which is reminiscent of the word 'religion' meaning 'to connect', 'to bring together in entirety', 'to make whole' etc., and connotating 'being bound together through oath' or 'being part of an unaltered whole'.

He suggested that his line of association should not be surprising given that the stem of the word 'text' has at least two elementary but interdependent roots. The first he suggests, *textus*, means 'tissue' and 'style of literary work'; later he suggests *textus* was used to refer to the Gospel, precisely as it was written "in all its authoritative glory". The second root is *texere*, meaning 'to weave'.

Hopper argued that these two sets of connotations are infinitely suggestive but intriguing in that "the explicit idea is that thread and its properties will always be governed by its location within a larger whole, in this instance a fabric or textile".

By definition he suggested:-

the properties of both material and non-material phenomena are characteristic only of wholes that are located within contexts, which are woven together from their constituent elements. Properties of contexts are, therefore, emergent and irreducible to the properties of any of their elements.

[Hopper, 1992:331]

Hopper concluded by suggesting that the meaning of the word 'context' is also related to the meaning of the word 'understand', and argued that:-

in order to understand an event, it is necessary to locate it within an abstract category of such events, and then to relate this category to at least one other such category., the existence and qualities of which are less puzzling.

[Hopper:1992:331]

One such event he would describe as communication between people, in which there is a transference of a coded account of information which must be contextualised or related to other categories of events in order to be understood. Whilst Hoppers' work refers to the problem of context in group-analytic psychotherapy, his suggested interpretations possess both morale and political implications which raise questions concerning the boundaries of physical, social and psychological realms.

Accordingly, he described interpretation as an explanation or hypothesis which is part of a larger theory which will always involve assumptions and various other untestable axioms. Such explanations he contended are nothing more than heuristic devices for the closure of theoretical systems. He called for the development of:-

a more sociologically informed theory of object relations which requires an inter-personal mode of the mind and a recognition of social facts. Organisms, persons and groups are not of the same order of phenomena.

[Hopper, 1992:345]

Whilst arguing from a psychoanalytic stance he suggests that organisms, persons and groups must be viewed as open systems in that:-

the personalities of members of a group are elements of the context of the group, while at the same time the group itself is part of the context of the personalities of the members.

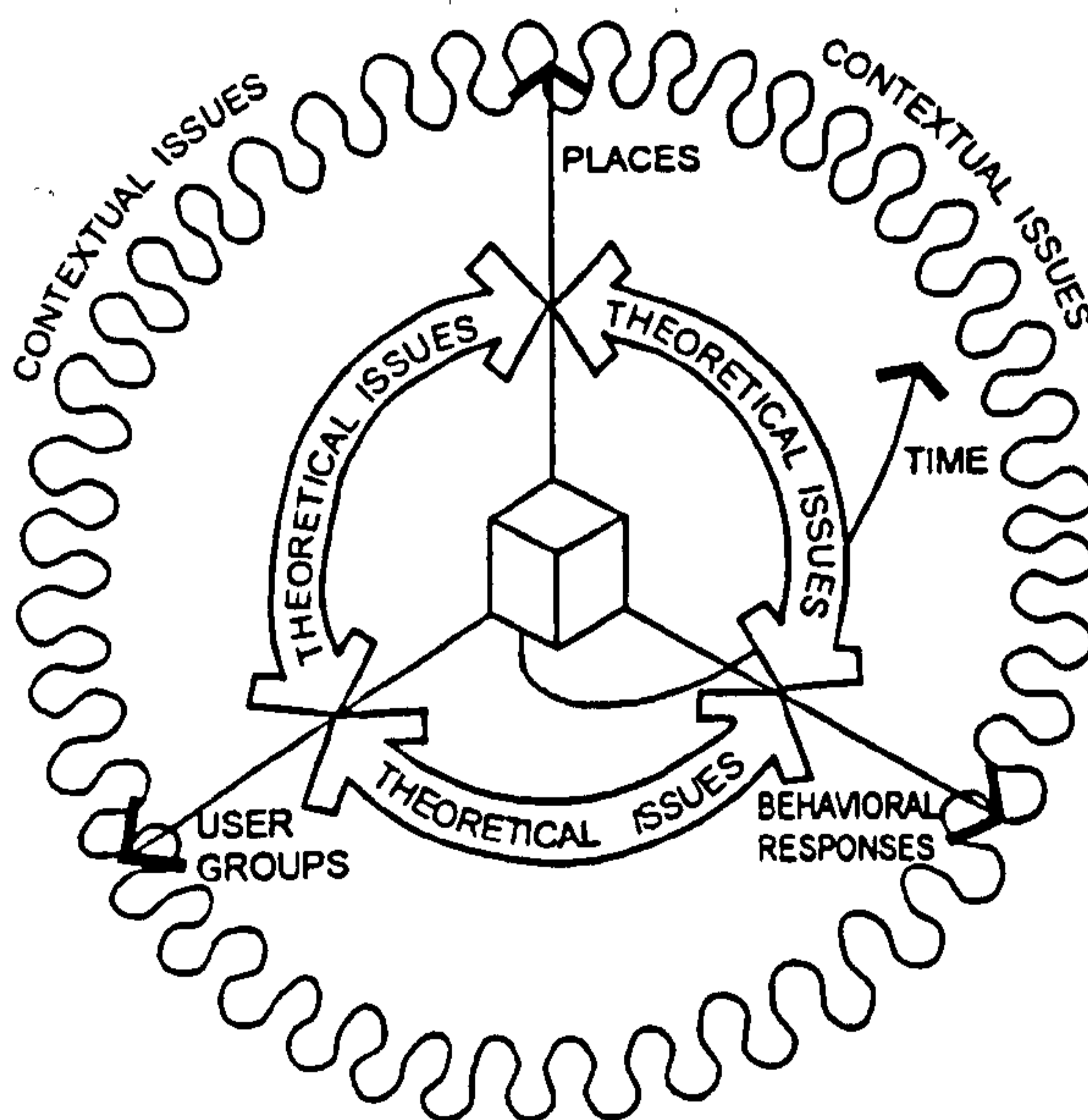
[Hopper, 1992:345]

It also means he contended that the structure and process of a group express hologrammatically the configurations of the societal context. Whilst it may be reductionist to conflate social group with context Hopper argued that psychic facts presuppose the prior and simultaneous existence of social facts as well as organic facts, a perspective he argued it would be impossible to derive from a Platonist epistemology.

D5.3 Context in Environmental Design Research

The EDRA model for explaining the dynamic relations between dimensions in environment-behavioural research (see figure 5.19 below) suggests that themes or circumstances seek to shape the context for environmental design research. However the theoretical discussion of context put forward by Hopper suggests that, unlike the EDRA view, context or properties of context are irreducible in the sense that they are not only influenced by the system environment, but interact with and in turn constitute the context by which interpretation might occur.

Figure 5.19 EDRA model of dynamic relations among the four dimensions



Source: Moore G., Tuttle D., and Howell S., *Environmental Design Research Directions: Process and Prospects*; Praeger, NY, 1985

Contextual issues by EDRA's model Moore et al. [1985], set the agenda by which critical issues facing the socio-physical environment might be researched through dimensions of people, place, process and the way in which the dimensions dynamically interrelate over time.

I argue that understanding context requires an appreciation of system interdependencies between dimensions and the system environment. This means that context involves the study of both the system and its environment. Context is the 'whole', not the study of parts, nor simply a modifying factor upon parts of a system.

Context this thesis would argue is therefore inappropriately relegated in the EDRA model as not constituting a dimension of study. At the very least it should constitute a fifth dimension. In so doing however, a more holistic approach would have to be adopted which challenges traditional patterns of scientific inquiry in the social sciences.

D5.4 Post Occupancy Evaluation and Facilities Management

Becker [1992] at the IFMA 1992 conference on Facilities Management suggested in part the blame for failures in the built environment emanating from POE studies was invariably placed upon the architect. He argued;-

The failure to explicitly consider the full range of players and other contextual factors in POE's, unlike the typical practice in more traditional case studies, contributed to the discrediting of design professionals.

[Becker, 1992:92]

The irony he suggested is that in many cases the POE were conducted or sanctioned by the design professionals themselves in an attempt to reform the profession, through enhancing knowledge.

POE's aimed at assessing how well buildings were performing for their occupants whilst sharing the goals of environment behavioural research conducted by social scientists such as Sommer's [1969] work on small group ecology, and Altman's [1966] work on human territoriality, such work sought to improve the quality of the built environment by increasing understanding of how the physical form influences and affects behaviour and attitudes, but was not conducted to the same standards

of scientific rigour as E-B research. Becker [1992] argued however that to be useful POE does not have to meet academic canons of scientific respectability. He argued that, while POE's contribution to the formal knowledge may be minimal, its value to the practitioner however is real and immediate.

The role of POE has perhaps changed in favour of demand-driven rather than supply-oriented. Whilst the design community was viewed originally as the primary audience for POE, the emergence of the distinct discipline of facilities management - an essentially client centred function, with responsibility for the co-ordination of planning, design and operation - has changed emphasis from the individual and setting to an understanding of the interdependency between organisations and their physical settings. Becker [1992] contended that, for facilities managers, the concept of buildings in use is central to their professional activities, in a way that was never true for the architecture and design community. Accordingly the facilities management audience is an internal one, not an external one. To this end, POE is not intended to have scientific reliability and validity, nor is it meant to be widely generalizable. Its primary intent according to Becker is to provide immediate feedback to the practitioner about occupant response to a new or renovated facility.

For the facilities management professional charged with ensuring the organisations resources are utilised in a cost effective manner, POE provides the opportunity to ensure that the services provided by architects and designers both improve the quality of environments and contain costs. In addition specific aspects of the facilities may be targeted for improvement and thus serve as a means of assisting decision making in resource allocation.

Perhaps one of the hidden dimensions, however, (and one which is central to this thesis) is that in addition to providing increased understanding of organisational needs from the designed environment, POE can serve to educate staff and management about their own function which is poorly understood through staff involvement in the data collection process. Such POE provides learning opportunities for practitioners and clients alike, irrespective of whether such studies are reported to stimulate further environment behavioural research.

D5.5 Conclusions

This chapter has pulled together a wide variety of research pertaining to the nature of research and suggests the need for new paradigm approaches to understanding the complexity and systematic nature of the social and organisational process and their relationships to environments.

Issues of objectivity, validity and reliability in both qualitative and new paradigm research involving human inquiry cannot be judged by traditional notions of science.

Context it is argued is an appropriate focus of study for understanding system complexity. It is however irreducible in the sense that it constitutes both the whole and influences the parts. Organisations as collections of individuals it is suggested might be considered as 'holons', which are all embracing social organisms which consist of a myriad of small social units each complete in itself and yet dependent on the others. Each holon is individual in the sense that it has a degree of choice over its actions however it is influenced by other holons and is both dependent upon and independent of the system whole. By the same token individuals within organisations both constitute the context for their actions, decisions and evaluations but are influenced by and influence the system of which they are part.

The study of context is therefore the study of the whole. Organisations, and groups themselves express the configurations of the context of which they are part, rather than as suggested by the EDRA model that context influences the parts context *is* both parts and whole.

The notion posited that Post occupancy evaluation should be extended as a means of facilities management research as the notion that individuals perceive of their environments holistically, is substantiated by the literature which supports individual evaluations of both environment and service and the influences each has with organisational, social or psychological factors.

Research evidence relative to evaluation of built environments and service quality demonstrates that the environment has an influence on individuals perceptions of quality dimensions and can influence approach and avoidance behaviours.

In conclusion it is suggested that facilities management research should be action oriented, holistic and collaborative involving a wide variety of stakeholders in the organisation, aimed at eliciting experiential and tacit knowledge of the occupation and management of facilities through group dialogue. It is argued that the most valuable outcome of collaborative research is the participants experience of inquiry. However more general theory may be grounded in the data through the development of pattern models of the systemic nature of organisational processes and individual perceptions. It is argued however that individual interviews need not be transcribed and subsequently coded but through the process of dialogue data analysis synthesised and interpretation of specific issues can be conducted through the process of generating recommendations.

Validity it has been argued can be provided contextually which is concerned with the way a data fits into the wider pattern of events, and by means of Convergent validity whereby other evidence points towards a similar outcome. In any event it is argued that traditional notions of validity are based upon the method employed for data generation rather than on people who in effect generate the data.

Chapter Six

Research Design and Objectives

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Chapter Six

Research Design and Objectives

6.1 Summary

This chapter presents a pilot post occupancy evaluation exercise which uses a multi-method data collection approach, and a multi-disciplinary evaluation team. The exercise was conducted to provide design guidance for approval in principal of Regional Secure Units which are medium and high security facilities for people suffering from a range of mental health problems.

The permissible time scale for the conduct of the exercise required a research design which could gather and synthesise significant quantities of information in a short period of time, from facilities which were geographically remote, of different designs and construction types and with different operational systems.

The evaluation used a questionnaire proforma on what would constitute an hypothetically ideal facility, which was both administered by telephone and used as an interview format. Additional questionnaires were used to elicit patient responses from the facility. A touring interview was conducted at each facility visited with various staff groupings and focus group interviews were conducted with patients.

The exercise findings are presented briefly, together with indications of the value of research methodology utilising focus groups. The exercise served to develop the focus group facilitation skills of the researcher for the principal case study in chapter seven. The methodological considerations and research design to be followed in the main case study are set out.

Chapter Six

Research Design and Objectives

6.2 Introduction

The exercise that served as a pilot study for the use of focus groups was a commission I received to advise on the conduct and methodology for the provision of design guidance for regional secure units.

6.21 Pilot exercise using focus groups

The use of focus groups and touring interview for the evaluation of the built environment was piloted in 1992, during an evaluation exercise of 20 Regional Secure units throughout the United Kingdom, for the Home Office and the Department of Health. This exercise, in addition to developing the facility evaluation skills of the researcher, served to demonstrate the value of using focus groups in environmental evaluation and influenced the aims of the principal research praxis demonstrated through the case study in chapter seven.

6.22 Pilot Research Design and Methodological Considerations

An initial pilot exercise using focus groups in participative evaluation was conducted which involved, touring interviews followed by dialogue sessions with users. The data generated was triangulated using both in depth interviews and survey questionnaires following a structured format some of which were administered by telephone. The work was commissioned research, intended to produce guidance for the approval in principal of the design of new units, the exercise served as a useful experience in identifying the systemic nature of person/environment/process. The following description provides a resume of this initial evaluation exercise.

6.23 Background to Regional Secure Units

Regional Secure Units (RSU's) are intended for the care and treatment of patients suffering from mental disorder whose continuous disruptive, difficult or potentially harmful behaviour constitutes a risk of harm to others. They require conditions of

security short of that available at a special hospital (maximum security) but higher than that offered by a conventional psychiatric hospital ward. RSU's can also cater for patients transferred from special hospitals, the courts, prisons and the community. The units were conceived for patients likely to respond in the short to medium term (usually about 18-24 months) to an intensive programme of treatment and rehabilitation.

The origin of the RSU programme goes back to 1974 when the interim report of the Committee on Mentally abnormal offenders was published. Shortly after its publication, the report of the Department of Health and Social Security working party on Secure facilities in the National Health Service was produced. Both reports identified the need for some form of secure accommodation in the NHS to be created as a response to the need of a select group of patients who required treatment in an environment more secure than the open door philosophy of a psychiatric hospital but short of the level of security available in special hospitals. The Department of Health concluded that provision for around 1000 beds nationally would be sufficient to meet the needs of the population, however this figure would be reviewed once the programme was advanced.

A subsequent review of health and social services for mentally disordered offenders and others requiring similar needs was conducted jointly by the Department of Health and Home office, this was announced by Stephen Dorrel (then parliamentary Secretary for Health) in November 1990. Interim reports were issued for consultation in November 1991 (covering hospital, community, prison and an overview) and in June 1992 (covering staffing and training, finance, academic development, research).

The Government's 1990 announcement resulted in the establishment of a committee to review the current level, pattern and operation of health and social services for mentally disordered offenders. This resulted in an increase in the release of capital funding from £3 million to £18m for new RSU's in 1992/93. It was intended that bed provision would increase by a further 600 over the next three years.

The Department of Health were to take the lead in assembling a specialist group who could contribute both philosophically and organisationally to the subject of RSU's. The specific terms of reference were to evaluate critically the design solutions of all purpose built and adapted RSU's presently in place with particular regard to the following:-

- Security aspects (both physical and those arising from the deployment of staff);
- the quality of life afforded patients and staff;
- the delivery of therapeutic programmes;
- the application of agreed operational policies;
- the suitability of the environment for visitors;
- relationship with the community and the setting within it;
- value for money (in broad terms)

The above analysis was to be considered in respect of all patients who may be placed in an RSU, including those with learning difficulties.

A specialist evaluation team was appointed by the Department of Health which consisted of a forensic psychiatrist, an architect, and a senior nurse manager. I was appointed to advise on evaluation methodology. Administrative support was provided by a management consultant who assisted in drafting the report. The research planning and evaluation of 20 existing RSU's had to be conducted and findings reported in a 6 week period which placed severe limitations on the research methodology.

The subsequent report was to form the basis for approval of applications in principal for new units and to produce a design guide for Medium Secure Psychiatric Units. The previous design guide dated from 1975 and did not reflect current thinking in operational matters, nor technological advances. The Medium Secure Units Psychiatric Good Practice exercise report was completed on schedule and the report published in September 1992. The subsequent Design Guide on Medium Secure Psychiatric Units was published by NHS Estates in September 1993.

6.2 Pilot Research Methodology

The permissible time scale of 6 weeks placed severe limitations on the level of evaluation that could be conducted. I pointed out to the evaluation team that this would have to be at the indicative and investigative end of the continuum rather than diagnostic in nature. I suggested from the outset that around 8-12 months would be necessary to conduct the level of inquiry necessary for production of a design guide. (This was in effect borne out as the design guide was published a year after the conduct of the original exercise.) The principal focus of the study was therefore to examine building design and service provision in existing medium secure units in order to inform decisions on applications for approval in principle for new buildings. The existing RSU's, 20 in all, were distributed in geographically throughout the United Kingdom. In addition they represented a range of building types from purpose built to adapted, of different ages, forms of construction, patient and staffing profiles and sizes. In essence the exercise was aimed at identifying best practice from all of the above. It was concluded that a sample of 10 (50%) be drawn which offered balanced representation of the existing profile for a more detailed investigation, with the remainder be subjected to a telephone interview. 12 were subject to a telephone survey.

6.25 Administration of questionnaire

The purpose of the survey was to try to identify features which facilitate the working of a Regional Secure Unit, contribute to the quality of life of the patient and engender good morale among staff. The same questionnaire proforma was used as a structured interview framework for those units that were visited, the principal interview was conducted with the medical director or nurse manager. We were not trying to identify the minimum features necessary to look after patients but at an optimum level of facilities, neither too parsimonious nor too excessive. We had in mind that these units will be expected to be in service for the next 25 or more years, that the patients in them will be there on average something just less than a year (some for much more than this), and that the units are part of a whole forensic service to the Region and a commitment to training of new staff and those already in post.

Of the 12 units contacted by telephone in order to complete the questionnaire about the features of RSU's, discussions took place with either the Medical Director or the Director of Nursing Services.

The telephone questionnaire used questions derived from statements about an hypothetically ideal unit. For example the statement "all units have a gym" becomes the question "have you a gym?".

The hypothetically ideal unit was based upon the knowledge and experience of a the Forensic Psychologist in the evaluation team, who had experience in working in many facilities with different care groups over a significant period of time.

Whilst it was accepted that his ideal unit may be faulty or deficient, this was to become apparent from the comments of respondents to the survey. For example a negative response ("no") to the question may be followed by a comment such as "..we have a better solution which is...." This allowed for the modification of the proforma as the research proceeded, and served to indicate areas for further research. The telephone survey was intended to find out what features units actually possessed together with comments as to whether this was better or worse than the optimum which was the hypothetically ideal unit. The questionnaire was aimed at the identification of features which had worked very well for the unit in addition to deficiencies in the unit. A copy of the questionnaire format is shown in Appendix 1.

6.26 Evaluation conduct

All units visited consisted of first a preliminary discussion with local managers, consultants and senior nurses followed by a touring inspection, with different staff user groupings. The staff groupings were taken from all grades and professional roles to provide a viewpoint from multiple perspectives.. The tours took the form of a touring interview after Kemohan et al. [1990], where staff indicated their spheres of interest and levels of satisfaction with the facility. The research team used basic interview probes simply to find out how things were working, but otherwise did not participate in the evaluation. Patients and additional staff were interviewed during the tour of the facility to elicit as wide a spectrum of perspectives as possible. Following the tour a debriefing session was held where a general consensus was sought on the issues raised and the successes and failures of the facility. The

questionnaires were completed in conjunction with the senior members of staff on conclusion. Each evaluation took around one half day to complete.

Questionnaires were also prepared for completion by patients. It was expected however that given that many of whom suffered from mental illness or learning disabilities, the little data generated would be of low value. Accordingly focus groups of patients were established to generate discussion on the merits of the building (to which they had access). The focus groups typically consisted of around 10 patients together with the research team of four. The sessions themselves resembled what would be a group therapy session for patients. This allowed the research team to probe for information pertaining to peoples' perceptions of the environment. Qualitative data was generated to substantiate the quantitative data gathered from the structured interviews.

6.27 Findings from questionnaire survey

Taking each of the major physical features of the units in turn the findings were presented together with a series of recommendations pertaining to each design feature. This exercise was conducted concurrently with the touring interview evaluations, patient questionnaires and focus group sessions. Whilst many of the recommendations and comments referred specifically to design features, a large proportion also referred to operational issues. The telephone survey however did not represent the interests of all the stakeholders to the evaluation process other than the perceptions of senior management. Comments for example on quality of life issues for patients were of course in the opinion of the interviewee.

6.28 Living Area

Ward Numbers

It was agreed that wards should be no more than 14-15 beds. A smaller number is generally preferred and the adolescent unit worked on groups of 8 patients. The adult units varied in terms of ideal number of patients, whereas some units considered 12 patients to be a maximum, others had two units of 8 patients and two of 14. A further unit had an admission ward of 8, a rehabilitation ward of 10 and a general ward of 16. As far as could be seen the ward size was sometimes arrived at by accident rather than design intent. In one unit it was found that

despite the ward having been originally planned for 15 patients, the ward had been found to be too small and only 12 could be accommodated.

It was considered that the staffing implications needed to be further examined in more detail. Moreover it was considered that whilst units with 12 patients may be less efficient of staff than that of 14, it was considered that there may be gains in quality of life for patients.

6.281 Bedrooms

There was a unanimous agreement that the patients should be accommodated in single bedrooms, the doors should open outwards (or have doors that will open either way or be removable with allen keys from their frames). Two of the units in the survey still had dormitory accommodation and reported that the quality of life in these areas was much lower than if they had single rooms. The majority preferred rooms which the patient could lock though on some acute admission wards it was preferred that the nurse locked the doors. The rooms should be big enough to accommodate a bed, desk and 2 chairs, wardrobe, drawers, sink and a power point for a light or television.

Nursing observation should be available through the door, either through a pane (preferred by the majority) or by a spyhole with a lens in it providing 180 degrees line of sight.

Most units did not have integral sanitation. Those that did favoured it and said that patients liked it. Where there was integral sanitation it was considered to be preferable if it was located in a room off the bedroom as in a hotel. Units which did not have integral sanitation did not however seem to miss it. A key reason was considered to be that bedrooms were unlocked at night in all adult units.

A feature which was welcomed but hardly ever used was the ability to cut off the water or electricity to a particular bedroom from outside the bedroom if there was trouble.

It was found that the adolescent secure unit surveyed differed from the adult units in that patients for assessment were locked in their rooms. All locked rooms had integral sanitation, and were fitted with a nurse call button. Unlocked rooms did not have sanitation but patients were free to go to the toilet as they wished. In these rooms as the bedroom door opened a bell sounded in the nurses office at night.

In the case of adolescent units, it was considered that integral sanitation should be provided. It was also noted that stainless steel fittings should be used in preference to porcelain as they were considered to be tougher, and more appropriate for this particular care group. A further recommendation was that at least one room should have a vinyl floor covering rather than carpet to cope with dirty and deliberately incontinent patients.

It was noted that some rooms worked perfectly well without integral sanitation but that others would regard the quality of life as less good than in the situation where a proper sanitary suite was present.

6.282 Day rooms

Most units surveyed reported that they had insufficient day space for patients in the living area. Patients should be able to break up into small groups and sit separately from each other and at the same time there must be sufficient room to allow other activities to go on during the day. Most agreed that 3 rooms plus an open sitting area was sufficient for 15 patients, i.e. 4 rooms in which to sit and get away from others. One could be a television room of 7-10 people, one a quiet room for the same size group, and one a large room which would hold everybody to act as a dining room, a large sitting room and second television room. The fourth area could be seats in an open part of the ward where people are moving around a natural meeting place.

6.283 Secure rooms

A number of units reported that they managed with relatively few secure rooms but none surveyed had no secure rooms. The minimum needed appeared to be 2 secure rooms for 38 patients. Some units had restricted their secure rooms to admissions wards only. It was generally concurred that the secure room should have a steel framed and faced door with several bolts. The room should have a window facing outside and fitted with a blind. The blind however should be controllable from outside the room by the nurse to give privacy to the patient. It was considered that a venetian blind between two panes was a suitable solution. Other design issues included good observation with no blind spots, high or strengthened ceiling, no hanging points or sharp corners, heating in the ceiling and

impermeable floor. Patients should be able to see a clock. Where there was an integral toilet this was much praised by staff. It was also considered that when not used as a secure room the sanitary facilities if accessible by another door could be used as a separate shower/WC.

It was also concluded that the secure room should be accompanied by good policy. It seemed to many of the units that a person placed in seclusion should be kept under continuous observation. Seclusion policies it was concluded should be designed to record frequent observations and minimise the use of the room.

6.284 Kitchen

Units differed in the way food was provided for patients. Some had a central kitchen and central dining room whereas others prepared food on the ward. All units welcomed the idea of having a fully equipped kitchen however, which would be located by the living area both for the preparation of meals and for rehabilitation exercises. All units agreed that there should be a tea bar for patients to make tea, coffee and perhaps snacks. In some units there was a big kitchen, part of which was set aside for this. However permitting access to the rest of the kitchen could only be done by escorting.

6.285 Laundry rooms

All wards had a laundry room. Where commercial (industrial) types of machines had been installed this was appreciated. Ordinary domestic machines were thought to have broken too easily. It was concluded that all wards should have a laundrette room with industrial quality equipment.

6.286 Corridor width

There were differences of opinion on this point. It partly depended upon whether rooms were on both sides of the corridor. It was found that the minimum width was 6 ft for those with rooms off one side and 8ft for those with rooms off both sides.

6.287 Storage room

The majority of respondents to the survey saw the need for a room of 2xbedroom size for each ward to store patients' goods which cannot be stored in their rooms,

being either too big or too dangerous. In addition to shelving to hold boxes it was considered that lockers should be fitted to protect goods from theft.

6.288 Toilets and Bathrooms

It was found that practices differed in units. The majority had patients' toilets and bathrooms divided by sex with separate staff toilets. There were no complaints about this arrangement. Others had no segregation either by sex or by status - this was also said to be satisfactory. It was general felt that there should be 4 WCs for 14 patients which would allow a segregation of 3 male to one female if segregation was desired. Staff WCs would be extra unless it was decided that staff should use patient WCs. There was variability in the number of baths and showers, some units reporting that they had too few. It was felt that 3 showers plus 3 baths for 14 patients.

6.289 Women's wing within the ward

There were differences of opinion on this issue. Most used ward rooms like an hotel with patients taking rooms as they were available. They felt this worked however it was argued cogently by the only female interviewee that some women need privacy away from men and even should have their own sitting room. It was considered that most of the existing ward layouts did not allow for a separate female section and those wards had not had the opportunity to try it. It was concluded that designs should be encouraged which allow part of the bedroom suite (with own bathroom) to give privacy for females if required, however the use of the area should be kept flexible.

6.289 Large social room

All the units agreed that there was a need for a large social room where several wards can meet for social events. Smaller units got around this by using a large ward day room or a gymnasium. If there is an independent room it can be used also for table tennis and pool as well as unit meetings.

6.3 Work and Occupational Therapy areas

This refers to work/OT areas needed away from the living area. Many of the units reported that they were inadequately supplied with space and rooms for these activities. It was considered that the total amount of space required for a ward of 9-14 was around 6xbedroom in size. It was also considered imperative that the area be capable of subdivision into rooms so that different activities can go on simultaneously without disturbing each other. e.g. a woodwork room, an art room, a pottery area, a classroom, a computer room. and a big general purpose room. There was general agreement that there should be around 5 rooms.

6.31 Medical areas

Many units complained of a lack of interview rooms on the ward and of the arrangements for keeping drugs and syringes. It was generally concluded that wards managed in cramped conditions however there was general acceptance with the proposals from the hypothetically ideal unit that there should be a ward doctors room, a nurse treatment/dispensary room and an interview room.

6.32 Recreational and exercise area

All respondents agreed that good recreational areas are required. Those who have gyms, multigym and outdoor pitches stated that they made use of them and value them. Those that lacked these facilities desired them.

All respondents recognised the need for a shop. Some made use of hospital shops attached, others had convenient local shops that could be visited. It was reported however that this had led to some accusations of theft of money when nurses had gone shopping with patients. Others had a small shop manned by volunteers or staff on a part time basis.

All respondents recognised the need for a library. The most successful arrangement occurred when the county library service serviced the unit library monthly. It was reported that the use of main hospital libraries had not been too successful, nor had arrangements whereby only a group of old books were kept on a few shelves.

Various arrangements were made for hairdressing however it was not considered that any special facilities required to be provided.

The conclusions on recreational and exercise areas was that there should be adequate sports facilities including gym, a multi-gym, an outdoor pitch and ideally a pool. It was considered that the latter might become a source of revenue as it could be let out for part of the time to local people.

6.33 Religious Area

None of the units surveyed had a special room for religious purposes though most agreed that it was desirable. It was reported that patients tended to use the facilities in the parent hospital where this was available or they could go to the local church.

6.34 Advocacy room

It was argued cogently at one unit that there should be a room available for a patient's advocate although none of the units have such a room at the present time. It was concluded that if there was sufficient interview rooms available on each ward it would not be necessary to provide a special room, other than in perhaps the case of the bigger units where they may be a higher workload and accumulation of confidential files.

6.35 Offices on the ward

There was a general agreement among respondents that there should be a general nursing office and a second office for the ward manager/charge nurse. One ward felt that it could manage on less and another felt that the managers offices should be away from the ward area. The most radical suggestion was that there should be no nursing office on the ward and that nursing notes and the like could be kept off the ward in an office to which the nurse would go when office work was required to be done. The basis for this suggestion was that an office which lets nurses segregate themselves from the patients was considered to be a bad thing.

6.36 Psychologists room and two way screen

There was a general agreement among respondents that there should be a psychologists suite for the unit. The basic element would be two adjoining rooms joined by a one way screen and containing appropriate video equipment. The rooms should be off the living area but in an area where patients can visit. It was found however that some units who had this facility used it a lot though there were some who did not. It was unclear why this was so.

6.37 Offices for professionals away from the unit

All respondents reported that they were short of office space which led to considerable irritation and reported inefficiencies. It was considered by respondents that individual offices should be provided in an administrative area (or in the case of a rehabilitation ward the occupational therapy area) for consultants, senior registrars, Social workers (with their students), psychologists, nurse managers, general manager, other senior administrative staff, Occupational therapists, nurse tutor, personnel officer. Secretaries and clerical staff it was considered could share offices up to 3 per room. Others it was reported requiring offices include community nurse, behavioural therapy nurse, physiotherapist or PE instructor, and patient teachers such as art, woodwork, pottery. It was also reported that there should be an administrative area and a room for machinery such as photocopier, any file servers and paper storage.

There should also be a cleaners room and WCs available for the administrative area.

6.38 Medical records

It was reported that most units used the medical records facilities of the parent hospital and that relatively few noted were kept on the ward other than those for patients in the unit. Stand alone units however will require somewhere to store records and possibly in the fullness of time archive storage facilities.

6.39 Outer Security

All units except one reported that they had attempted to increase their security with an outer fence. All of them were climbable and have therefore been modified.

The general impression gained was that an effective fence would be around ten feet high and of welded mesh with an inward pointing overhang. Taller straight fences without overhangs it was concluded were less effective.

In some units the fence served not only to keep people in but also to stop illicit goods being passed in. Where the fence did not surround the whole building and patient's bedrooms opened to public areas illicit substances were passed in and other things were stolen from the rooms by passers by when windows were left open. The units that had a fence continued to feel that it was needed. The units which did not have one had got used to it and did not feel the need for one.

All units had an airlock entrance usually with a receptionist. Some electronic airlock doors were reported as having given some trouble others had not. Some units had a very big and reportedly pleasant airlock area and a visitors area beyond. others did not.

There was a variety of window designs. Most used timber or metal frames with laminated glass or plastic. Windows were generally large but non-opening, ventilation was achieved by a separate opening slit window. A combination of problems were reported with respect to windows including;- laminated glass giving way, polycarbonate scratching, unscrewing of normal screws, wooden frames being sawn through, poor ventilation and too few opening windows.

All units had pitched roofs. The presence of a significant overhang it was reported prevented patients climbing onto the roof, as did ensuring that drainpipes were located behind external facades.

Ceilings were most successful if high or strengthened although escape through ceilings was reported as rare.

All units use an alarm bell however there was uncertainty as to where the alarm pushes should be located.

It was concluded on the basis of this section of the questionnaire that the basis for security is derived from the regime with the emphasis on empathetic patient staff interaction. The basis for which is that if patients feel at ease and well looked after they would not attempt to escape. All physical security measures can be

overcome. An RSU holds people not well enough to go unescorted out of the unit but also people at all stages of recovery through to those about to lead independent lives in the community. Patients presenting a serious risk to the community could be transferred to a special hospital.

It is possible to run an RSU without a fence provided that the patient can be held securely within the ward. When a patient enters a fenced area he will at first require to be escorted in case he makes an escape attempt. Most such patients can, however, be safely escorted beyond the fence bringing into question the need for a fence. There may, nevertheless, be some at the height of their illness who would be considered too unstable to go safely beyond the fence even with an escort. The fence may also be demanded by the public especially when the unit is near to housing.

The fence should be hidden for cosmetic purposes as far as possible. The best way may be the use of a ha-ha or by screening with trees and shrubs

None of the units felt it necessary to have TV cameras or pressure sensors on the fences.

Windows should be laminated glass or polycarbonate. Steel frames seem safer with screws which cannot be unscrewed due to one way heads. Sufficient openings should be provided by slit type windows or louvers for adequate ventilation.

Airlock systems were reported as popular and should be combined with a pleasant waiting area. Some units preferred visitors enter a separate side from patients and staff, others preferred that the administration area should be separate from the main airlock entrance. A compromise may be for the administration entrance to be accessed from within the airlock.

6.4 Arrangement of living areas

A problem noted with single small 15 bed units was the lack of variety in the living areas that can be offered to patients. It was evident that a variety of areas would be better. It was considered that the unit should offer a range of wards such as small areas (4 beds) for the very violent and disturbed patients. An admission ward of around 14 beds for psychotic patients and those with a high nursing dependency. A rehabilitation ward of around 14 beds for those recovering and less

nursing dependent. Some respondents argued that a smaller unit of around 11 beds would lend for a more domestic atmosphere. A flat or house for those patients almost ready for the community to practice living independently.

6.41 Staff Facilities

Most units felt their staff facilities to be insufficient. There was general agreement that there should be a staff dining room, which could be part of a dining room for both patients and staff. A staff sitting room for all staff with a washroom and kitchenette for drinks and snacks. This should be located away from the patient area, possibly in the administration area. Separate staff changing rooms with showers, WCs and lockers for male and female staff was also considered necessary.

6.42 Rooms for academic purposes

Many units reported that they lacked facilities necessary to facilitate teaching, large academic meetings, big case conferences, lectures, seminars and the like. There was a general consensus that the basic requirements for a 15-30 bed unit would be:- 2 seminar rooms for 10 people each. These could be separated by a movable partition however the suitability of this would depend upon sound transmission efficiency. A conference room, or suitable room, to accommodate around 24 people. Ideally access to a lecture theatre which could accommodate 50-80 people. Some units have converted the gym for this purpose or use local postgraduate centres or hospital education centres. An academic library or access to one. A room large enough to practice control and restraint techniques. The amount of space necessary would require to be increased accordingly for bigger units.

6.43 General Services

Whereas most units have access to the provision of hotel and support services including engineering and building maintenance from central hospitals, consideration requires to be given to the servicing of stand alone units. Where this involved permanent staff provision is required for relevant workshops, storerooms and offices.

6.44 Other facilities

It was considered that the ward areas should provide enough rooms to accommodate patients' visitors and afford some privacy.

All units reported inadequate car parking space available. It was concluded that there should be a car parking space available for each member of staff. In this way there would always be surplus space available for visitors.

6.5 Administration of Patient Questionnaire

A short and simply worded questionnaire was prepared for administration to patients during the evaluation site visit. The questions were related to quality of life issues from a patient's point of view in respect of the facilities that they used.

The units generally have a high number of patients with learning difficulties and low levels of literacy, the question format was designed therefore to be simple and quick to respond to using mainly multiple choice responses. A copy of the questionnaire is shown in Appendix 2. It was not intended that the data from the questionnaire be analysed statistically but merely to serve as a pointer for issues which could be raised during focus groups with patients. We soon found that the simplicity of format was impossible to analyse in any detail, or to draw any general conclusions on the adequacy or otherwise of specific facilities, however they did provide insight to issues of key concern to patients, which could be prompted during the focus groups.

6.51 Findings from focus group sessions

The use of focus groups provided insight into areas which may not have been accessible by other forms of data collection. In addition they highlighted discrepancies between both management and user understanding of users' facility-related needs.

Whereas focus groups were conducted with nursing and medical staff, administrators, therapists, there appeared to be some discrepancies between carers and patients' perceptions on how well the facilities were operating.

For example the perception that existed that they (patients) had little to do as a result not of poor or non-existent recreational facilities but of inadequate staff cover for supervision of activities. The facilities were provided with well equipped sporting facilities, art therapy and music therapy suites. In order to participate in such activities however patients had to be supervised by staff members.

Managers however felt that they made good use of their recreational facilities. Given that many of the therapist appointments were on a part-time basis, patients were unable to use facilities. Despite this, the accommodation was provided for dedicated use rather than shared use. Recommendations therefore included the provision of multiple-use accommodation in future facilities.

The availability and quality of recreational space was rarely a problem. Accordingly space utilisation and patient perceptions could be improved through improved staffing and management practices. Patients also revealed that there was not enough to do at weekends and reported that the staffing levels were lower.

Patient focus groups revealed that visitors were required to phone up for appointments to visit and were turned away if they arrived speculatively. Moreover they felt that there should be more privacy for visits, most of which were conducted in the reception area or dayrooms.

The team also consistently found therapy rooms devoid of patients whereas the television lounges were full. The reason was not necessarily that patients had a desire to watch television as many preferred the solitude of their own rooms.

Although some did note that they preferred TV lounges because they were less boring, again perhaps indicating that recreational or therapy activities may not have been frequent enough. Significant numbers of patients were smokers however, and as smoking was not permitted in therapy or personal rooms, patients chose to use the TV lounges. In these spaces no distinction was made between smokers and non-smokers resulting in low perceptions of the quality of the environment by non-smokers.

One interesting comment by a non-smoking patient was that their least preferred room was the nursing station as their perception was that it was small dark and smokey.

A large proportion of patients also indicated that they preferred staying in their own rooms as they could listen to their own music, however they used TV rooms as they could not smoke in their own rooms. The smoking room was noted by patients and staff alike as very difficult to enforce. The possibility of a no smoking TV room was raised by a number of groups.

All of the facilities provided accommodation for male and female patients, although these were located in separate bedroom wings. Communal facilities such as therapy rooms, television rooms kitchens and toilets were shared. This caused a degree of consternation from women patients who complained that male patients left the toilets in an unsatisfactory condition, including urinating on toilet seats and leaving seats up. The women desired separate toilet accommodation, whereas the men saw no problems. Again this contrasts with the findings of the managers survey that indicates a satisfactory toilet regime with no segregation on either sex or status. Further, focus groups of nursing staff indicated their desire for separate (from patients) toilet facilities as they did not feel that the patients kept them clean.

One interesting comment came from a patient from the newest unit surveyed. He considered that the standard of services and facilities was too good, and did not consider that it prepared him adequately for a return to the community.

6.52 Resultant Design Guide

The exercise was not only completed within the time scale but formed the basis for and is taken account of in the subsequent design guidance. This was published in September 1993 as a *Design Guide for Medium Secure Psychiatric Units*. In addition this suggested that designers should obtain copies of the evaluation report for areas not included in the design guide. There are however a number of factors that those who prepared the design guide could have taken into consideration from the initial evaluation exercise. For example, the design guide maintains that the units require a 5.8 metre perimeter fence around open areas. This is at significant capital cost and at a loss to the amenity of users and the community alike. The evaluation team considered that, when fencing was deemed necessary, it should be installed in a ha-ha. More importantly, however, we felt

that the fencing was not so much to keep people in as to alleviate public concerns over their safety due to the nature of the units.

In point of fact the management regimes operated are such that there are very few occasions when patients who are a danger to society are in the open or unsupervised in areas where exit would be possible. This however was not communicated to the general public. Guidance could also have been provided for designers on the use of increased public consultation with the local communities. Such participation could have alleviated concerns over the safety of the public and perhaps negated the need for fencing. Once again the use of focus groups could have been instrumental in this regard. Those units we found that did not have fences successfully operated regimes without them.

We also made recommendations that the roofs should possess an overhang to prevent patient climbing again this was not suggested in the design guidance.

The primary reasons for the use of focus groups in this case was the low levels of return anticipated from survey data, given the low levels of adult literacy and people with learning difficulties, together with the time constraints to develop more sophisticated measurements through participant observation. The principal strength of this approach lay in the ability to involve users in the evaluation of *their* environments but, in addition, the exercise demonstrated the value of focus groups in qualitative research as a means of primary data collection.

The pilot study demonstrated that using focus groups and a touring interview technique backed up by survey research, data can be generated quickly. Moreover it provided the opportunity for participants to become involved in the evaluation of their own environments rather than an expert based evaluation. The focus group methodology also provided insight to the way in which other factors within the system interrelated with individuals satisfactions with the built environment. Accordingly the principle aim of the main case study was to explore this avenue in more detail as a form of organisational diagnosis

6.6 Main Case Study Research Design and Methodological Considerations

6.61 Research Objective

To demonstrate the value of focus group methodology in evaluating the performance of facilities and their management, and in developing new levels of understanding and improved communications between users of facilities and those responsible for its operational management.

6.62 Sub-Objectives

To provide evidence that the criteria for facilities management research posited by this thesis are appropriate. These are that:-

Facilities Management research should be concerned with strategic decision making,

Facilities management research should be concerned with the systemic relationship between people and their environments in a holistic sense.

Facilities Management research should be rooted in practice,

Facilities Management research should be action oriented,

Facilities Management research should be aimed at collaborative inquiry.

To explore and investigate the potential of multi-user focus group evaluation of the built office environment.

To develop a methodology for the involvement of users in the evaluation of facilities and articulation of needs.

To explore the extent to which homogeneous and heterogeneous groups differ in content in their evaluation criteria of facilities and their management.

To identify attributes of the built environment or facilities organisation in which there is a significant divergence between groups' perceptions of quality.

To identify patterns of relationship between the attribution of dissatisfaction with the built environment and that with the facilities management organisation.

6.63 Methodological Considerations

The research objectives and sub-objectives will be pursued through case study research, the field procedures for which are described in chapter 7.

The methodological considerations have been explored through the chapters on theories of knowledge and learning and theories of research. The guiding principles for the research are that it should fall under the five contentions established earlier and noted above to distinguish the facilities management research field

Taking the points in turn, intervention research which is aimed at evaluating facilities in use will be concerned both with the outcome of previous decisions which impact on facilities or users and also identifying discrepancies between where the organisation (or individuals) are and where they desire to be.

The particular praxis demonstrated by the following case study has the explicit intention of generating recommendations for action whereby either facilities or their management might be improved. The evaluation exercise itself provides information on user experiences and needs from facilities and as such provides a basis upon which decisions might be made. On criteria one then, that Facilities management research should be aimed at strategic decision making, the methodology holds.

On the second point the evaluation process was entirely governed by the course of the dialogue. No structured interview format was used. The specific guidance given to participants was simply that we sought an understanding of how well the facilities were working for them. As such participants were free to discuss issues pertaining to the physical facilities themselves, organisational and social processes, or other factors, which on the basis of their experiential knowledge either works well or otherwise.

The process of dialogue affords the opportunity however to probe why individuals perceive issues in a particular way, seeking a fuller understanding of the systemic nature of the factors which impinge upon their perception of satisfaction.

By tapping experiential knowledge and engaging in 'organisational storytelling', a more complete understanding of issues can be and was built up. This was undertaken using pattern models of relationships which can be built up indefinitely.

On the third contention that facilities management should be rooted in practice, the principal here is four fold. First that facilities management research should in essence be applied research, second that it will be unique for any given organisational context. Facilities management is evolving rapidly within organisations who are in themselves seeking improved understanding of their facilities related needs. Research which is not grounded in a practice context, serves to remove from reality and make abstract findings which are of limited utility outwith a particular practice context.

Third that research which is rooted in practice provides the opportunity for learning to occur both at an individual and organisational level by placing knowledge generated into a context which is meaningful.

Fourth that research rooted in practice is more likely to result in action aimed at realigning actions or goals, which lead to the next contention that such research should be action oriented. The use of case study research in this case roots the research in practice.

Responding to the fourth contention that research in facilities management should be action-oriented. The explicit intention of the case study research was to generate recommendations on the use of facilities which would result in action outcomes. This does not necessarily have to mean that actions subsequently came about, however. For a fuller analysis on this point see the conclusions. The particular praxis developed in the case study methodology is aimed at collaborative inquiry between researcher and users of facilities. In this sense participants are co-researchers and the researcher is also a participant in the inquiry. By engaging user groups in dialogue aimed at developing a common meaning, the fifth contention of what should constitute facilities management research is fulfilled.

6.7 Research Design

The principal aim was to use homogeneous focus groups of between 4 and 7 people to engage in a dialogue as to how well or otherwise the office and associated facilities they occupied, were performing in meeting their needs. Focus groups themselves were self-selected. They were proposed either to represent the interests of others or because they had unique experiences of the facility to contribute. The most important emphasis however was on a genuine willingness on behalf of all participants to engage in dialogue.

In addition to a sufficient number of focus groups to represent the views of facilities users, specific homogeneous groupings of both managers responsible for service design and building and service management, and service provider staff responsible for the delivery of services, were to be represented. The aim of this was to develop and appreciation of the range of different experiences and perceptions which would characterise groupings.

The evaluation process itself consisted of a 2-3 hour focus group dialogue in which topics generated were recorded by the dialogue facilitator, in the form of field notes. My role was not to evaluate the building but to engage the participants in dialogue which explores issues, through the use of interview probes, to ensure that all participants made their views known and to seek consensus where appropriate.

Topics generated will be noted by myself, together with brief field notes pertaining to the subject.

Once groups felt that the principal issues have been explored, the topic headings which were generated in discussion were placed upon a flip chart and participants were asked to agree that this constituted an accurate list of headings. Any final headings were then added.

The facilitator role extended to recounting to the delegates the main areas that were explored under each topic area and suggesting that the next stage of the process was to transform the areas of concern into recommendations for subsequent action.

These statements would be group recommendations based on consensus, expressed in the words of participants, the basis for which is that such recommendations were based on participants shared understanding of a problem the, situation in which it occurred - and the means by which it may be resolved. The statements themselves are representative of the shared realities of the group and accordingly may be said to be contextually valid for the group themselves and further contextually validated by recommendations by other groups which either identified generally similar issues or provided further evidence in support of statements.

The use of a SERVQUAL service quality questionnaire which provides a measure of peoples overall assessments of service quality was also used to provide convergent validity. This questionnaire was administered to all groups prior to the dialogue session.

Following the homogeneous group session, the intention was to hold a large group session which involved all participants to the evaluation process and other who had an interest in same. Whilst such a session may provide for a degree of conflict, it also offers an opportunity for individuals to learn from the different perspectives of others. Development of a shared understanding of the needs of others provides the basis for modifying assumptions in the light of information presented. The process allow individuals and the organisation to put corrective action in place and redefine the underlying goals or strategies in the light of findings. As such both single and double loop learning might be achieved.

6.8 Conceptual Model of the Evaluation Process

The evaluation process might be conceptualised as projecting a hologramatic image of the interrelationships between people, the organisation and the environment.

In essence individuals within the organisation can be conceived as light at different wavelengths. Each individual and user grouping will have a different wavelength as a result of their unique contextual circumstances, values, background etc. and their relationship to the environment i.e. user, provider or manager.

Whereas holograms were theoretically possible some 20 years prior to their invention, it was not until the advent of the laser that hologramatic images could be

projected. The laser serves to amplify light waves such that the beam is focused and directed allowing the projection of hologramatic images. Whereas the whole picture remains the same it can be viewed from different perspectives.

Using this analogy by bringing together individuals with different perspectives and a shared goal which is focused on evaluating facilities performance, and directed at specific areas, it is possible to provide multiple perspectives which can conceptually be used to view the organisation hologramatically.

It is accepted however that such a conceptual model of evaluation might never be demonstrated or operationalised in practice given the complexity and interdependencies of social systems. It does however serve as a general principle that evaluation should be aimed at understanding the perspectives of a wide variety of stakeholders which when focused serve to provide a fuller understanding of a system.

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Chapter 7

Case Study

7.1 Summary

This chapter presents the principal case study demonstrating the use of the evaluation methodology using focus groups aimed at evaluating facilities performance.

The scope and conduct of the exercise are set out together with a description of the case organisation. Group topics raised and recommendations generated are tabulated. The individual focus group recommendations are accompanied by a pattern model of the contextual circumstances pertaining to the recommendation based upon my experience of the dialogue and praxis. Each recommendation statement is then interpreted and placed in context.

The focus group recommendations have been compared with the findings from the SERVQUAL instrument aimed at identifying gaps in service quality to demonstrate convergent validity.

The case study demonstrates that the methodology employed can gain access to users experiential knowledge of facilities and their management, providing insight to the existence of non-canonical practices.

Chapter 7

Case Study

7.2 Selection of Sample Site

The choice of site for research conduct was in part governed by the desire of the organisation to conduct a post occupancy evaluation of a recently refurbished building. It was intended that information generated from the evaluation exercise would be fed forward to the refurbishment of a recently acquired property of similar scale which would be staffed and utilised in a similar manner.

7.21 Sample Generalisability and Reliability

In terms of the Generalisability of the sample, the building itself is not atypical as a city centre office block primarily occupied by clerical and managerial staff. The organisation however, a central government department, the department of trade and industry. As a government department the Department of trade and industry is probably relatively atypical in that it is the arm of government with responsibility for identifying best practice for trade. The DTI encourages and sponsors research into best practice and innovation, describing itself as the department for enterprise.

As such it is arguably the most innovative of government departments.

However as all civil service departments, the DTI operates in a predominantly hierarchical manner. This has significant implications for both the distribution and quality of space and furnishings, and the amount of interaction which can be anticipated between the levels of hierarchy, and in turn during participative evaluation. The DTI cannot fit comfortably into a typology such as entrepreneurial, team, hierarchical or market, as areas of the organisations cross each typology. As a generalizable sample therefore it may be described as atypical to organisations not subject to the same levels of bureaucracy.

Moreover, it can be described as atypical to a government department on the basis of its predominately marketing role. Despite the fact that a substantial proportion of the organisation fulfils a role in marketing, the DTI remains, in many respects constrained by the traditional praxis of the civil service in

issues such as career structure, hierarchy, roles and standard operating conditions.

It is argued however that issues in terms of sample generalizability of participant evaluations becomes a question of sample bias in the selection of focus groups.

Similarly the reliability of the methodology cannot be said to hold outwith the sample site as the findings will be governed by the unique context of the organisation. As such results yielded will be relative to the case. This does not imply however that the methodology adopted is unsound as an instrument for the generation of experiential knowledge. It implies only that findings are specific to the context of the case.

It has been argued earlier that issues of reliability and generalizability were in affect generated for use in quantitative science and as such are less relevant criteria for research which either adopt a phenomenological or social constructionist paradigm, or for those which are essentially action oriented, as such paradigms reject the notion of positivism in favour of reality which is socially constructed for within and for use in the specific context.

Whilst data will ultimately be generated, analysed and interpreted throughout the process of the focus group sessions rather in a distinct separate phases, reliability of the methodology across groups may be improved through content analysis. Content analysis whilst useful for coding frequency, thus improving objectivity, tends towards deductive and accordingly may restrict the opportunity to develop a more holistic perspective through grounded theory. However the data analysis stage will attempt to identify issues such as frequency of occurrence as a means of identifying the principal issues of concern to users in which there is a shared experience. The basis for which however will be an interpretation of user views based upon recommendations generated through dialogue, as distinct to transcription and content analysis of the entire group sessions. The justification for which is the desire to allow users to focus on those issues that they feel that they can make a contribution to, by way of constructive recommendations, as distinct to an analysis of those issues which may be desirable however unreasonable [sic.] Whilst during the

conduct of focus group sessions, such an approach may affect the subsequent recommendation of user groups, namely by restricting areas for detailed consideration over which they feel subsequent action may ensue, it is argued that such an approach is likely to address issues which are likely to address the functional need of users.

As the traditional criteria of validity, generalizability and reliability are concerned with testing theory the question of generalizability becomes meaningless in situations of social interaction such as action research. Since findings are context specific they require to be contextualised and verified for each instance of use. As such findings from the action research praxis are, in the first instance, for local utility, enabling actors or participants to the inquiry to both improve their understanding. and to challenge their assumptions of the situation under study. The validity of findings, from the participants perspectives will be dependent the extent to which the group share in a common perception of reality on the given point. That is not to suggest that such perceptions however reflect the facts of the situation, as they may be based upon a common misconception of the antecedents to the specific issue. However, the reality of the situation as perceived by groups, even if based upon misconceptions, identifies areas in which the organisation should seek to target through improved communications. The convergence of supporting evidence such as the perceptions generated from the SERVQUAL instrument, in conjunction with shared interpretations of focus groups provides a measure of the degree to which participant share in that common perception which constitutes the reality of their situation.

It has been argued earlier that through grounded theory a body of more generalizable knowledge might be generated. However it has equally been argued that the transcription, coding, analysis, synthesis and interpretation of the extensive data generated using large numbers of focus groups is likely to place significant constraints upon the researcher's resources.

The alternative put forward by this thesis is to allow participants themselves to generate recommendations which are based upon their own interpretations of the reality of a situation. Such recommendations are in effect synthesised interpretations of the reality the group places in a given context. Such a

process allows participants to genuinely become co-researchers, in that, in addition to identification of problems, and the analysis, synthesis and interpretation of facts, they generate solutions or recommendations by which they might be alleviated.

Such interpretative recommendations might subsequently be used by the researcher to develop a pattern model of the relationships between multiple interpretations, demonstrating the systemic nature of the organisational processes and their impacts on evaluative judgements.

The particular approach taken however is aimed more at identifying patterns of relationships, seeking understanding of the basis for evaluative judgements and recommendations and synthesising these into their appropriate context. The reliability of the praxis in developing useful information will to a great extent be dependent upon the skills of inquiry, facilitation and dialogues of the facilitator of the focus group sessions.

Thereafter development of pattern model can be developed by the facilitator, by reflecting on the recommendation statements and the context in which they were made through the dialogue.

7.22 Validity

As previously stated, most confirmatory research based in the social and natural sciences is aimed at preventing discovery through falsification. As such research validity can only be achieved at the expense of discovery or confirmation which is the absence of insight. The validity of the methodology is defended from a phenomenological stance on the basis that the participative nature of inquiry generates fuller access to knowledge and meaning of and for the informants than would have been gained by alternative techniques such as survey data. Accordingly greater confidence can be gained that the data collected is not corrupted through, for example, an inappropriate questionnaire or interview format and design. Further the use of focus groups as distinct from individual interviews seeks to generate greater understanding of multiple-realities through interaction. The meaning attributed to data, whilst subject to researcher interpretation, is based on the statements of the research participant's experiences and perspectives, providing an opportunity for

introspection and interpretation of meaning during focus group sessions. In addition attempts to triangulate the data established through focus groups by use of individual interviews conducted to generate understanding of the organisational environment (as opposed to physical environment) and through the use of a SERVQUAL questionnaire methodology assists in providing convergent validity.

7.23 Reconnaissance

The initial reconnaissance stage took the form of a series of individual interviews with senior management and the building user group chairperson. This stage was to gather data on the general provision of Facilities Management services within Kingsgate House and to gain a general appreciation of current organisational issues. In addition data from organisational files was collated such as the employee and customer surveys which had been conducted within the last 12 months. Copies of minutes from building user group meetings were also taken to identify any issues of trends emerging. The reconnaissance stage was used to identify in conjunction with management, representative user groupings in order to conduct the evaluation exercise.

7.24 Description of Building

Kingsgate House is the Headquarters building of the Department of Trade and Industry, the arm of government responsible for encouraging international trade links, improving the competitiveness of UK companies and acting as a regulatory body for business.

Kingsgate House was included in the DTI Building Strategy of June 1994 as to be retained as one of The DTI's London Estate Buildings and house most of the Trade command. The building is leasehold with the current expiry date of March 2012.

Some 14500 square metres size, Kingsgate house comprises of 10 floors plus basement car park and storage area, and sub-basement plant area. The internal net usable area is 124069 square feet, mainly open plan office accommodation, but includes cellular perimeter offices, conference facilities, and ancillary accommodation. Other than the first floor, the building has a shallow plan. Constructed in the 1970's the building might be described as a

typical speculative designed building. Served by a single reception, it was designed with the capability of sub-letting floors.

Externally the building is both imposing due to its height and size relative to adjoining properties and visually unattractive with no relief or articulation of fenestration other than windows on the facade. Half floor height glazing carries through the perimeter however these are all backed internally with net curtains for bomb protection. The consequence of which is the entire building looks somewhat austere.

The building is served by five lifts, one of which has restricted access stopping only at the ground first, eighth and ninth floors. Extensively refurbished between 1985-1987, most of the building services were replaced with energy saving systems incorporated. The occupied areas of the building are provided with full air conditioning utilising a perimeter induction unit system and a fan coil system. The Kingsgate House building strategy states that the systems have been provided and arranged to allow maximum flexibility of partitioning whilst maintaining full air conditioning coverage.

The building is located on Victoria Street in the heart of London, equidistant between Parliament Square and Victoria station. There is another DTI department immediately opposite and 4 others within a square mile. Limited car parking space is available at the building, only 29 spaces with additional space for both motorcycles and cycles. In the surrounding area parking is equally limited given the number of offices in the area, however the building is in close proximity to rail and bus stations and underground links.

At presents there are six conference rooms of various sizes which can be centrally booked and 25 meeting rooms which are managed by the various divisions within.

One of the conference rooms has recently been converted to a smoking room following the introduction of a no smoking policy, other than in cellular offices or designated areas. There are no restaurant facilities. However there is a snack shop open at various times of the day, and a single drinks vending machine which serves 988 staff. Staff have the opportunity to use the restaurant facilities available at Ashdown House opposite.

Kingsgate House is essentially open plan for staff up to and including SEO (senior executive officer) level. Grade 7's and above are provided with cellular office accommodation, on the basis of grading. For example grade 7's offices have 100sq ft, Grade 5's have 215sq ft and Grade 3's have 300 sq ft. Floors 5, 7, 8 and 9 have recently been re-organised to accommodate changes in organisational priorities and in turn has necessitated the reorganisation of office accommodation.

The building management team strategy notes that there has been a major problem with messenger services which now appears to be working well.

Annual running costs are just over £7.168 million per annum, exclusive of management costs.

The building has a dedicated building user group which meets four times per year to liaise with facilities management staff.

Local facilities management services are provided by a resident building management team comprising of 1 Building manager, 2 Deputy building manager, 1 administrative officer, 3 assistant building managers and 7 agency staff messengers. Maintenance services are provided by a contracted organization, as are catering, cleaning, security and reception, and portering, and move management.

Technical advice and support, space planning, facilities policy and procurement are provided by Facilities management Group from another building.

7.25 Building Occupant Groupings

The building currently houses a population of some 988 staff, but has, according to DTI records, a theoretical capacity of 1010.

Despite all staff working for the DTI, most groups work fairly autonomously with little need for direct work contact with other groups. The occupant groups and numbers of employees consisted of:-

TLO - Top Level Organization, 9

OT2 Overseas Trading 174

XEA Exports to Europe and the Americas Division, 142
XAAA - Exports to Asia, Africa and Australasia Division, 81
XSD - 5 Export Service Division 47
JEPD/BOTD - British Overseas Trade Board, 66
EI - Engineering Inspectorate, 58
SFD, 3 Service Finance, 33
RDI - Regional Development Initiative. 132
SMD - Service Management Division 69
DTUS, 1 - Not identified
Others/ consultants, 97
Typists 7

Staff units are generally located with autonomous work units, however in some case are located over several floor due to space limitations. The BOTB, which is the top level management occupy the ninth floor and have a higher standard of accommodation on the eighth floor. Preliminary discussions, with staff groupings indicate that this department is highly regarded within the current government policy climate.

7.26 Description of Organisation

The objectives of the DTI are set out in their publication *A guide to Business* (DTI, 1994) and are expressed in terms of helping UK business to compete successfully at home, in the rest of Europe, and throughout the world. To this end the DTI states that it will:

seek to identify the needs of UK business through a close dialogue with individual sectors and an understanding of what influences competitiveness at home and abroad;

ensure that those needs are taken into account by Government and within the European Community;

work for trade liberalisation world-wide, and help UK business to take full advantage of UK and overseas market opportunities;

widen choice and stimulate enterprise by promoting competition and privatisation;

promote the economic development of UK energy resources and ensure that the nations energy needs are met cost-effectively;

maintain confidence in markets and protect customers by fair, proportionate and effective regulation, while working to reduce regulatory and administrative burdens on business;

stimulate innovation and encourage best practice throughout business in quality, design and management;

foster the creation and development of small and medium sized business;

respond flexibly to the needs of different regions and areas with special difficulties;

take proper account of environmental issues in the development of all its policies; stimulate an effective business response to environmental developments; and ensure that the Government's overall environmental policy takes proper account of the impact on business;

manage and develop the people in the DTI so that they will provide a professional, high quality, accessible and responsive service to business and the community in line with the principles of the Citizen's charter.

7.27 Business ethos

The primary activities conducted by DTI at Kingsgate house relate to that of a trade division encouraging investment in the UK through the encouragement of inward manufacturing investment and providing support for UK businesses conducting trade exports overseas. As such the building fulfils the role of a corporate marketing headquarters for 'Great Britain plc'. Some staff groupings

are accordingly concerned with activities of marketing and creating an appropriate climate for doing so. In this respect they invariably view both the building and the provision of business support or facilities services as a factor of production in their overall efforts.

The organisation's various divisions hold trade information on both UK and overseas companies and regulatory controls, with specific divisions dealing with world geographical sectors.

The DTI can be described as very dynamic in that it responds to both government initiatives on trade issues, industry trends and global market drivers. The dynamic nature of the business manifest itself in a high degree of organisational reconfiguration which in turn has an impact on the demand for facilities services.

In addition staff within the DTI consider themselves to be career civil servants, with no firm allegiance to a department or division.

From initial discussions with departmental staff I conclude that the Service management division is widely regarded as the least 'glamorous' of the 8 divisions within DTI and suffers itself from a high degree of inter-organisational staff churn. Staff consider their posts within the civil service predominantly as career moves between grades. SMD, as a support function is not regarded as a division in which staff can 'make a name for themselves'. Other posts such as export division can involve secondments and travel opportunities overseas and as such are generally more highly regarded and sought after by staff. SMD is, as stated above, considered to be a service or support function, not central to the functioning of the department, as such it is not highly regarded. Some staff describe SMD as 'the dumping ground' for civil servants, reflecting the low regard generally held for it and the implications of a career move there. It is also perceived to be a predominantly administrative function, which involves little interaction with decision based activities, topical issues and opportunities for interaction with ministers.

Perhaps like many, 'support functions' (certainly from my experience) it is regarded as being proactive and unresponsive to the needs of what might be described as a dynamic organisation.

As the marketing effort has increased of late due to the intervention and initiatives of the president, increased use has been made of conferences. This, in turn, has placed significant demand on the use of meeting and conference rooms. There are some 32 area advisory groups each of which consist of some 30 members, meeting around once a quarter. The only accommodation large enough is the BOTB boardroom. Ministers currently receive preference on room booking which is invariably done at short notice.

7.28 Organisational structure

The department is headed by The Rt. Hon. Michael Heseltine, President of the Board of Trade and Secretary of State for Trade and Industry, who has ministerial responsibility to Government for the Department of Trade and Industry and the Exports credit Guarantee Department.

Further ministerial responsibilities for specific activities and divisions of the DTI are fulfilled by the Ministers for Industry, Trade, Energy, Consumer Affairs and Small firms, Parliamentary Under Secretaries for Trade and Technology and for Corporate Affairs. The organisational chart of the Department of Trade and Industry is shown below.

The functions of the various divisions which constitute the DTI are conducted through a range of Government Offices and Regional organisations throughout the United Kingdom. These distributed departments operate as regional, area, satellite and sub-offices and whilst exerting a certain degree of autonomy, are co-ordinated by DTI headquarters from Kingsgate House, Victoria.

DTI has a highly complex, bureaucratic and truncated organisational structure, in part as a result of the diverse nature of activities undertaken by the departmental divisions.

Buildings and facilities services are co-ordinated and managed within DTI by the Services Management Division (SMD).

The head of SMD reports to a Deputy secretary who is the principal Establishment and Finance Officer, with responsibility for Finance and resource management, Personnel, Services Management Division, Information, Economics and Statistics and Internal Audit, who in turn reports to a permanent secretary who ultimately reports to the President of the Board of Trade.

7.29 Service Management Division

The Service Management Division is split into several divisions and groupings reflecting the wide range of activities undertaken and areas of responsibility. These range from Information Technology management, procurement, Security and Support, Accounting, Information and Library services, Records management, Recruitment and Facilities and Building Management groups including Technical support, Energy and Construction advice, Health and Safety, Telex services, Reprographics and Stationary.

7.291 FMG Mission Statement

In its submission to the Treasury, FMG set out the department's aims and objectives based upon the departmental works programme as:-

" To provide customers with a reasonable quality of accommodation and related office facilities to meet their operational needs in a manner which meets the Department's statutory obligations and provides the Department with value from money."

This was subsequently amended in order to portray a more pro-active image. Presumably the basis of which was that 'reasonable' suggests a degree of mediocrity. In addition the mission reflected a sense of non committal in terms of improving service, suggesting a department operating on minimal resources and to minimum standards. The Mission was changed to:-

" To provide service which meet the customers agreed needs in a cost effective way which complies with the Departments strategy obligations".

The mission statement was supported with the following key objectives:-

- Provide cost effective quality services.
- Ensure space and accommodation is used efficiently
- Maintain policy responsibility for estate accommodation related issues for DTI.
- Obtain the right amount and resources and ensure staff have the necessary skills to meet their responsibilities.
- Maintain appropriate management information systems and service quality indicators (performance measures) to manage the business effectively.

7.292 Components of Facilities Management Organisation

SMD 3b is The **Facilities Management Group (FMG)**. This group has responsibility for the department's accommodation policy, estate management, operation of the property repayment system, energy conservation, PREMIS user support team, Health and Safety policy and management of SMD buildings including team office services, together with advice on works support services .

SMD 3b1 Building Management, provides strategic accommodation advice fro all London Facilities together with Facilities Management Support to the area facilities managers and individual building management teams. It is not house within Kingsgate House however is responsible for the determination of policy and letting of contracts for facilities support services, which are subsequently managed by the on site building management team.

SMD 3b1 also consists of the area facilities managers, each of whom may have responsibility for several buildings, together with individual building management teams.

The **Building management team (BMT)** for Kingsgate house consists of A building manager who has responsibility for one other building of similar size, two deputy building managers, and three assistant building managers.

Common services; post room; central conference room bookings; central car park booking service are co-ordinated by SMD 3b.

SMD 3b2 consists of a **space planning team** with responsibility for the co-ordination of all projects.

SMD 3b3 consists of **Construction and Engineering Advisory service** and departmental energy management.

The **Technical Section**, has responsibilities for building condition and fire surveys, statutory and Public health inspections, works auditing, contract specifications and costings, general advice on building and electrical regulations, HSAW and COSHH regulations, public health matters, mechanical and electrical plant operations and environmental testing.

Generally this section consists of specialists who provide advice and support to other departments and local BMT's.

The **Energy efficiency unit** provides monitoring and targeting of energy consumption throughout the DTI estate, advice on energy matters, energy campaign publicity, energy training, energy surveys management reports for government campaign.

SMD 3b4 provides central telex and facsimile services.

SMD 3c includes finance, health and safety, reprographics and stationary distribution.

SMD 4 is responsible for market testing policy and methodology, procurement policy and advice and for the engagement of management and other advisory consultants.

Facilities management services are provided through a combination of in-house and external contractors managed by the various divisions within SMD. Despite the fairly widespread use of external service providers for facilities management services, mainly as a result of successive market testing exercises there is no form of induction to the organisation as a whole nor is there any attempt to include contractors as part of a wider service quality initiative.

7.3 Quality Improvement Initiatives

In 1993 FMG brought in management consultants to develop an overall strategy for quality improvement based on TQM principles. The overall objective was to develop a Quality Improvement programme which would provide strategy for developing the FMG's organisation and people to meet the current and future needs of internal and external customers.

The principal project objective was to provide a structure that will allow employees at all levels to have an input to the management process. Sub-objectives were to:-

develop the customer ethic within the organisation at all levels to give the business a customer focus; and

identify training requirements and methods of implementation to improve performance.

The programme consisted of two stages conducted over a three month period. Stage one was strategy development and stage 2 implementation plan.

A survey of employees was carried out to examine internal attitudes towards quality, users, organisation, job functions, and internal customer relations across a sample representing a cross section of the organisation. The sample reflected seniority, variety of disciplines and length of service.

A customer survey encompassing attitudes towards FMG's quality delivery and communication was conducted across a sample of the user departments. The sample was selected using pareto analysis and covered large/small users, frequent/infrequent orders and different locations. The FMG coordinated the on site interviews though the choice of interviewees were selected by the consultants.

The survey results were used to identify key issues and to conduct a performance shortfall assessment (PSA) which served to identify the difference between the current position of the business and the user's expectations. The results of the exercise were discussed with management prior to proceeding to the stage of strategy development to close the performance shortfall.

At this stage the exercise was conducted off-site between FMG management and the consultants. The consultants acted in an advisory capacity to allow DTI to obtain ownership of the development of mission statement objectives and strategy. Both long and short term goals were established as tasks for improvement identified and responsibilities outlined. The resulting strategy and outline action plan, together with time scales, was to provide the focus for change through the implementation of the QI programme.

The final phase of stage one was the identification of the QI champion and QI manager responsible for the QI programme. The champion was to be

responsible for the QI programme assisted, by a steering committee made up of representatives of the business units and initially one of the consultants.

Phase two implementation

The subsequent action plan drawn up by the steering committee provided a timetable for implementation with actions against each business unit. The action plan included elements such as training, briefing, commitment, launch, monitoring and conformance evaluation.

The training programme was considered to be one of the key features of the QI exercise, based on the quality strategy and action plan developed in phase one adopted by management to close the performance shortfall identified from the employee and customer surveys.

The specific staff training programmes consisted of three principle areas:-

TQM concepts

Interpersonal skills for task working

techniques for quality improvement.

The programmes were addressed to four levels of employee: management, task force leaders, task force members, other employees. In addition to familiarity with FM concepts, the action plan and its implementation staff were given training on specific skills such as team leadership, team building and communication and presentation skills.

The implementation stage included two main elements: the training programmes designed by consultants, and the execution of action plans to a strict predetermined timetable. The process commenced with a general briefing session by management to highlight the strategy, approach, key roles, action plans and employee involvement. The second more detailed phase included detailed briefing workshops with employees which were organised on a peer group basis. The view was that these sessions should be led by the consultant as he would be seen to be neutral in the eyes of the group.

Following briefings and workshops and the development of task force and individual action plans, the tasks forces adopted a big hit strategy such that the effectiveness of the QI programme could be demonstrated. The steering committee was to monitor progress of specific task forces.

Phase four conformance evaluation

The basis for the evaluation was the performance indicators identified in phase 1. These were later termed Service Quality Indicators SQI's. The consultants aimed to conduct a follow up employee survey to monitor improvements in motivation and attitude through a selected sample of those already surveyed. This has not been conducted at the time of writing.

Despite the intentions of management and the significant resources invested in the Quality Initiatives and service improvement programme, like so many quality initiatives, they appear in many respects to have 'run out of steam'. This is certainly so in a global sense, although individuals charged as task force leaders continue to pursue some of the initiatives identified.

7.4 Facilities Management within Kingsgate House

In addition to central services provided by FMG such as space planning, technical services etc., Kingsgate House has a resident Building Management team responsible for the day to day operation of facilities and management of service providers. At the time of the research, a new help desk had just been introduced which would route all facilities calls and enquiries through a central point. The consequence of this was that the only calls which continued to go through the BMT office were complaints. Management strategy following introduction of the help desk was to dispense with local building management teams. The staff had been told that in effect they were surplus to requirements and could not be guaranteed a job the following financial year. In addition as the current level of service provision had to be maintained in the interim, they were informed that they would not be considered for other posts within the organisation in the interim. The consequence of this was that morale within the BMT was particularly low. User groups in the building were also aware of the position regarding the BMT and had expressed concern at the loss of a local or personal service. In fact it caused a degree of concern that the Service Quality initiatives, being undertaken by the department were less concerned with the improvement of quality than in the reduction in costs.

FMG strategy is to remove local BMT's and place responsibility over to contractors with minimal central control. Whilst the basic principal is to make the service contractor ultimately responsible to customers for service quality, a

technical audit commissioned after the first year of the facilities management contract felt that there should be far more BMT involvement in contract management at the operational level.

Throughout the organisation as a whole morale could be said to be adversely affected by the current climate of market testing. Several of the user groups in Kingsgate had recently been market tested and lost the in-house bid, the consequence of which had led to a degree of sensitivity in dealing with such groupings during the interim period.

Many of the services previously provided to users by the in-house facilities management groups had also been lost to market testing, such as messengerial services, portering etc. There was a general perception that in many cases the current level of service or resource was inferior to that which had been previously provided.

Many of the above perceptions manifest themselves through the group dialogue which serves below to analyse the organisation on the basis of the recommendations for action produced by the focus groups.

The facilities management organization had a flat two tiered in house management structure which is supported by outsourced service contractor organisations who deliver services directly to customers.

7.41 Selection of participant groups

Each of the ten floors in Kingsgate house represents a fairly autonomous work grouping only in as far as they share the same accommodation. The actual work activities undertaken often means that groups or individuals adjacent to each other in open plan space have no need to communicate with each other on a formal basis. However one user group from each floor was selected. This involved representatives from all user departments which may have different facility related needs.

Consideration was given to whether group members should be selected randomly or selectively on the basis of an individual's likelihood of contributing to the group process. Given that the evaluation is based on the perceptions of the users as principal stakeholders, it was concluded that user departments should self-select the grouping they best considered would represent their interests.

All staff received a memorandum from the chairman of the Building User Group, advising of the conduct of the exercise, what was involved and the date and times of the various group evaluations.

Non- participants were invited to make their representations known to those who would participate in the evaluation process.

Each group was to consist of between 4 and 7 users, together with the facilitation team made up of the researcher and at least one member of staff from facilities management group responsible for service management. The external service provider groups responsible for service delivery and management were to be included in individual focus groups.

In addition to the 10 user groups, there were 3 groups of service providers, namely those responsible for servicing and maintenance of the facility, two of which are not employees of the organisation but contractors staff. And there were two groups of management staff representing both the in-house staff responsible for facilities management and allocation of resources and contractors management staff who provide service management.

These groupings were intended to be relatively homogeneous which, whilst limiting the opportunity for learning through experiencing alternative points of view, provided a basis for fairly conflict free consensus. However it was intended that the homogeneous group sessions would be used to generate areas in which there was a divergence of opinion and understanding between groups. These would subsequently be followed by heterogeneous groups providing the opportunity for the sharing of alternative viewpoints.

7.42 Programming

The focus groups were programmed to take place over a one month period with two group sessions per day each lasting from 2-3 hours each.

It was intended that the final general session and heterogeneous groupings were conducted two weeks after the initial exercise in order that data and information generated could be analysed such that the perspectives of all stakeholders could be presented for discussion.

7.43 Conduct

Focus group participants had all received a memorandum explaining the purpose of the exercise and informing them where and when to report for the evaluation session. Participant members were telephoned the day before the sessions to remind them of their commitment and clarify attendance. Where participants could not now attend they were asked to suggest or put forward another representative.

A meeting room had been assigned for each session within Kingsgate House. The meeting room location changed however as there was pressure on such accommodation within the building. Accordingly it was not possible for users to join the session informally unless they had prior knowledge of the room number. As the meeting rooms were within the building, most delegates arrived promptly.

In order however to introduce the exercise with the whole group, coffee and biscuits were provided on arrival. This served to reduce the formalities of the process. Many delegates were still (naturally) unsure of what the exercise was all about and in particular what was expected of them. Specific questions were answered in this regard to individuals and in addition made explicit to the group as a whole.

The researcher acted as facilitator for the focus group evaluations and was usually accompanied by a member or members of the facilities management group to both answer any specific points and to learn from the experiences of users.

Participants were advised however that it was *their* evaluation and *their* meeting and could accordingly take the discussion wherever they saw fit. The focus of the discussion however should be centred around the way in which the building, facilities and their management met their needs. It was explained to the groups that the purpose of the exercise as a whole was to find out how well facilities were performing and to identify opportunities for improvement. The role of the focus group evaluations was to find out how well it performed from the perspective of their own experiences.

It was also highlighted that the research was interested in not only the buildings performance but, social, organisational, or service activities which may influence their satisfaction or performance, in particular how well the

facilities management organisation was performing. Information generated would be used both in decisions about fine tuning their own building and facilities management services but fed forward for design decision making by FMG elsewhere in the portfolio.

Participants were asked if they had any questions and were comfortable with the process. There were few questions following the welcome and explanation of the aims of the study and what degree of participant involvement was required. Some participants were unsure why they had been 'selected' for the evaluation exercise. This suggested in part that, both the purpose of the exercise, and the reason for their participation, had not been adequately communicated. Moreover it suggested to that, in some cases, rather than being 'willing volunteers' participants may have been put forward because they were available. This countered my concern that an open invitation for participation would attract a proportion of participants who were particularly 'active' or 'vociferous' in respect of workplace issues. On balance I would suggest that the participant groupings consisted of a balance between end of a continuum between reluctant secondee and enthusiastic volunteer.

Any specific questions raised by participants on the evaluation conduct were answered with little difficulty, involving in essence advising candidates of what was required of them. This also involved clarifying the role of myself as evaluation facilitator and that of the representative from FMG, as both an observer and participant for the clarification of any points of ambiguity.

There were a number of areas however which did give some cause for concern initially, however after clarification such concerns quickly subsided such that participants able to fully engage in debate.

These issues related to:-

The degree of confidentiality with which the evaluation would be conducted:- as a number of participants were keen to seek clarification, that their individual contributions would remain anonymous. Participants were advised that participant groupings, group members and individual comments would remain confidential in terms of the findings reported to the organisation.

A degree of reluctance to participate:- this in part reflected participants previous experiences of other exercises aimed at organisational or environmental improvements. Several participants expressed a degree of

cynacism that the exercise would produce any tangible results and as such were sceptical of the value of their participation (or of the exercise as a whole).

There was also a degree of discomfort with the current changes which were being undertaken by the department as a result of both political pressure, and of current policy towards market testing of government services. There was a perception that the exercise was being undertaken less as a means of improving service quality, as a means of reducing the cost base of services.

This last point perhaps created a degree of reluctance on the part of the groups to accept the researcher as a facilitator for the process of dialogue. As the project was commissioned by the government department, participants may have seen the facilitator/researcher as a subscribing and subserviant to current policy as opposed to acting in their own interests.

Every effort was made to explain to candidates that my own role was to try to understand their needs and how they were (or were not) being met by the serviced environment, in order that such information could be used to improve the service.

Following clarification of the aims of the evaluation exercise and addressing specific questions participants were then administered with the SERVQUAL questionnaire which had been adapted for facilities management services by Drummond [1994] a researcher at the Centre for Facilities Management.

The questionnaire was contextualised for use within the DTI and specifically towards the FMG to minimise any areas of ambiguity as far as possible. Given that FMG covers a wide range of supporting services, and is resources both by in-house staff and contract personnel, care was taken in the questionnaire design to ensure that respondents rated the whole organisation of facilities including that provided by service personnel contracted to the DTI. This was again explained to the respondents prior to completion.

The SERVQUAL questionnaire asks respondents to rate 22 features of a hypothetical facilities management organisation that would provide excellent service, to then rank five features in terms of relative importance to them, and thereafter to rate their own facilities organisation against a similar set of questions. The process of completion took around 10-15 minutes. Specific questions on interpretation were answered as they arose. The first two

sessions were used as a pilot to analyse the type of findings generated and the most appropriate way for future session conduct. The SERQUAL questionnaire was amended to include a comments sheet and remind respondents that it could be used to clarify any answers or supplement as appropriate.

Different questionnaires were used for internal customers, customer contact personnel and managers.

My principal use of the questionnaire was to attempt to triangulate finding of service quality shortfalls with recommendation statements which were generated by the groupings. However, their administration before the dialogue may have contributed in some cases towards a focus on the service organisation rather than product (building) evaluation. Moreover by asking respondents to evaluate both a hypothetical excellent facilities organisation and then their own, it may have encouraged participants in the dialogue to be more critical of current service provision.

No attempt was made to administer questionnaires after the evaluation event, nor administering questionnaires concurrent with the focus group evaluations and comparing the results.

Following completion questionnaires were collated by the facilitator and were analysed in an attempt to provided convergent validity of the findings as from the dialogue sessions.

Participants were again reminded that the evaluation was aimed at sharing their experiences in the use of facilities to make recommendations on how facilities in Kingsgate House might be improved. They were asked to recount not only those things that do not work but also those things that work well. They were reminded that the dialogue was an exploration rather than simply a discussion in that we wanted to understand why people came to possess a particular perspective.

In most cases participants had experience of working within other buildings in the DTI or Civil Service estate and used such experiences as a comparison to evaluate Kingsgate House.

Participants were asked if they thought a tour of the facility would be useful as a memory jogging exercise, and a means of generating topics. In most cases

they felt this unnecessary. In such cases it was agreed that particularly good or bad features would be noted for inspection later.

As the dialogue proceeded, the role of the researcher as a facilitator of the dialogue became one of prompting a deeper or shared understanding of perspectives. Caution was exercised so that delegates were not led by way of questions. However, in some instances, specific features or elements of service were addressed as the group dried up. In such cases participants were asked how well does x work, e.g. the lifts/reception/messenger service/maintenance system etc..

The facilitation role extended to ensuring that all participants had an opportunity to comment and present their own views and to managing the group dynamics such that it remained focused on the evaluation goals. This role would probably be described by Allen as that of maieutician, helping participants to articulate the issues of concern to them through the action of inquiry. However it involved instances of the facilitator in the role of expert during this stage of the process, providing technical information relating to the environment or services, and the role of mediator, as the sessions progressed alternately between dialogue and discussion. The aim however at this stage was primarily to explore the issues involved by suspending assumptions, or preconceptions, such that the exploration could be relatively unrestrained and comprehensive.

This element of the sessions often involved participants in recounting stories as a means of expressing their experiences of facilities. Following a participant's observations on what worked well or otherwise, the facilitation role involved prompting a view as to why an individual had a particular perspective. This was usually done by recounting stories of experiences both with this organisation/facility and elsewhere. This often prompted other participants to engage in stories of their own experiences which either refuted or substantiated the experience. Through the process of narration of stories, participants came to share in a common understanding of experiences with the particular domain of study.

Having explored the topics through the dialogue, the final phase of the session was to move to an action stage whereby participants could generate recommendations about the facility. This process mirrors that conducted by Kemohan et al [1992] in their generic evaluation process. The main topic areas were taken from the facilitator's field notes and arranged as headings on a flip chart. Participants were asked to confirm that such topics represented a fairly concise summary of the major topics explored and any additional points were added to the list. Participants were then advised that they should work together to form recommendations about topic areas which gave cause of concern.

This stage of the process involved a shift in emphasis from the process of dialogue to that of discussion, as participants were required to negotiate which areas were considered sufficiently important to put forward a recommendation. In addition they were required to negotiate such that they arrived at a recommendation statement upon which they were agreed. It was emphasised that the recommendations should be framed with a positive connotation such that action might ensue and should be such that they were sufficiently detailed to avoid ambiguity or misinterpretation as to both the source of the problem and the recommended solution.

From the outset it had been clarified to the commissioning organisation that resources should be earmarked to undertake improvements in areas of concern to individuals. An undertaking was given that resources would be available to undertake changes (obviously dependent upon their scope) It was suggested to group participants, during the introductory session, that management were receptive to advice on how the environment and services could be improved, and that resources had been laid aside for this purpose. This may to a certain extent have influenced the types of recommendations that participants generated. On the one hand the knowledge that resources were available may have encouraged groups to suggest improvements higher than their functional needs. However it could be argued that the knowledge that subsequent action would ensue may have encouraged participants to apply a criteria of reasonableness and modify their demands accordingly. Given that all groups were provided with the same information, I am unable to discern comparative data on this point.

Candidates usually started with the topics which were easiest to recommend a solution to rather than those that deal with issues which had larger scale implications or that defied simple solution. Whilst individuals took the lead in framing the recommendations, the facilitator acted in the role of mediator and ensured that others agreed with the statement and that it could not be misinterpreted.

Whilst consensus was not reached in every case, the process of exploring in more detail the alternative perspectives of individuals within the group constituted what Senge [1992] would describe as "reciprocal inquiry".

Everyone makes his or her thinking explicit and available to public examination. Senge argued that reciprocal inquiry is the most productive kind of learning as it provides the opportunity not only to share in the assumptions, reasoning and understanding of others but to challenge one's own views. Such a process requires the individual to balance the skills of advocacy and those of inquiry. Whereas in advocacy the goal is to 'win' the argument, when combined with inquiry the goal is to find the best argument. Such a process involved participants making their views known by sharing in experiences of similar situations or presenting alternative perspectives, assumptions and reasoning, whilst inviting others to inquire into them.

The role of the facilitator at this stage was to ensure that all participants had the opportunity to express their own views and comment on those of others.

The facilitator role became that of inquirer by probing and advocating to arrive at the best consensus for the group recommendations.

This process continued for those topics the participants chose to make recommendations about often resulting in several recommendations under each heading. Recommendations that were considered to be minority ones were noted accordingly, however in general there was group consensus.

Candidates were then asked to place the recommendations in order of importance to them. This inevitably warranted some conflict in the groups but generally people reached consensus. To what extent such consensus was influenced by groupthink was not examined, as the principal aim was simply to get some measure as to the degree of importance the group placed on topics. However it would have been possible to analyse the constituents of groups in terms of roles and power, status and to quantify variables such as who possessed the balance of the dialogue/discussion; who generated the

recommendation statements initially and sought to modify them; the frequency with which the views of superiors were challenged relative to those of subordinates; The frequency with which individual within the group intervened (both in a constructive/supportive or cathartic/negative sense. and other issues which potentially would be influenced by the assymetrical distribution of power and indicative of the surpression of ideas.

The participant groupings represented a broad cross-section of grades and often user departments, which may have served to reduce some of the symptoms of Groupthink.

The entire process with each focus group ranged between around 2 hours to nearly four hours. Upon conclusion of the sessions participants were reminded that the next stage of the process involved the presntation of findings to management followed by a presentation of findings to all participants and others' in the organisation who wished to attend.

Finally, participants were thanked for their contribution.

The recommendations generated by each of the groups were to be used to both indicate to management the common themes emerging and provided potential solutions for same. From my perspective they were to be used to begin to generate knowledge of systemic processes primarily or local utility and to consider the possibility of the generation of theory which would be more widely applicable.

7.44 Data Analysis

Each of the topic areas generated by the focus groups were classified by a heading of the area in to which the dialogues referred. (see table 7.1). These headings formed the basis for subsequent recommendation statements generated by the groups, as shown in table 7.2. Similarly the headings were intended to be descriptive of the topic raised and the recommendation generated.

Common topic headings generated across groups were tabulated (see table 7.3) to identify areas in which there was a firly high frequency of occurence.

The recommendations were subsequently classified by five typologies aimed at focusing on the principal areas in which participants had made recommendations during the focus groups sessions.

These were;-

communications

Those recommendations aimed explicitly at improving communications within the division and between service provider and users.

Service Organisation

Those recommendations aimed at improving the efficiency and effectiveness of the facilities organisation, including those with an implicit concern for improvements in communications.

Operational

Those recommendations aimed at improving functional efficiency of user divisions and the department as a whole.

Physical Environment

Those recommendations aimed at improving the physical environment.

Staff Welfare

Those recommendations concerned with staff welfare issues, including health and safety, not covered by any of the above.

This obviously called for a degree of interpretation on the part of the researcher to categorise the recommendations by intent. In many areas for example, recommendations would cross several categories. The aim however was to generate an understanding of the primary areas of concern, such that resultant action could be focused.

The basis for selecting the five types of category was to attempt to address issues which could be considered with different levels of resource requirements, and also, to allow those ultimately responsible for the allocation of resources to target those areas of importance to the organisation.

Communications for example (whilst implicit in most recommendations) was intended to identify those areas which in many cases would require little by way of resources, whereas physical environment recommendations are more likely to require some form of either capital investment or investigative action.

The recommendations were categorized by subject for explanatory purposes only. The systemic nature of many of the problems that the recommendations

purport to provide some degree of resolution to, however, means that only through observation of the wider interactions within the system can the recommendations be understood in the broader context.

The data captured from field notes and recommendations was therefore built up in a patterns model for each recommendation statement which seeks to identify my interpretation of the participants groups recommendations, perceived antecedents and related factors.

The pattern models were not generated during the field work however but by the researcher afterwards on the basis of the brief field notes, recommendation statements, and reflection from the dialogues.

The network of linked factors which emanated from some organisational related action was mapped together with the implications and interactions with other issues. The complexity of these interactions however provided for an extremely complex set of interrelated issues.

Further the pattern models were extended by the inclusion of the tacit knowledge of the researcher through practice and known to be substantiated by previous research through reflection, although only to substantiate implicit or explicit findings from the fieldwork, rather than to infer findings which were unsubstantiated by other field evidence.

Each recommendation generated by the group is stated together with the researcher's interpretation based on the dialogue and field notes of the key issues of concern to participants. Further recommendations are grouped and referenced to the section of the pattern model of direct relevance to the recommendation.

No recording was made of the focus group sessions nor any full transcription made for analysis. The analysis is therefore contextualised by the researcher based upon reflective experience of the dialogue together with the field notes which consisted only of topic headings, and the recommendation statements documented by the groups.

The pattern models of linked factors represents therefore the researchers, interpretation of reality through praxis and that of the participants through their consensus interpretations of reality and subsequent recommendations. In

hindsight the use of recording and subsequent transcription of focus group dialogues may have served to ensure the accuracy of interpretation. Such a process however would have placed substantial constraints on resources, in addition to possibly limiting the willingness of participants to engage in dialogue.

As a consequence of electing not to record and transcribe the dialogue verbatim, and in addition not having a researcher to minute proceedings, this placed constraints on the researcher's ability to take detailed field notes, whilst maintaining the conduct of the dialogue. Accordingly, the field notes generated served initially as a prompt for maintaining the flow of the dialogue and for ensuring that the salient points had been revisited. Thereafter they served as an aide memoir for reflecting upon and interpreting the recommendation statements on the basis of the researcher's experience of the inquiry. As such the field notes are not included within this text.

The aim of the pattern models was to generate understanding of the system complexity, identify problems sources and potential solutions such that subsequent action could ensue by management. Analysis of the problems themselves and solutions constructed by the focus groups was substantiated by empirical findings from the SERVQUAL questionnaires.

A comparison of the SERVQUAL gap closure recommendations was made with the recommendations generated by groups and is shown in table 7.8 Again this required a degree of interpretation by the researcher as in many cases the recommendation statements inferred issues of understanding expectations (gap 1), Commitment to service standards (gap2), Service performance issues (gap 3) and Communications (gap 4). Therefore recommendation statements were mapped against several of the SERVQUAL gap closure recommendations.

It was intended that all group findings would be presented anonymously to the group as a whole and to management. However, the specific nature of some recommendations and issues can only be understood in relation to the particular user focus group. It was generally found, for example, that those groupings who had responsibility for marketing activities paid significantly more attention to the role of the building and facilities management services in

promoting an appropriate image for the DTI than did support groupings within Service Management Division who had a tendency to focus upon issues relating to their own work environments. Similarly those responsible for management of the facilities services tended to focus on the goals that were specific to them and made recommendation pertaining to the achievement of those goals. Accordingly for the purposes of analysis the recommendations have been placed into context for the individual groupings.

As previously noted, many of the groupings work autonomously with little or no contact between commands. The common denominator for all groupings is that they are serviced by Service Management Division including FMG.

Table 7.1 Comparison of Topics Identified by Groups

Group A	B	C	D	E	F	G	H	I
Image	Reception	User participation	Reception / Foyer	Air Conditioning	Service Level Aggs.	Lighting controls	Communications	Attitude - staff/contrs
Lifts	Messengers	Health and Safety	- conferences	- noise	Communications	Environmental control	- FMG	Conferences
Foyer	Meeting Rooms	- lighting	- registration	- temperature diffs.	- internal	Space Planning	- customers	Security Passes
- crowding	Conference rooms	- cable management	- communications	- inflexibility	- intra-organisational	Cellular space	- other contractors	Staff facilities
- delay	Conference Toilets	Telephones	- escort Service	Workstation Layouts	- customer	Canteen	- non-routine contrs.	Delivery access
- professionalism	Car parking	Record Management	Meeting Rooms	Move management	Self Marketing	Car Parking	Misdirected complaint	Escort service
- contact staff	Departmental Split	Reprographics	Communications - FMG	Wayfinding - first floor	Service flexibility	Rest rooms	Increased paperwork	Air conditioning - conference rooms
Messengers	Temperature diffs.	Stationary	Messengers	- bays	Available resources	Lighting Quality	Booking Catering	Reception signage
Reprographics		Messengers	Lifts	Conference rooms	Strategy	Storage	Staff consultation	Lighting zones
Lighting Controls		- motivation	Health and Safety	- booking	Planning	Wayfinding	Contract liability	Move management
Service Level Ags.		- frequency	- fire doors	- sizes	Implementation	Equipment	- remuneration	- co-ordination
Showers		Conference rooms	- slippage - toilets	- Toilets	Task Management vs Strategic overview		- ammendments	- commissioning / snagging
Enquiry Point		Showers	- cable management	Toilets, Quality			Equip. procurement	- contractors
Storage		Mail Transfer	Heating Controls	Water Temperature			Staff facilities	Misdirected complaint
Power Distribution		A/C Humidity	Space Provision	- toilets			Lighting	Health and Safety
Noise			- departmental	- teapoints			Staff issues	- records maintenance
Wayfinding			- personal	Escorting			- security	Space Planning - air conditioning
Privacy			- conf / meetings	Messengers - misdirected mail			- retention	
Confidentiality			- flexibility	Lifts			- morale	
Audio taping			Coffee / Tea points	Lighting - Glare				
Net Curtains			- remoteness	Power Distribution				
Special equipment			- cleanliness					
Planting			Move co-ordination					
			Toilet Hygeine					
			Central Support - Marketing mail distribution					

Table 7.2 Comparison of Recommendations Made by Groups

Group A	B	C	D	E	F	G	H	I
Entrance Foyer (a1)	Conference passes (b1)	Reprographics (c1)	Health and Safety	Health and Safety	Smoking (f1)	Space Planning	Communications	Communications
Messengers (a2)	Communications - reception (b2)	Health and Safety	- communications (d1)	- toilets and teapoints (e1)	Service Level Agreements (f2)	- professionalism (g1)	- catering booking (h1)	- move management co-ordination (i1)
Lighting (a3)	Reception desks (b3)	- lighting (c2)	- slippage (d2)	Conference rooms (e2)	Communications	- user participation (g2)	- consultation (h2)	- snagging (i2)
Enquiry Point (a4)	Messengers (b4)	- cable management (c3)	- hygiene (d3)	Lighting (e3)	- customer (f3)	- by task (g3)	- service providers (h3)	- records (i3)
Confidentiality (a5)	Communications - FMG (b5)	Telephones (c4)	- food hygiene (d4)	Communications - FMG (e4)	- organisational (f4)	Car Parking (g4)	Catering Equipment (h4)	Misdirected complaints (i4)
Office landscaping (a6)	Conference rooms (b6)	Conference rooms (c5)	- fire safety (d5)	Messengers (e5)		Staff facilities		Environmental consultation (i5)
Special equipment / facilities (a7)	Conference room - toilets (b7)	Mail Transfer (c6)	Environmental control (d6)	Toilets (e6)		- showers (g5)		Lighting (i6)
	Conference catering (b8)	Stationary (c7)	Workstation layouts (d7)			- rest rooms (g6)		Service delivery access (i7)
	Car Parking (b9)	Storage - departmental (c8)	Lifts (d8)			Lighting (g7)		Staff facilities (i8)
	Temperature (b10)		Reception / Foyer (d9)			Lifts (g8)		
	Environmental control (b11)		Escort services (d10)			Circulation - stairs (g9)		
			Messengers (d11)			Circulation - special needs (g10)		
			Meeting rooms (d12)			Space Planning		
			Communications - FMG (d13)			- equipment siting (g11)		
			Move management (d14)			- storage (g12)		
						- wayfinding (g13)		
						Toilets (g14)		
						Communications - messengers (g15)		
						- FMG (g16)		
						Environment (g17)		

Notes Codings in Parenthesis represent group in lower case letters followed by recommendation number

Table 7.3 Common Topic Headings generated across Groups

Topic Area Identified	Groups
Reception Foyer	ABD
Messengers	ABCDE
Reprographics	AC
Lifts	ADEI
Lighting	ACDGH I
Power / cable management	ACDE
Environment controls	BCDEGI
Conference / meeting rooms	ABCDEFGHI
Showers	AC
Toilets	BDE
Equipment	AGH
Service level agreements	AF
Storage	ADG
Staff facilities	DGHI
Space Planning	DEGI
Image	AE
Noise	AE
Planting	A
Net Curtains	A
Car parking	BG
Departmental Split	B
User Participation / Consultation	CH
Telephones	C
Records Management	CD
Stationary	C
Tea Points	DE
Move Management	DEHI
Wayfinding	AEG
Escorting	EI
Communications	FHI
Resources	FH
Staff Issues	AFHI
Contract Issues	FHI

Table 7.4 Classification of Recommendations by Typology

Typology Category	Description of Typology categories	Recommendations included	Number and % of total
Communications	Those recommendations aimed explicitly at improving communications within the division and between service providers and users.	b1 b2, b4 b5a d13 e4 f3 f4 g2 g16 h3	11 13.4%
Service Organisation	Those recommendations aimed at improving the efficiency and effectiveness of the facilities organisation, including those with an implicit concern for improvements in communications.	a1 a4 b5 b6 b8 e5 f2 g1 g15 h1 h2 i2 i3 i4 i5 i7	16 19.5%
Operational	Those recommendations aimed at improving functional efficiency of user divisions and the department as a whole.	a2 a7 b3 c1 c2 c7 c8 d8 d9 d10 d11 d12 d14 e2 f1 g3 g4 g12 g13 g13a i1 i6	22 26.8%
Physical Environment	Those recommendations aimed at improving the physical environment.	a3 a5 a6 b6 b7 b10 b11 c5 c6 d6 d7 e6 g17	13 15.9%
Staff Welfare	Those recommendations concerned with staff welfare issues including health and safety not covered by any of the above.	b9 c3 c4 d1 d2 d3 d4 d5 e1 e3 g5 g6 g7 g8 g9 g10 g11 g14 h4 i8	20 24.4%

7.5 Data Analysis and Interpretation

7.51 Group A - Invest in Britain Bureau

This division is responsible for policy on and execution of UK inward investment promotion overseas and in the UK handling of individual inward investment cases, and the policy and funding for regional development organisations. The promotion of England for inward investment projects requiring co-ordination of research marketing and publicity initiatives with regional development organisations and DTI regional offices throughout the UK, requires frequent use of the building for conference's presentations and client meetings and hospitality. In addition to using central facilities, this division also has its own meeting areas which are of a higher quality than in the building generally.

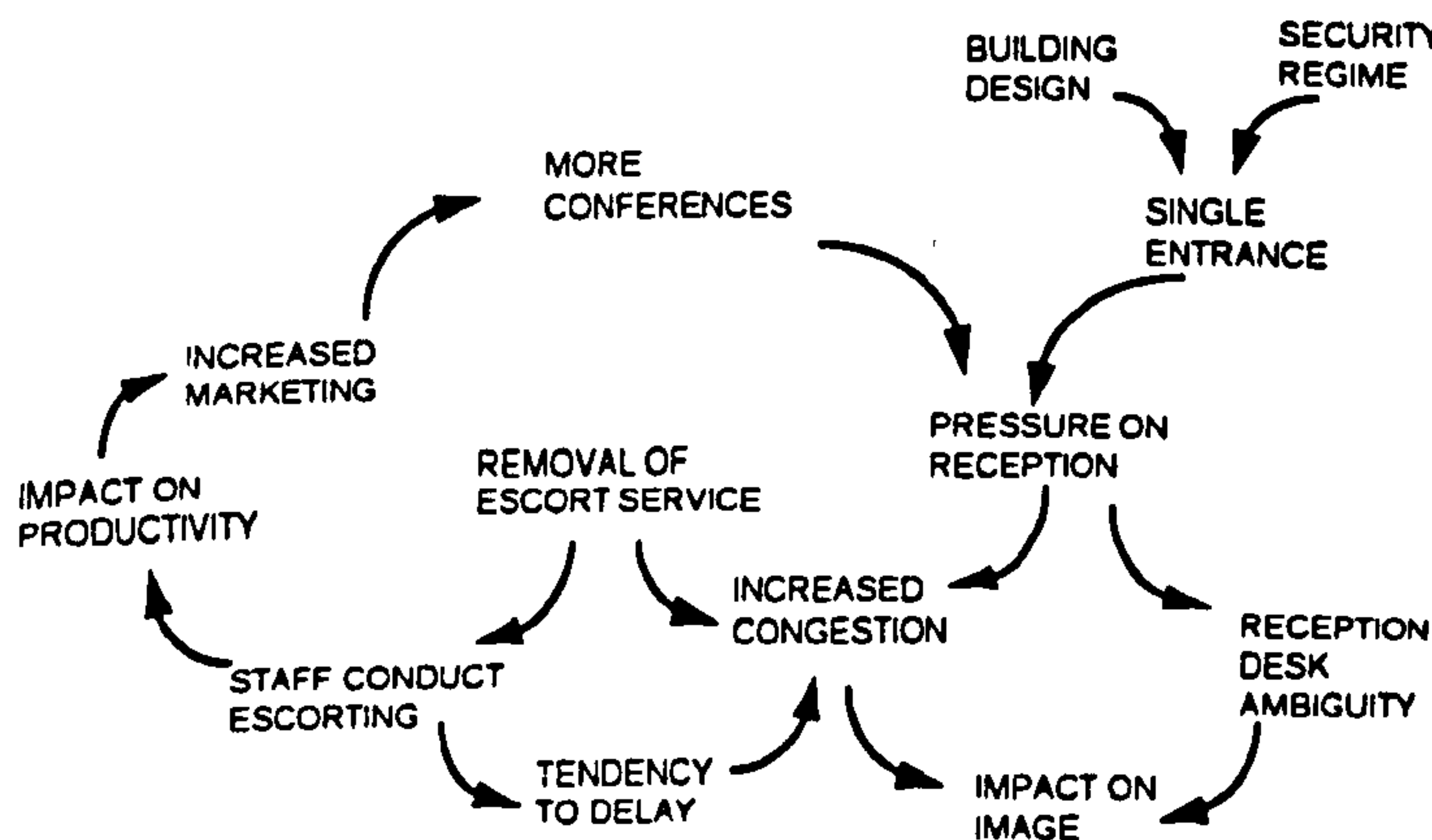
This grouping had a particularly high sense of mission as to the aims of their department, namely to market Great Britain Plc. Accordingly the dialogue focused principally upon the role of facilities and their management in creating an appropriate image to customers. The chair-person of the Building user group was also part of this grouping and sought to make explicit a wide number of problems and issues with the facilities. Whilst this served as a rich source of data many of the areas were also identified by other groupings.

Recommendation a1

Entrance Foyer

FMG should consider reviewing the contract for security guarding and reception with a view to providing a dedicated escort service during conferences in order to reduce congestion in Foyer area.

Pattern Model a1



Interpretation and Context

The increase in number of conferences, as a result of increased marketing initiatives, has placed increasing pressure on the reception foyer area. The foyer itself is restricted in area with two desks either side of a central walkway. The building has a single entrance for staff and visitors entered from Victoria street. For the exception of staff using the first floor for which there are two staircases, all staff entering the building must come through the single entrance and pass between the desks to access the lift bank, often through conference delegates registering at either of the two desks. There are 988 staff in the building, many of whom enter and leave several times per day to attend nearby DTI buildings. The entrance foyer is provided with seating for around 10 only. The building has a theoretical conference capacity of around 300. Whilst one desk is intended for conference use, both tend to be used at peak periods. In addition a temporary desk for registration is often set up by individual commands for larger conferences. Again this is set up in the foyer area.

No visitor, be they customer, contractor or conference delegate, may move above the ground floor waiting area until signed in by the staff member authorising the visit for security reasons. There is no holding area for visitors other than the entrance foyer and no ground floor space available for such an area.

Prior to re-organization of messengerial services, messengers provided a dedicated escort service to take visitors to their intended location within the building. The subsequent outsourcing of the messenger service has resulted in both the use of agency staff and a reduction in staff numbers so that escort duty has to be conducted by individual departments.

As a consequence, core business productivity is lost as staff attend reception to sign-in and escort visitors. Given the size of the building, a round trip to reception can take around ten minutes. In a typical day there can be anything from 100 to 300 visitors to the building. With a typical conference of around 20-40 delegates, the 6 available meeting rooms are usually fully booked.

As conference delegates tend to arrive individually, staff responsible for escorting have a tendency to wait until around 6 delegates have arrived before going down to conduct escorts the consequence of which places additional congestion.

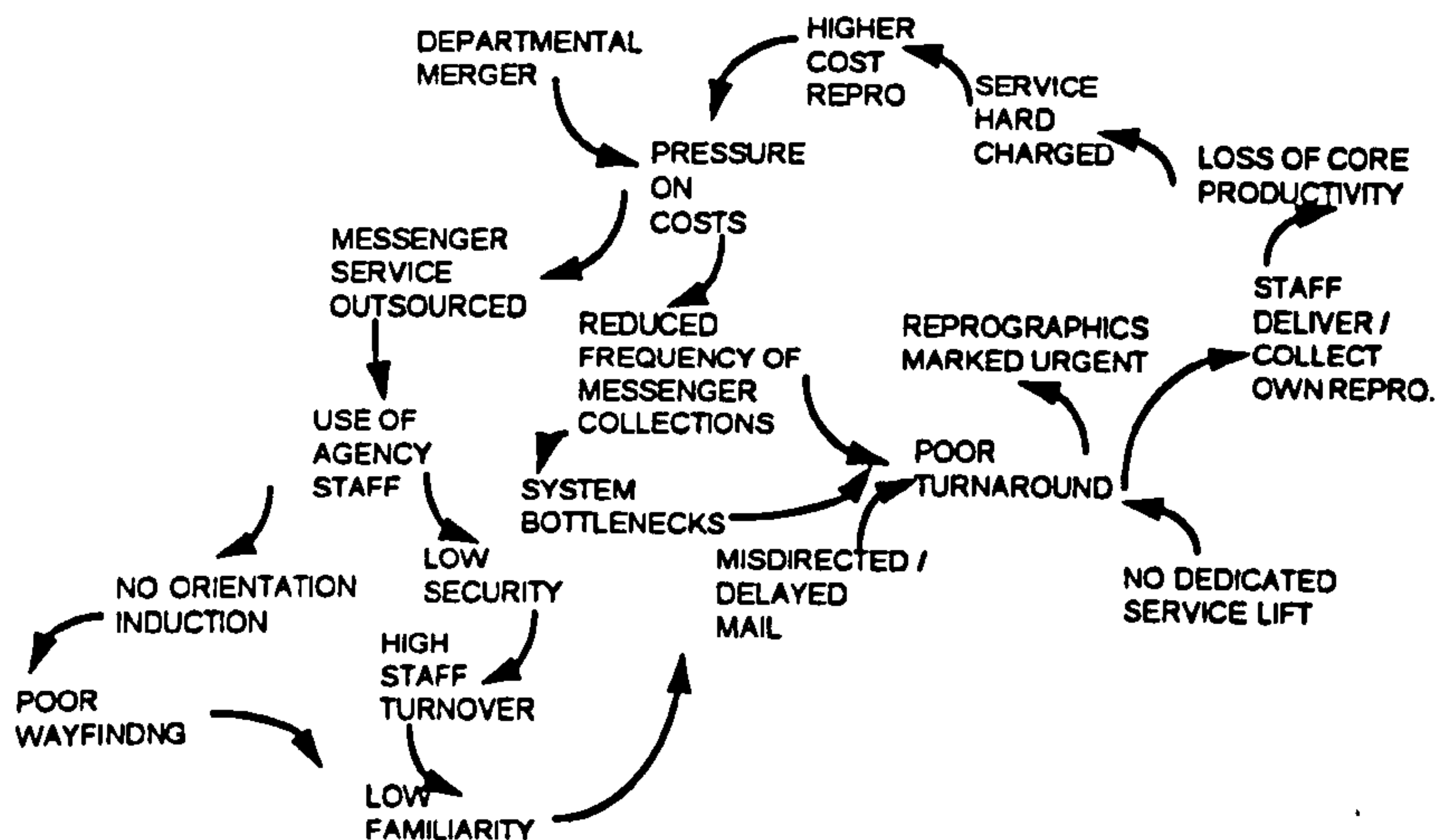
Given that the contract for security guarding and reception had recently been re-let the group considered that it may be possible to review this with a view to including escort duties.

Recommendation a2

Messengers

Management should conduct a review of the messenger service in conjunction with representative user groups. - Turn around time for reprographics is negatively affected by messenger service.

Pattern Model a2



Interpretation and Context

The messenger services within Kingsgate house, in addition to being outsourced, have been cut in terms of frequency. This was following the merger between the Department of Energy and the Department of Trade and Industry. DTI had always received 6 Messenger deliveries and collection per day whereas the Department of Energy had received 4. At the time of the merger, Senior Management of FMG decided that it seemed inappropriate to maintain two levels of service and following brief consultations with the user group this was reduced to 4.

The messenger service was subsequently outsourced and managed by the Building Management team at DTI in partnership with an Employment Agency. The staff turnover rate for the agency staff is particularly high, with an average length of stay at DTI of around 4-6 months. Agency staff are given no

Text cut off in original

familiarisation training either with the building to assist in wayfinding or with staff groupings or individuals.

Staff access a central reprographics service through the messenger service. Reprographics is a 'hard charged' service in which user departments pay directly for the services they consume, from notional operating budgets. User departments complete a reprographics request form which allows for normal or priority services. As a result of the reduced deliveries and collections by messengers, staff have a tendency to place all reprographics requests as a priority service which reduces the time held in reprographics and improves the return time through messengers. As a consequence however user departments pay a higher cost for the service previously enjoyed.

Reprographics confirm that there has been a tendency for most services to come through priority.

In addition, staff groups requiring priority copying often take material directly to central reprographics themselves and wait for it, thus reducing their own productive time. Reprographics report no problems in coping with the increased number of priority services. However, they are often blamed for poor service as a result of turnaround where the problem actually lies with delivery and collection.

Staff also report that the reduced frequency of the messenger services results in an inundation of priority mail every 2-3 hours.

The group suggested that the messenger service could be speeded up by using a dedicated service lift.

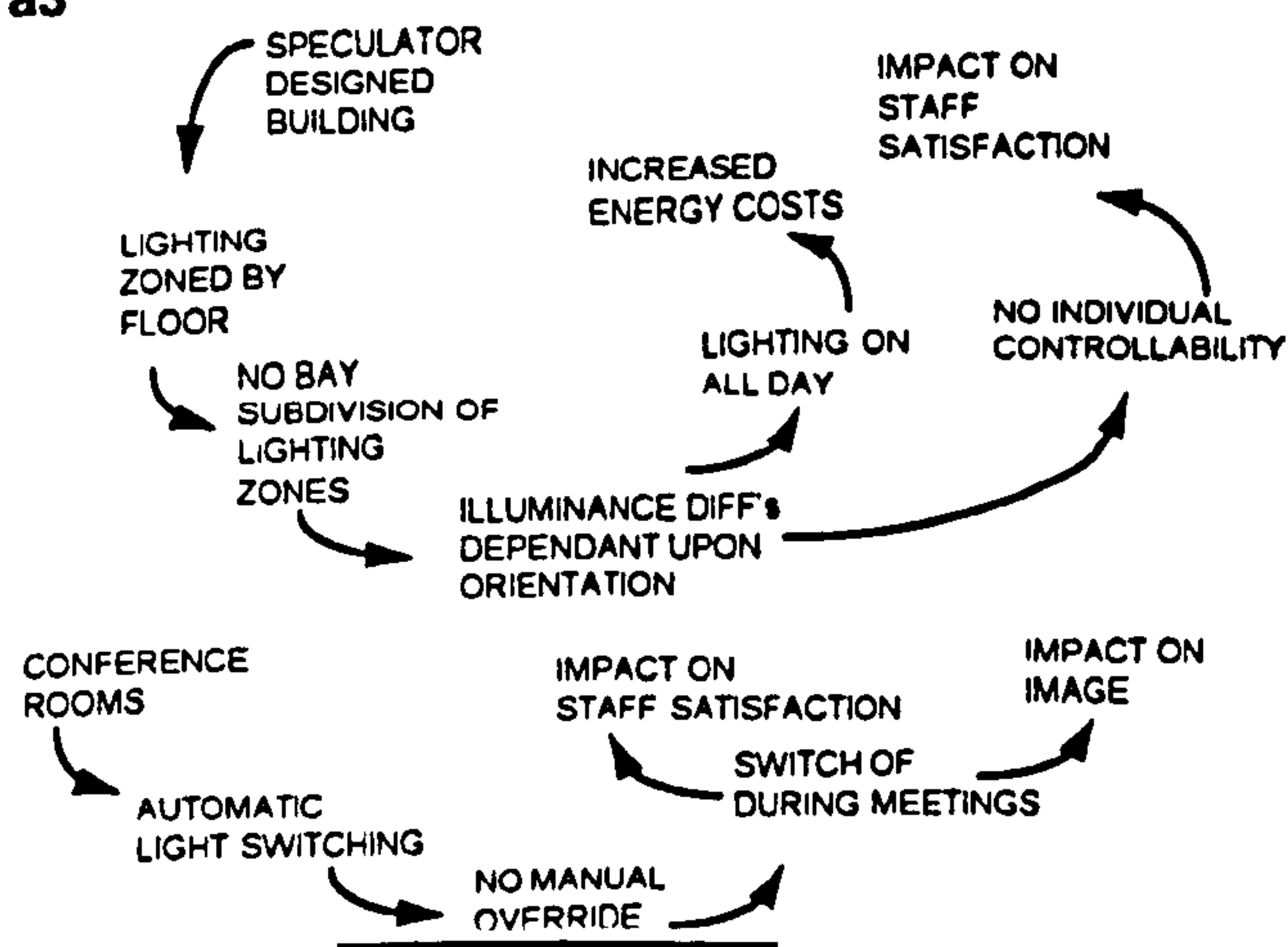
In addition messengers used to report building defects to the building management teams. This no longer happens.

Recommendation a3

Lighting

Consideration should be given to extending the lighting zoning by bay.

Pattern Model a3



Interpretation and Context

Kingsgate House was originally designed and constructed as a speculative office development with the intention that individual floors could be sub-let to different occupiers.

The lighting per floor is according on individual supplies and controls. The light zoning itself has not been divided by individual bay. The consequence of this is that there is a lack of controllability at an individual or group level. The building has a shallow plan with fairly good natural daylighting, albeit reduced slightly as a result of the bomb net curtains. There have been some complaints that the net curtains can be get somewhat dirty. It is not known whether they are included as part of the cleaning regime. The principal concern in this respect was one of image rather than of reduction in lighting however. Whilst lighting levels are subjective to the users, in many cases the level of illuminance is too high according to the technical section who are conducting a lighting study. Where the south of the building receives significant amounts of natural sunshine and requires little supplementary artificial lighting, the north often requires lighting on. Given both sides are o the same lighting zone, there is no ability to provide individual control. Similarly the lack of zoning means that if staff in a single grouping or bay are working late the entire zone has to be on.

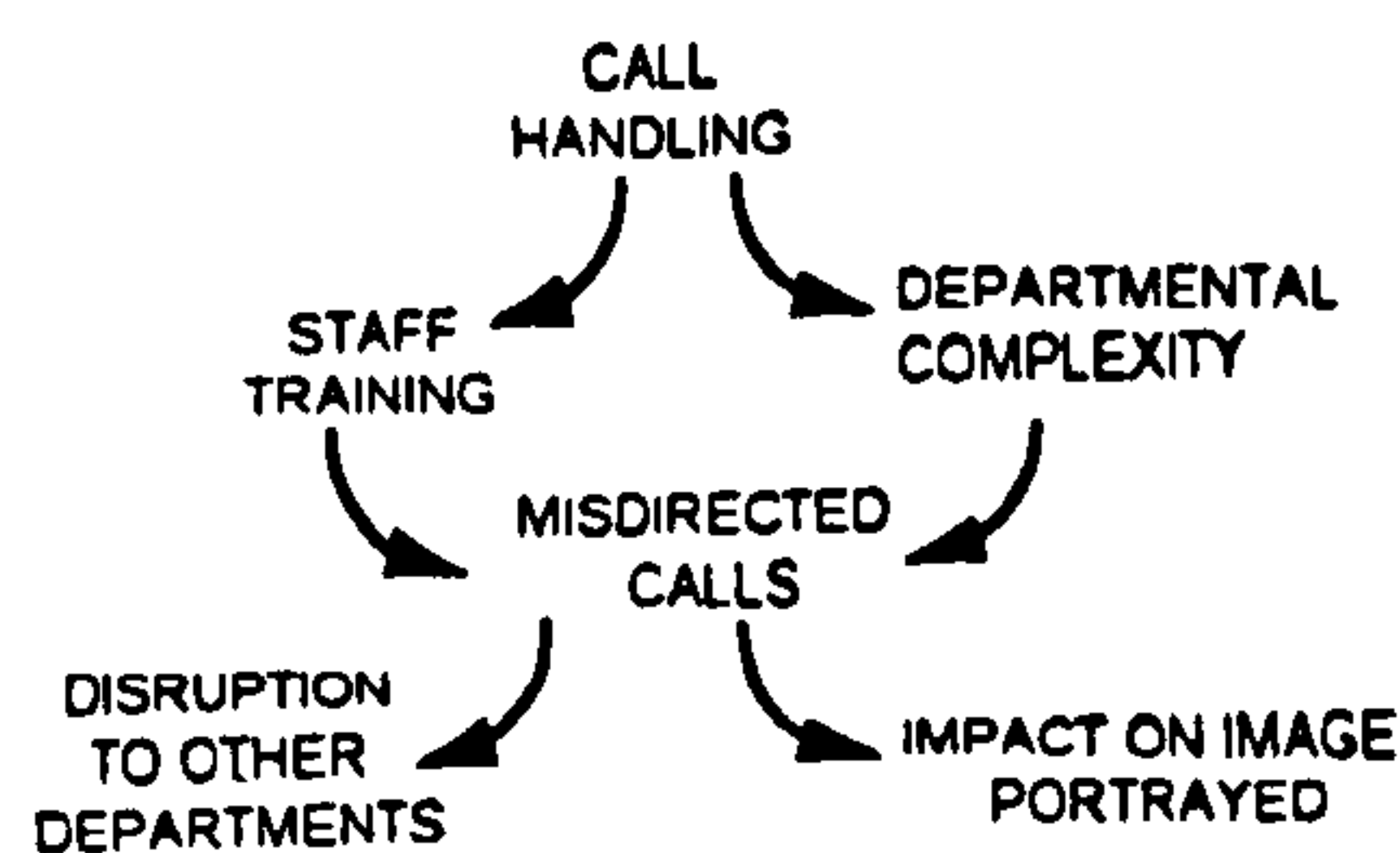
Despite automatic switches, which have been installed for energy saving purposes, this can be inconvenient for staff in conference rooms as they automatically switch off after a predetermined period. There is no facility to manually override same.

Recomendation a4

Enquiry point

Training needs assessment should be conducted on enquiry point staff (part of library service) to ensure that call handling is effectively diverted.

Pattern model a4



Interpretation and Context

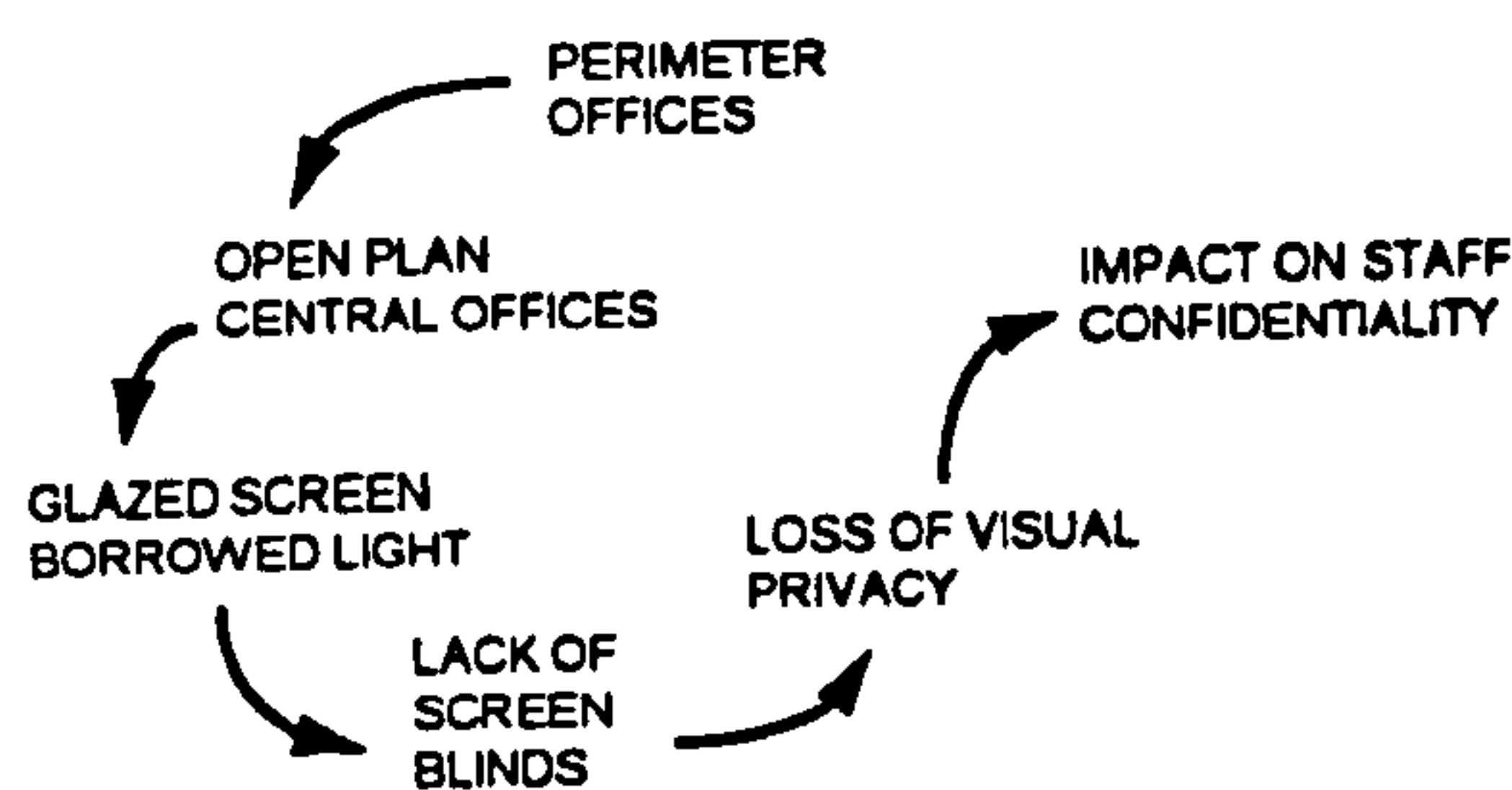
Concern was expressed by those with responsibility for marketing that the existing staff employed on the inquiry point, which takes the first line of external customer inquiries, are not sufficiently aware of the activities of the various divisions. Consequently calls are misdirected giving both external customers a run-around between departments and placing unnecessary calls through to wrong departments. The solution they suggested was to conduct a training needs assessment on inquiry point staff to identify inquiry skills requirements to ensure calls are directly routed in the first instance.

Recommendation a5

Confidentiality

Divisions using small meeting rooms should have the option of fitting screen blinds to improve confidentiality e.g. job performance interviews.

Pattern Model a5



Interpretation and Context

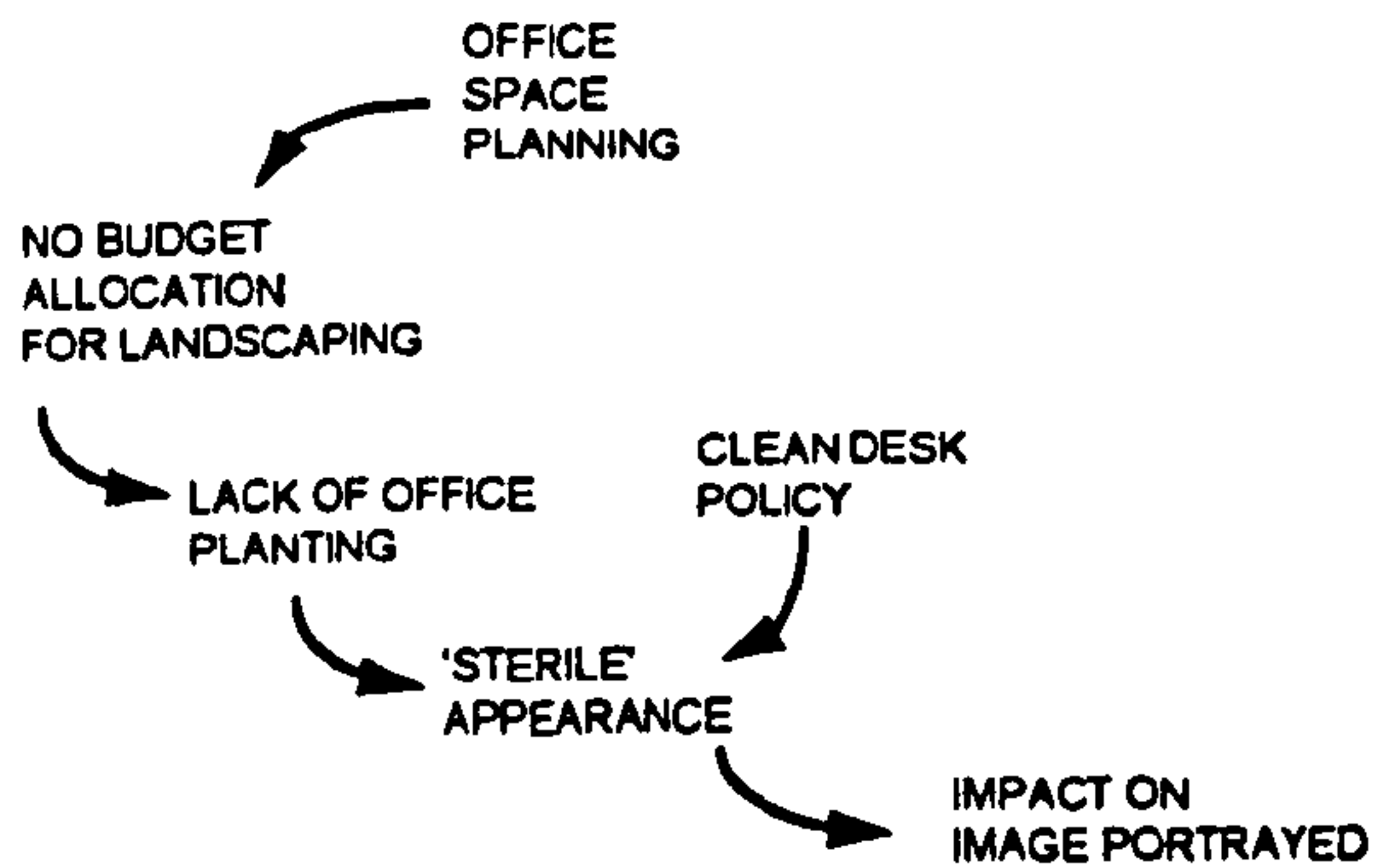
As most of the space is open plan, cellular offices on the perimeter have large section of glazing to encourage borrowed lighting to central office areas. These are the only accommodation areas available for the conduct of staff appraisals and job performance interviews. Concern was expressed that the high degree of visibility resulted in a lack of privacy for meetings where a degree of confidentiality was required. The suggestion is that at least one small meeting room should be provided with screen blinds to afford additional levels of privacy.

Recommendation a6

Office Landscaping

Consideration should be given to budgetary allocation for office landscaping (plants) during space planning exercises.

Pattern Model a6



Interpretation and Context

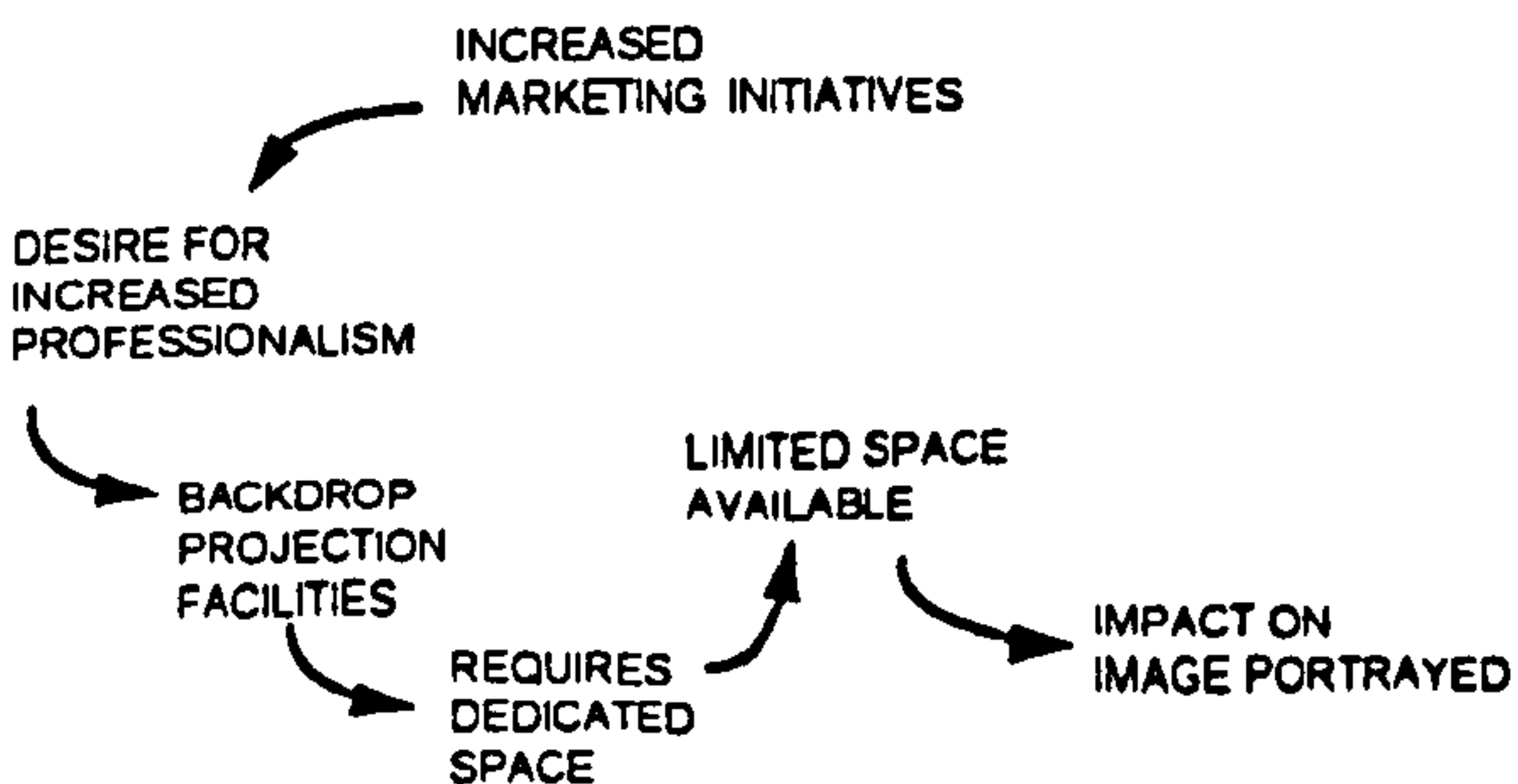
Office landscape planting is very sparse. There is a clean desk policy in operation and no files or papers are permitted on top of cabinets. The general office landscape in open plan areas can become somewhat sterile.

Recommendation a7

Special Equipment / facilities

Marketing presentations could be strengthened by the provision of back-drop projection facilities which would require some additional space provision.

Pattern Model a7



Interpretation and Context

This was minority suggestion from staff who are primarily concerned with marketing. The provision of back-drop projection whilst improving the professionalism of presentations would require around another 2 metres width of space which would necessitate the removal of an office to accommodate.

7.52 Group B

CD3, Competitiveness division

This division is responsible for ensuring that government policies, both those of the DTI, and of other departments, are designed and implemented with full regard to making UK industry more competitive at home and abroad. IT briefs Ministers on general industrial competitiveness questions, including the policies of other government departments and has responsibility for co-ordinating the Department's budget submission. Staff in this focus group were mainly from CD3 which is the purchasing initiative branch. CD3 is responsible for devising and implementing new initiatives on improving the performance of UK suppliers, and encouraging better purchasing in both the public and private sectors.

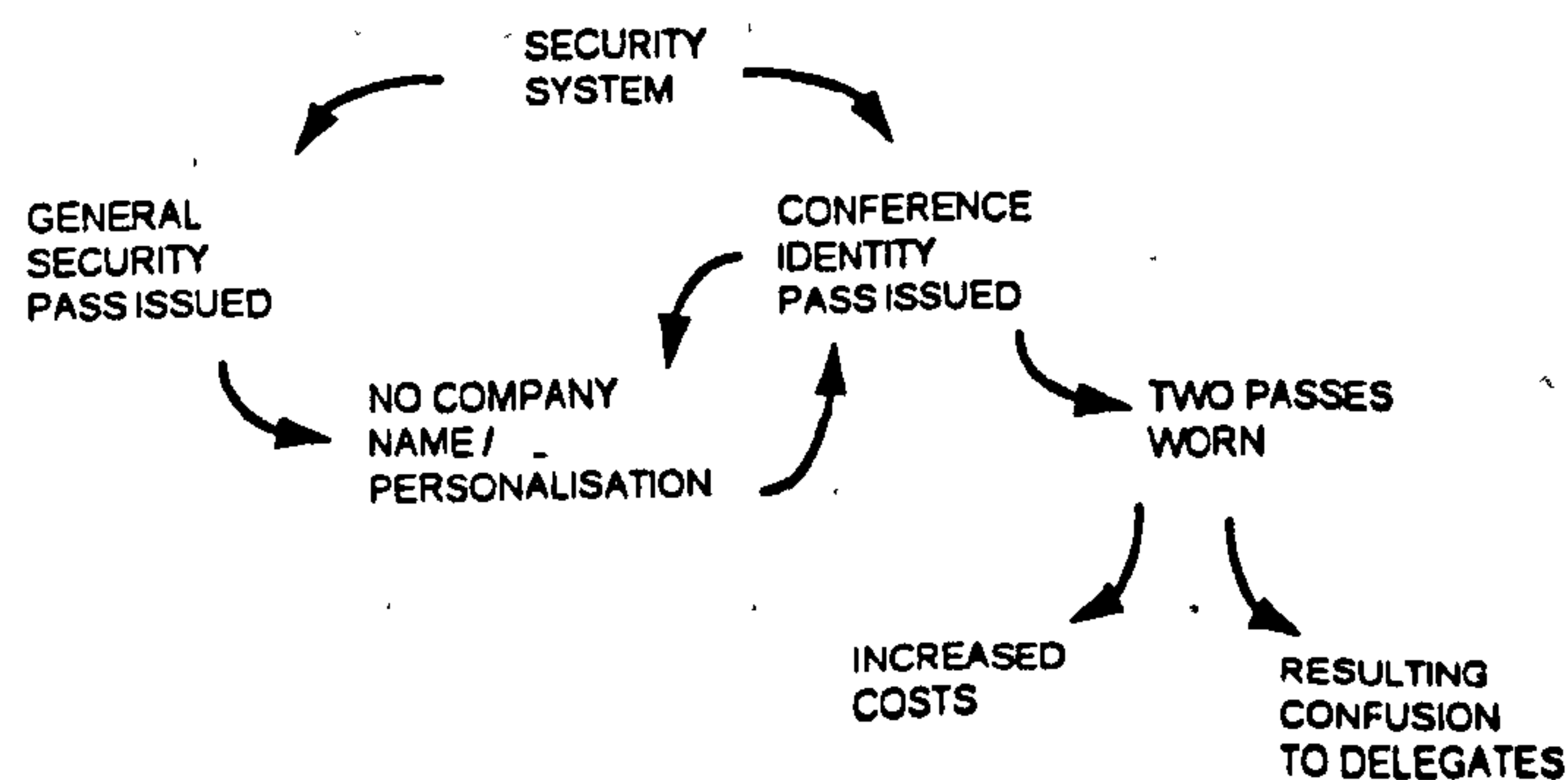
Again as this division has responsibility for the promotion of best practice, this group had recourse to conduct regular conferences and seminars within the building. They were acutely conscious of the role of the facilities in promoting an appropriate image for the organisation.

Recommendation b1

Conference passes

Conference passes should include company name, individual and room number and date, in order to improve interpersonal communications during conferences without the need for two passes.

Pattern Model b1



Interpretation and Context

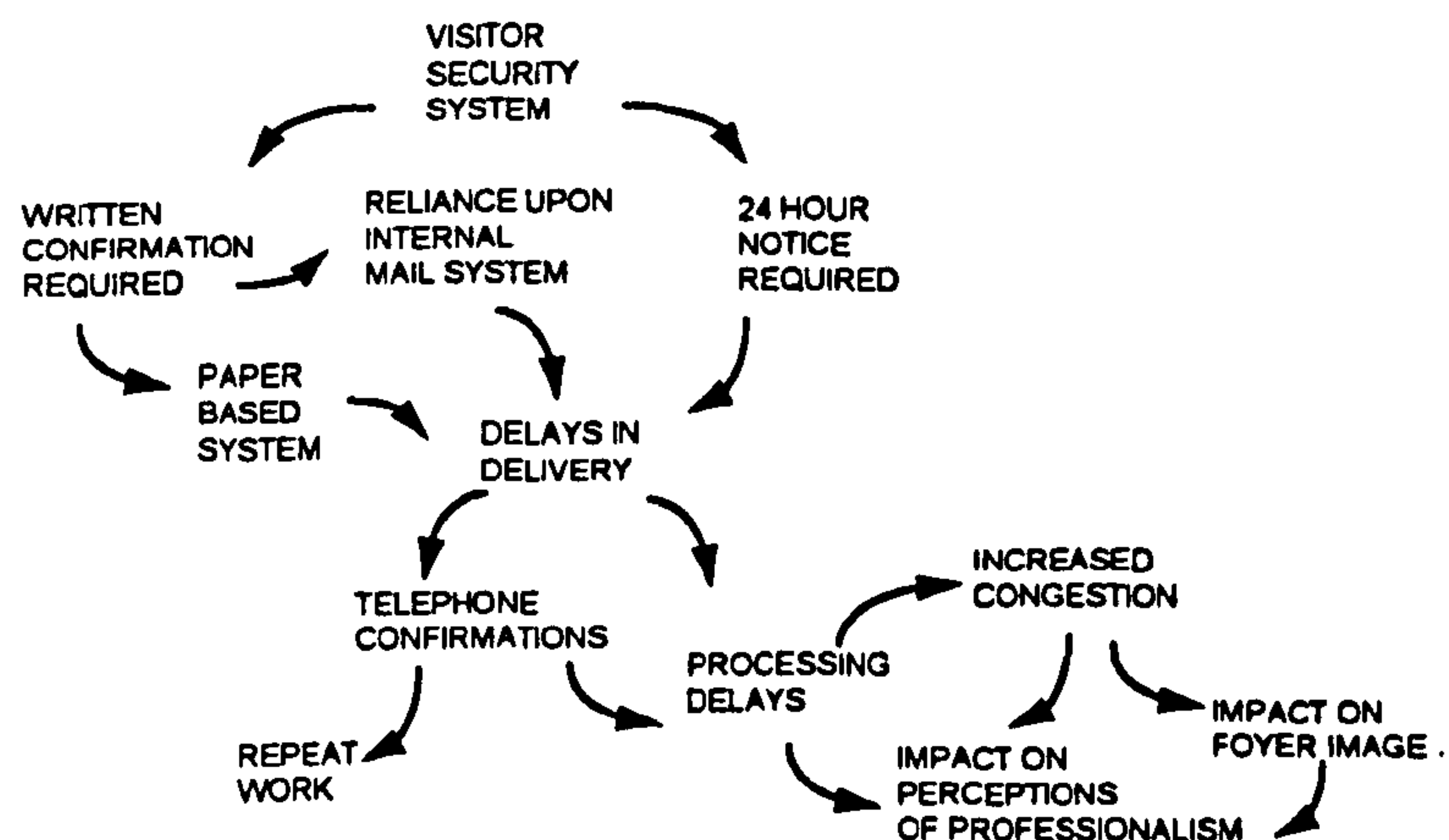
As the current security system stands, delegates to conferences are provided with two passes. One which is a general security pass, the other may be provided by conference organisers to distinguish delegates. The main security passes do not confirm company name which from a conference perspective is undesirable. A modification to the security badging system which is already automated would alleviate the need for two passes.

Recommendation b2

Communications - Reception

Future consideration should be given to the use of electronic mail in sending delegate lists to reception for pass preparation.

Pattern Model b2



Interpretation and Context

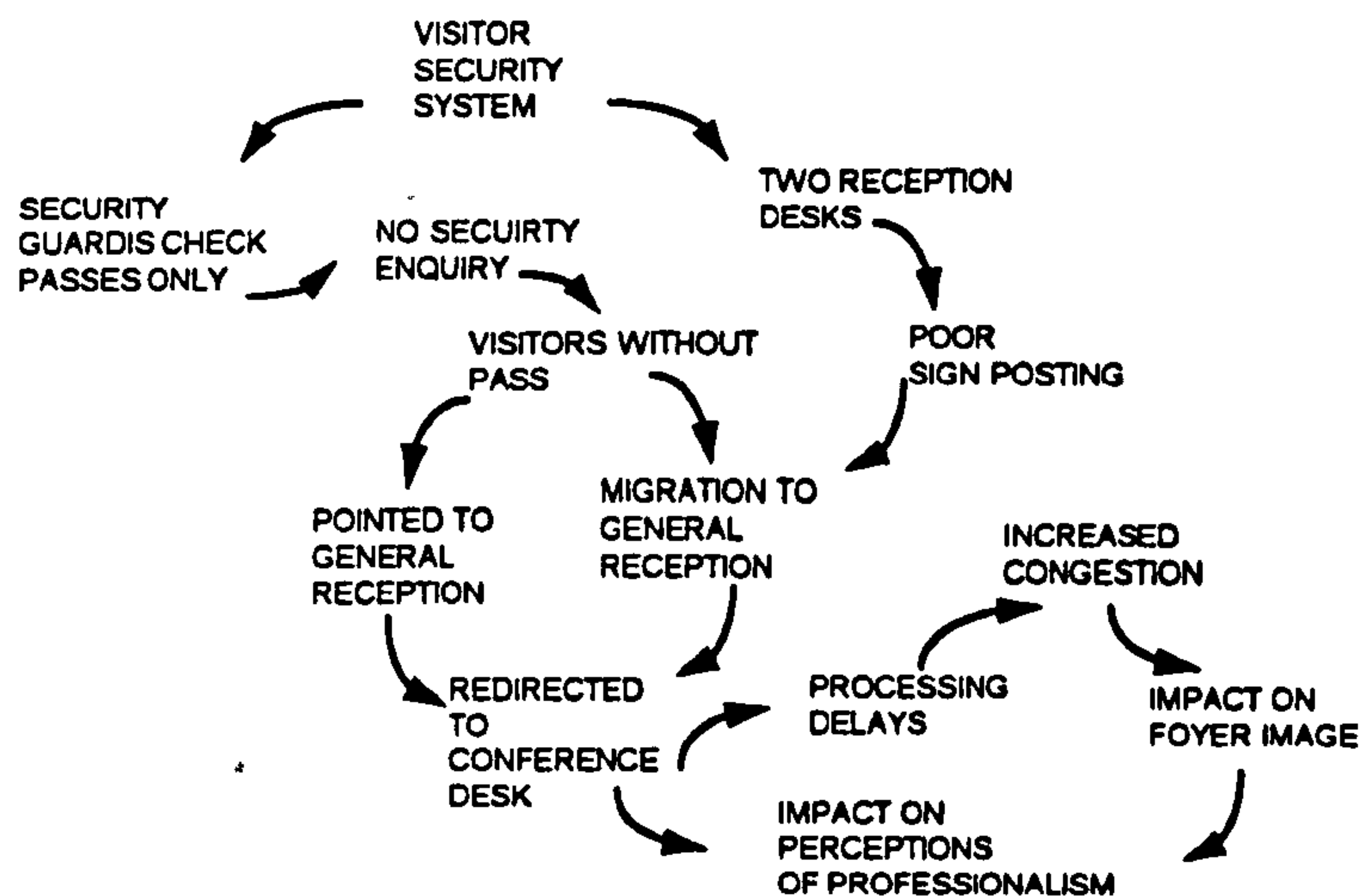
The existing security system demand written confirmation of visitors to reception 24hours prior to arrival. On occasion written confirmation is held up in internal mail or does not arrive. The ability to confirm arrivals through electronic mail would dispense with the need for such written requests and avoid what appears to be a very cumbersome paper system in which reception staff are required to sift through numerous sheaves of paper to find the conference delegate. This, in addition to taking time, increases the congestion at the reception area, as well as security and reception staff having to call DTI staff for confirmation that visitors are expected.

Recommendation b3

Reception desks

Security guards should address visitors entering the building as to the nature of their visit and specifically direct conference delegates to the conference desk.

Pattern Model b3



Interpretation and Context

The reception area itself has been reconfigured 3 times in the last eighteen months despite which the system nor layout does not result in increased throughput.

Although there are two desks in the entrance foyer, the conference reception is not particularly well signposted. The existing sign is fixed to the wall behind the reception desk as opposed to hanging and is not particularly large. Most occasional visitors migrate towards the general reception desk as this is the busiest and occasionally the only one staffed.

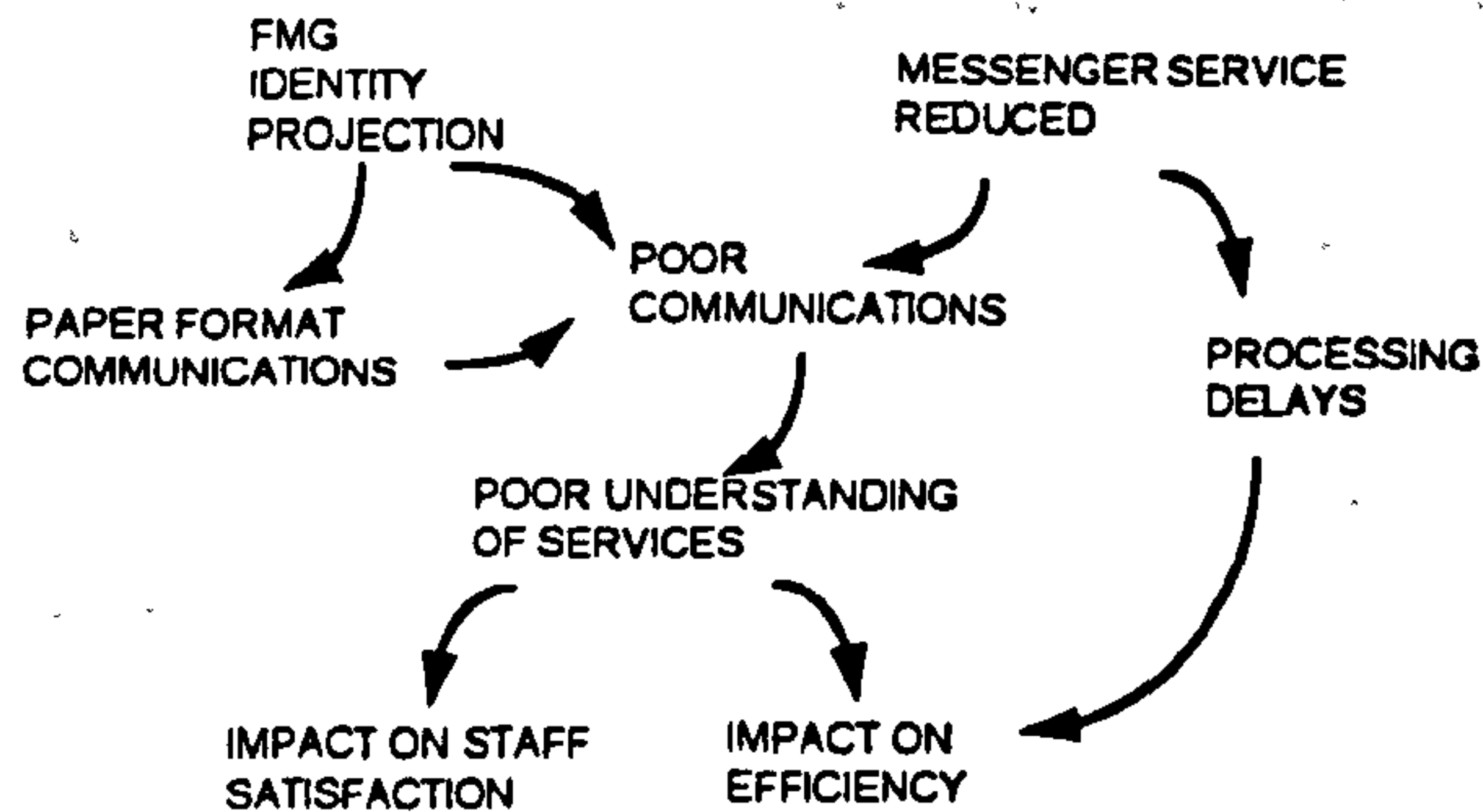
Security guards do not enquire the business of visitors who do not display passes. As a consequence they are automatically directed to the general reception first and thereafter sent across to the conference reception.

Recommendation b4

Messengers

Timetable for collection and delivery for both messenger and timed immediate services should be more widely circulated.

Pattern Model b4



Interpretation and Context

Despite the distribution of new collection times for messenger services, staff are still unaware of the new timetable. Generally staff suggest that, whilst having received such information in paper format, it has been mislaid as 'yet another piece of paper flying around'. This links with later points on raising the profile of FMG through stronger corporate identity to distinguish paperwork and the provision of a service directory.

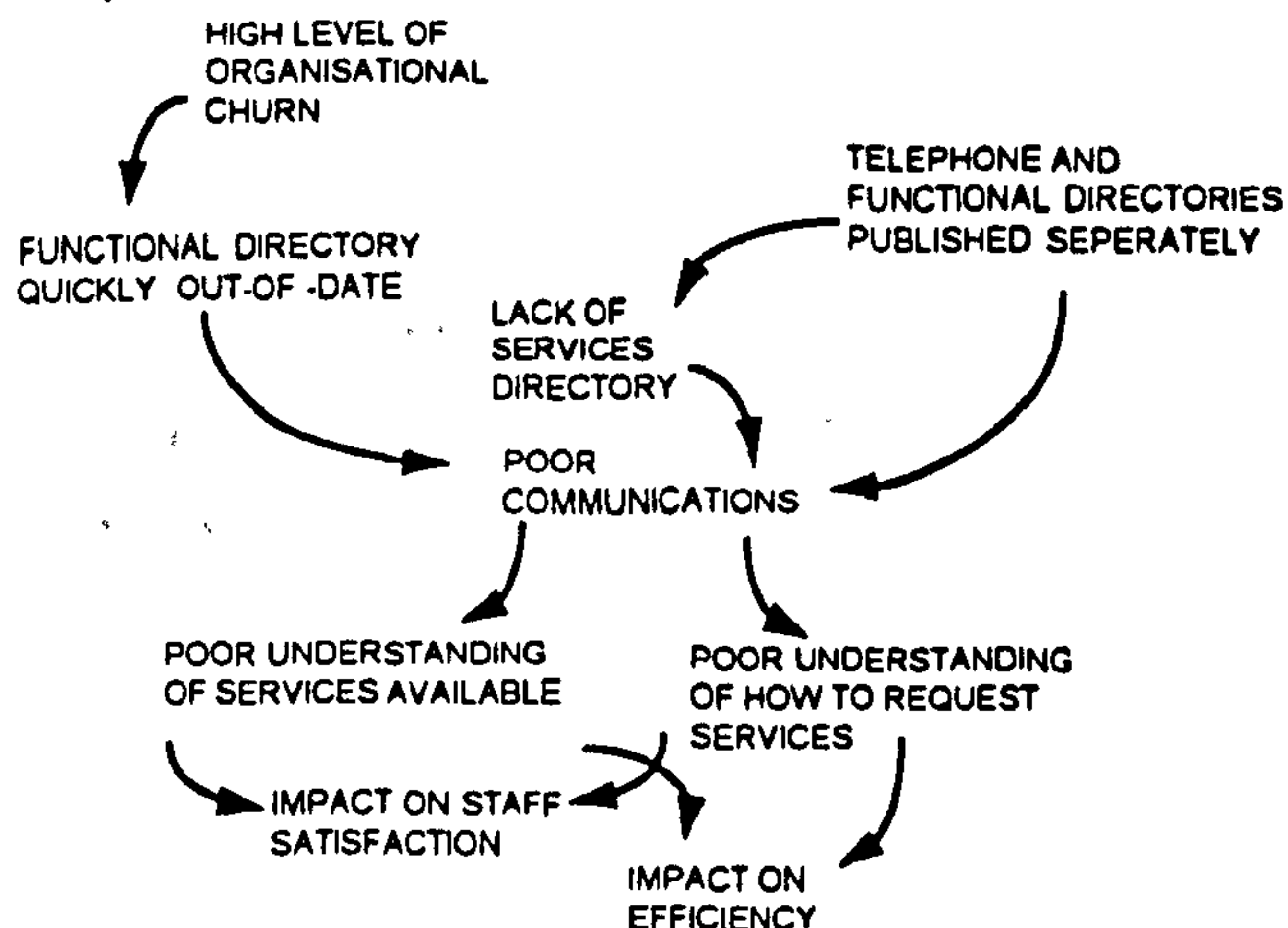
Recommendation b5

Communications - FMG

Functional directory should include information on the availability of services and how they might be acquired.

Functional directory and telephone directory should be issued at the same time and more frequently.

Pattern Model b5



Interpretation and Context

Following from the previous point, staff felt that storage of all information relative to central services available and how such services should be used should be held in a single directory rather than floating around on numerous memorandum.

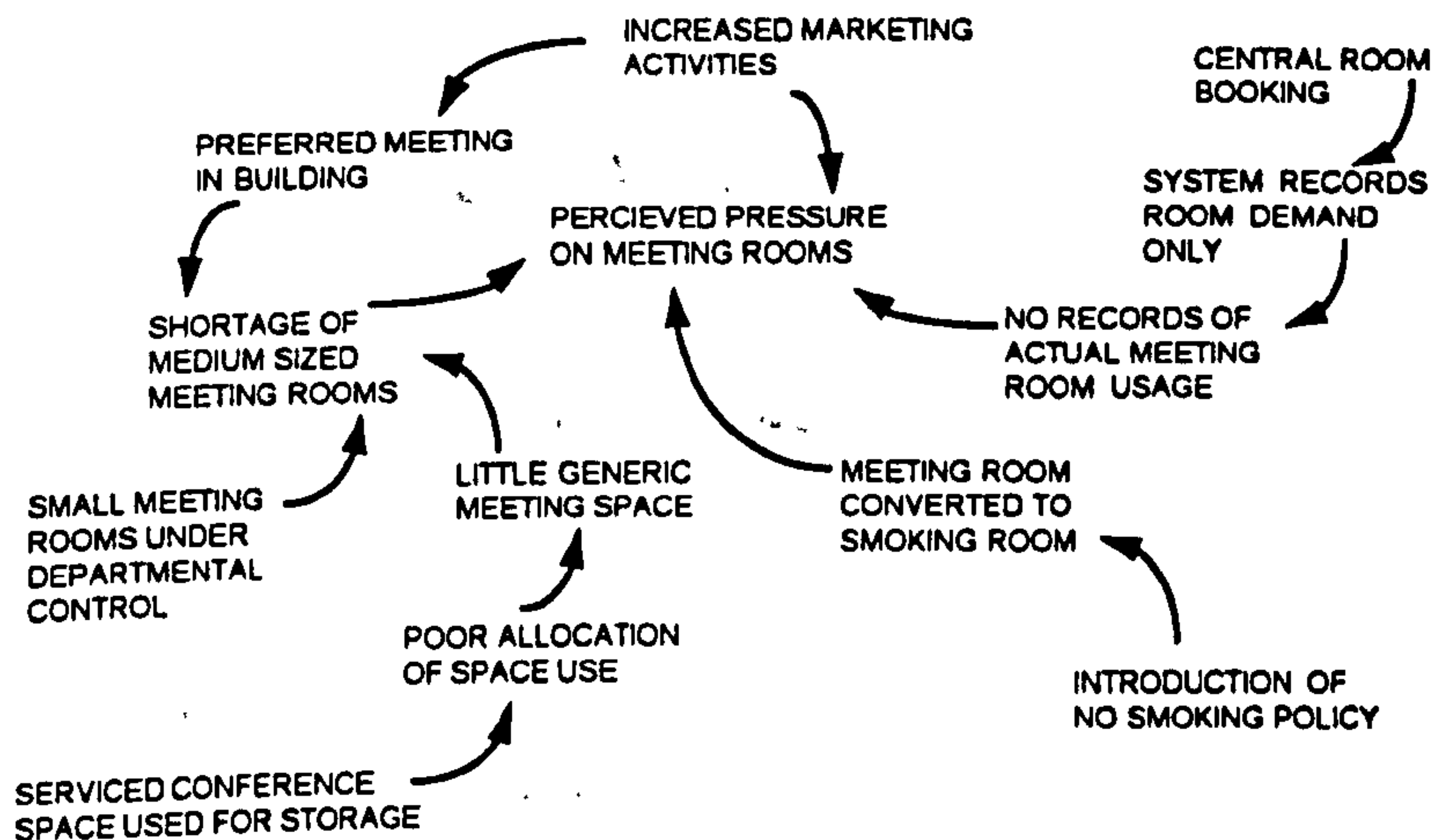
The organization itself has an extremely high internal churn rate. People are career civil servants and progress through departments and grades rather than remaining as functional specialists. There is a twice annual functional directory published which lists all divisions, responsibilities staff and grades. This is frequently out of date. The telephone directories are issued more frequently but do not coincide with that of the functional directory. Once again in the longer term it may be possible to maintain listings more accurately by electronic means.

Recommendation b6

Conference rooms

Consideration should be given to the provision of medium sized (15-50 person) meeting/ conference rooms.

Pattern model b6



Interpretation and Context

Increased marketing, as previously stated, has placed pressure on meeting rooms within Kingsgate house, particularly in the 15-20 person size range. All conference rooms are booked through a central booking service which co-

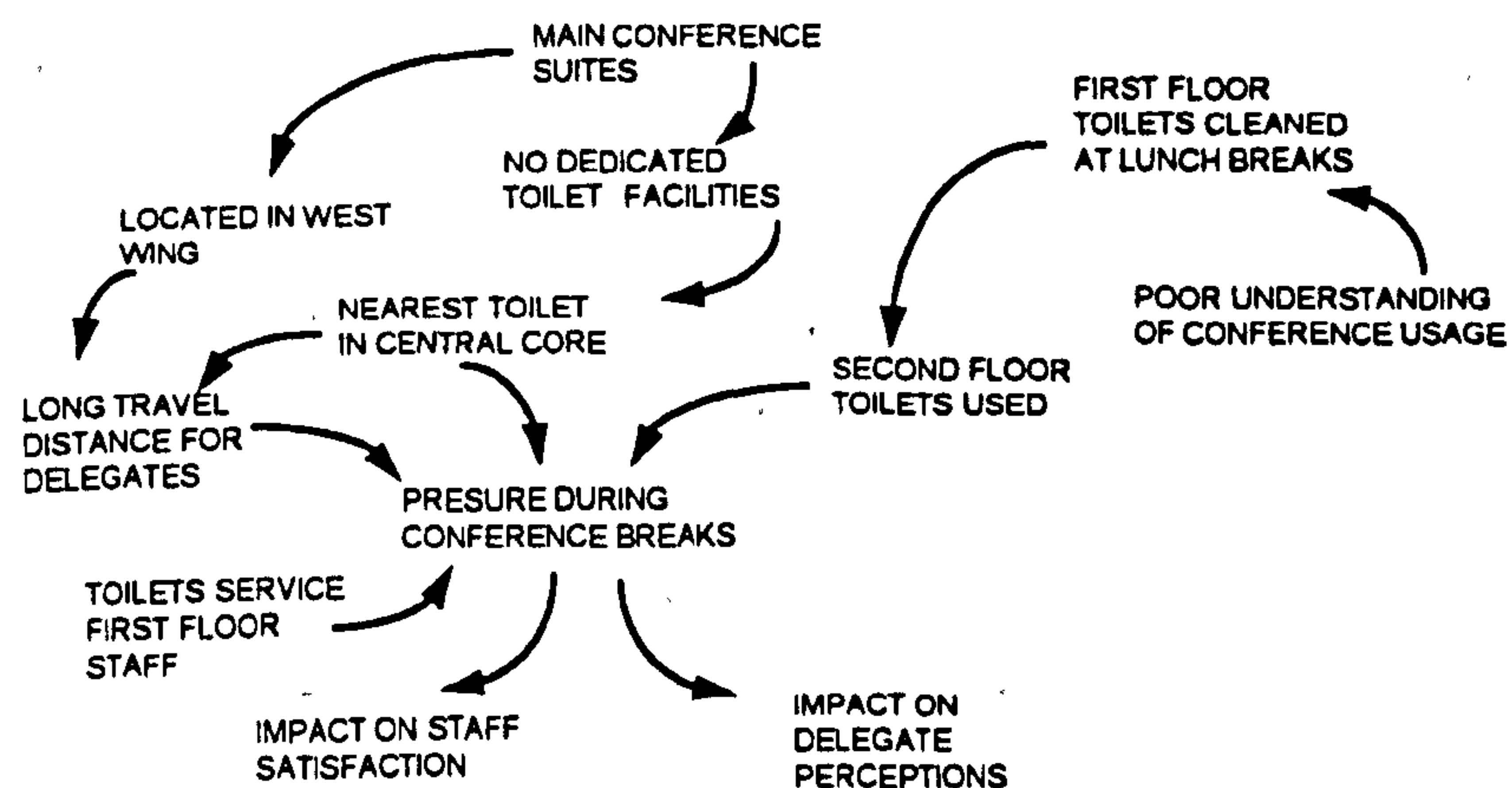
ordinates the requirements for meeting room space across the London Estate. Whilst space cannot be guaranteed in Kingsgate House, it is usually possible to acquire space in one of the other DTI buildings. However this is not always considered desirable. Pressure on meeting rooms has been exasperated by the conversion of one room to a smoking room following the introduction of the no-smoking policy. Small meeting rooms are controlled directly by individual departments. However they are limited in size from 6 - 10 people. Despite the pressure on meeting rooms, there is space currently used for storage on the first floor which is both away from the busy traffic of Victoria Street and moreover is serviced by dedicated conference room air conditioning system.

Recommendation b7

Conference room toilets

Consideration should be given to the provision of toilets more accessible to large conference rooms. (existing toilets on first floor are remote).

Pattern model b7



Interpretation and Context

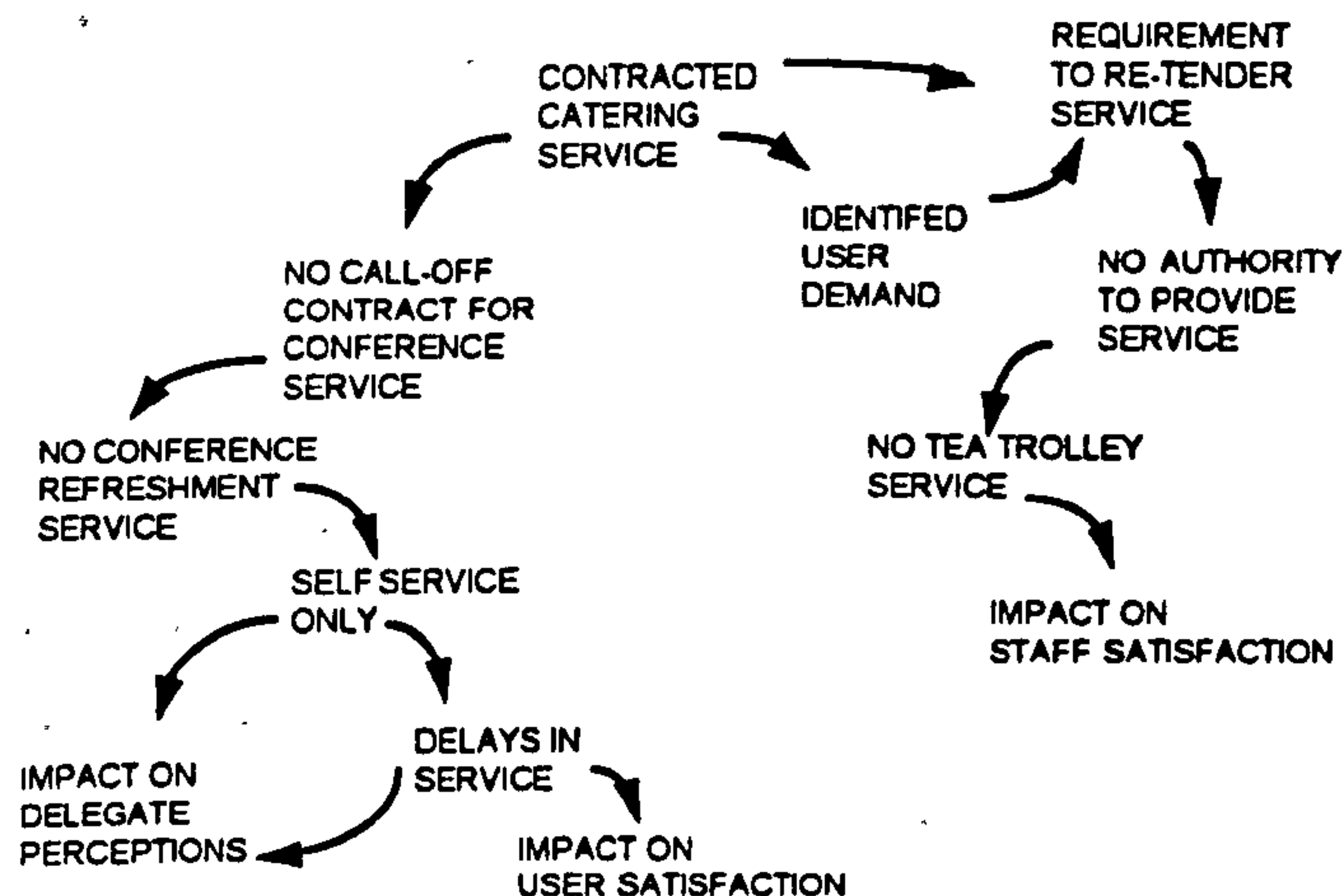
Despite having a fixed conference suite on the first floor for up to 250 people, there is no toilet facilities within reasonable travel distance. The existing toilets are situated in the central core of the building whereas the conference suite at the west most wing. The toilets come under pressure following conference breakouts. These toilets also service first floor staff. Moreover these toilets are cleaned in the middle of the day at which time they are closed off and inaccessible, necessitating use of toilets on the second floor.

Recommendation b8

Conference catering

Internal caterers should offer the ability to serve teas/coffees during large conferences rather than just supply.

Pattern Model b8



Interpretation and Context

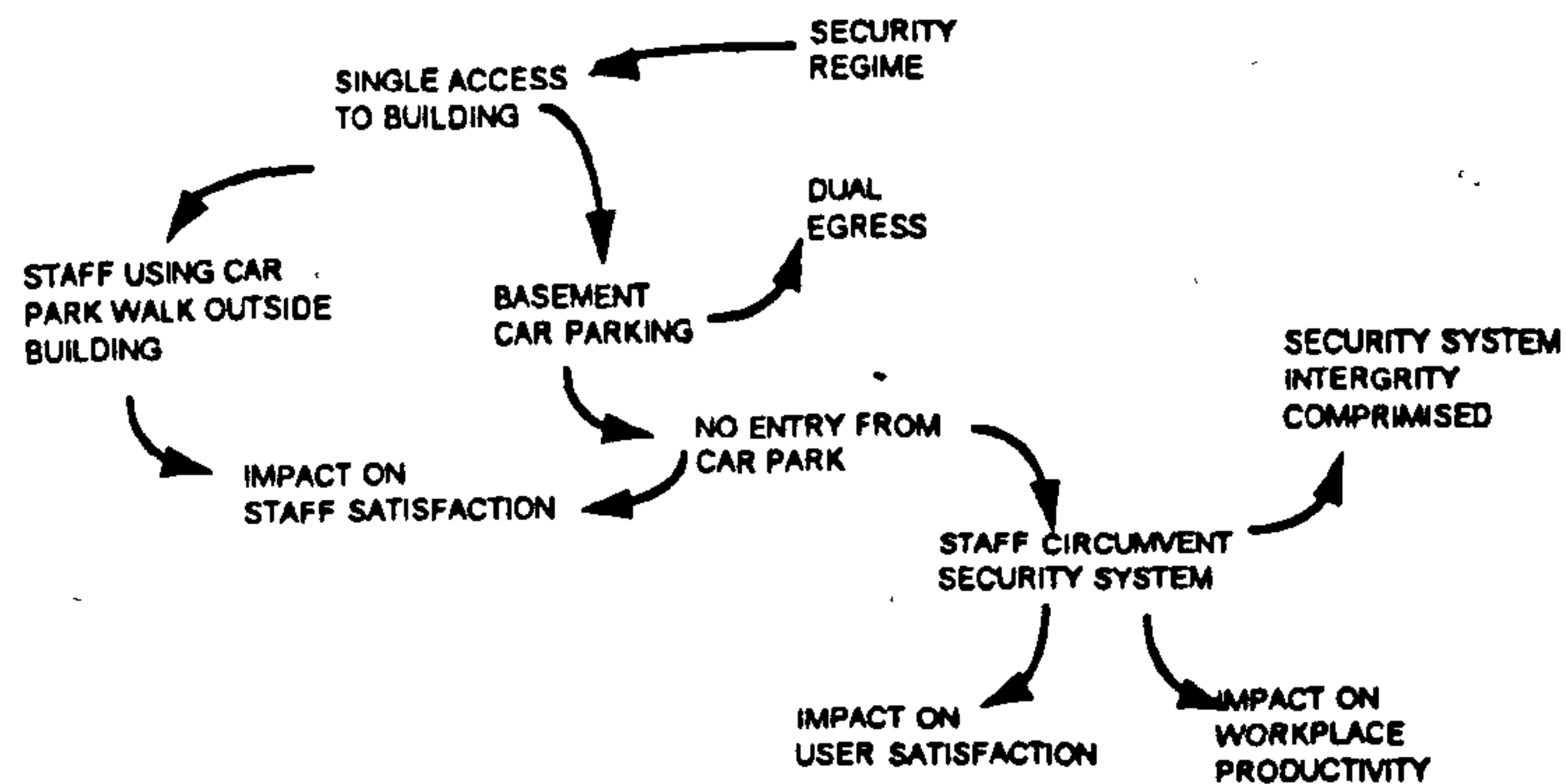
The existing catering service is a contracted service for production and supply of catering on a call-off basis. For large conferences, however, coffee/tea vacuum flasks and biscuits are supplied only which means that staff and visitors have to serve themselves. This takes significantly longer than would a dedicated servery service. At this moment it is understood that the facility for which this does not exist in the call off contract with caterers. The catering contract manager, however, would be willing to offer such a service but is constrained by the levels of service for which remunerated. Despite having recognised customer demand for services such as a regular trolley service to floors, and having suggested this to management, no authority has been given, presumably on the basis that the contract would require to be tendered.

Recommendation b9

Car Park

Subject to meeting the requirements of security, an access control should be fitted to the basement car park door to allow re-entry to the building for DTI staff.

Pattern model b9



Interpretation and Context

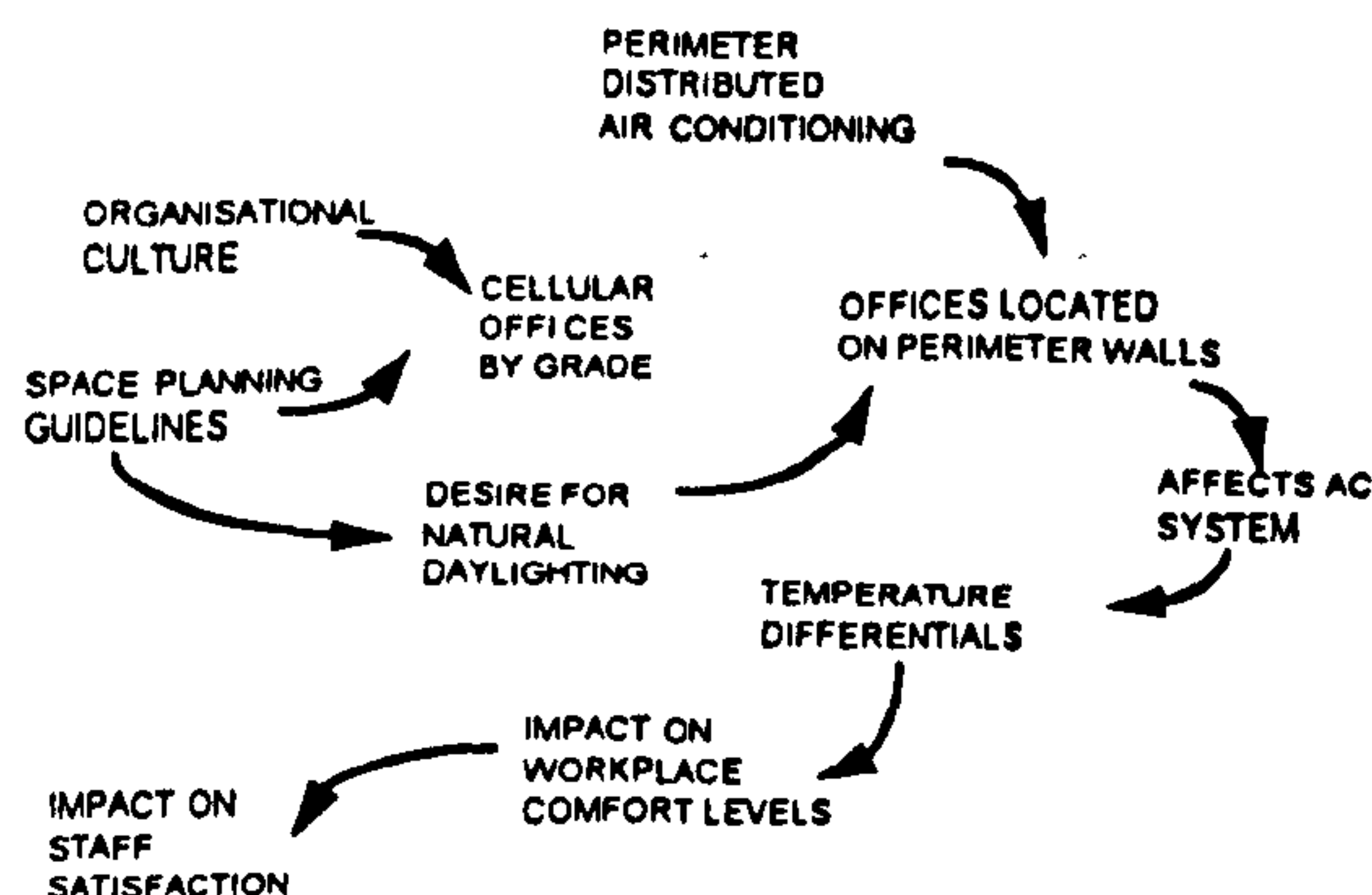
Staff using the basement car park must then walk round outside the building to enter through the front doors to have security passes checked. Whilst it is possible to enter the garage from inside the building, for example, when leaving, no return entry is possible. Staff who have on occasion had the need to collect items from cars, usually take another member of staff to hold open the door to permit re-entry. Whilst it was accepted that there is a need to comply with security requirements, the provision of an access control to allow re-entry would be both convenient and more productive. Such an access control for security purposes could consist of a swipe card which automatically signals to main reception security that the door has been activated and some check regime put in place either through a physical visit or remote camera.

Recommendation b10

Temperature

Temperature fluctuation on fifth floor bay 524 should be investigated by CEAS.

Pattern Model b10



Interpretation and Context

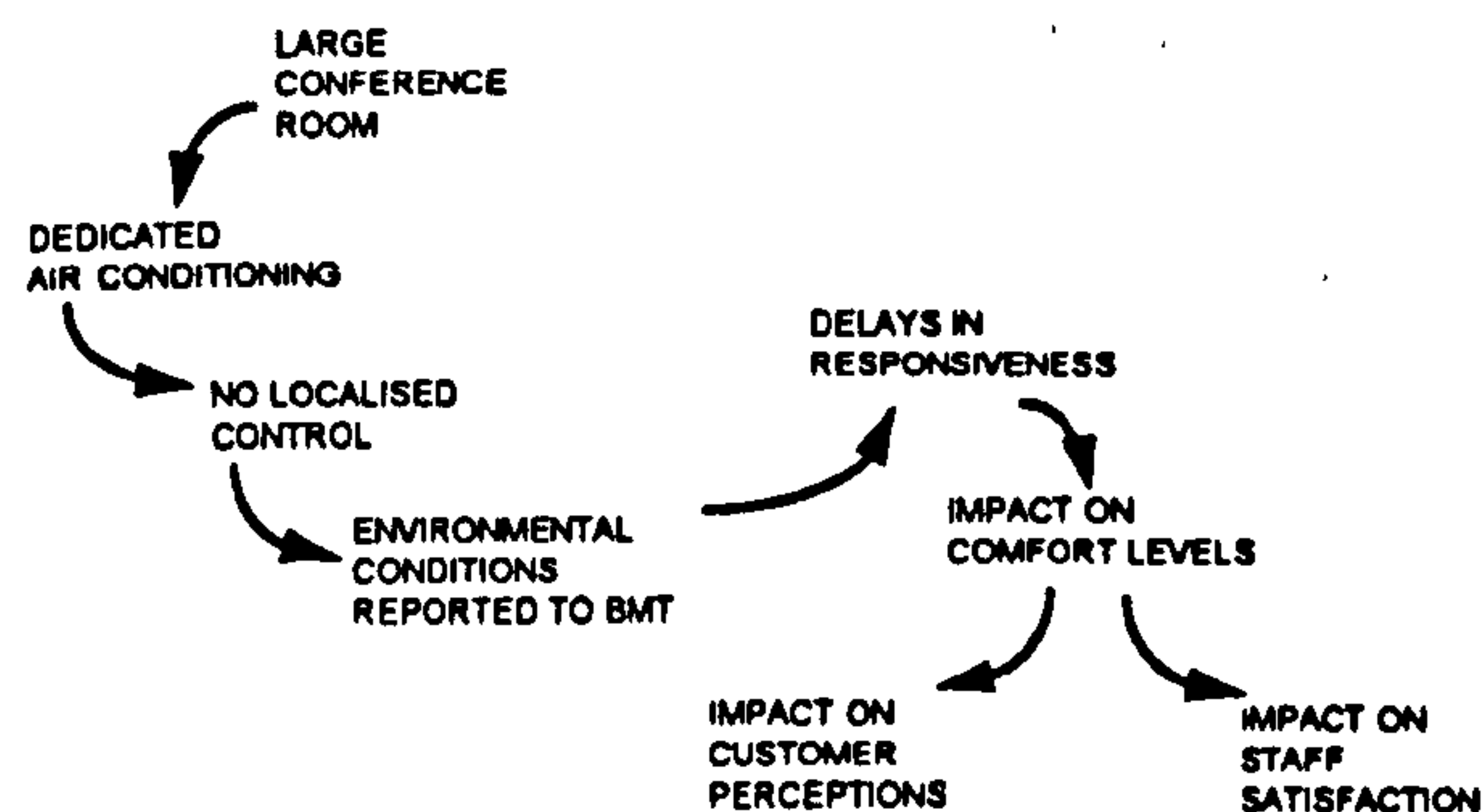
Whilst this complaint refers to a specific section of the building, it is part of a wider problem of environmental control within the building generally. The existing heating and air conditioning systems is perimeter distributed. Space planners in complying with guidelines and demands for cellular offices for Grade 7 and above, place such offices on perimeter walls in order to provide natural daylighting, heating and ventilation. However, this sets up environmental differentials around the building dependant upon location. Other focus groups have suggested that there is a lack of consultation during space planning exercises not only with users but with contract staff with technical expertise and responsibility for HVAC system maintenance.

Recommendation b11

Environment control

Local environmental controls should be fitted to the large conference room.

Pattern Model b11



Interpretation and Context

The main conference room whilst fitted with full environmental controls is not controllable from within the conference room itself by conference organisers. Whilst the responsiveness of the system itself is not known, uncomfortable environmental conditions are reported to the building management team who adjust controls centrally. Localised control would allow conference organisers to make adjustments before comfort conditions prove to be a significant problem.

7.53 Group C - XEA - Export Europe and The Americas Division

This division is responsible for trade promotion work in Western Europe, the Former Soviet Union, Central and Eastern Europe, North America, Mexico, Central America, Venezuela the Caribbean and South America. This includes the co-ordination of all trade promotion work and all trade related inquiries about the individual markets, including requests for information on regulations and taxes and other legislation. Secretariat services are also provided for the European Trade Committee.

The division, in addition to providing a marketing role necessitating regular conferences, is also a central information resource for trade inquiries. This in turn places demands on the amount of material held by the division.

The representatives again had a marketing focus and were keen to improve the quality of their output.

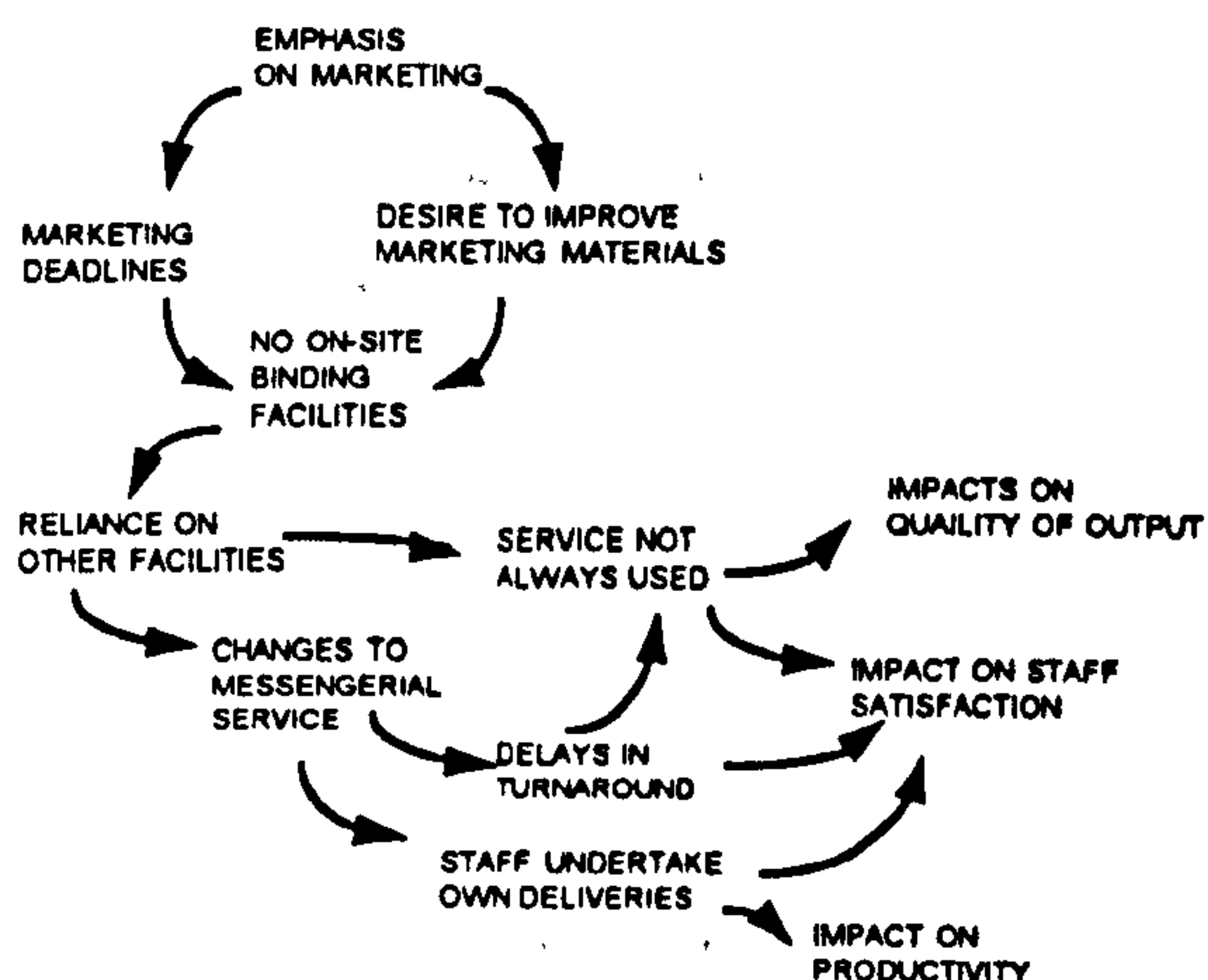
Recommendation c1

Reprographics

Consideration should be given to the provision of spiral binding facilities at Kingsgate House.

Consideration should be given to the provision of colour copying facilities at Kingsgate House due to increased usage of colour printers.

Pattern Model c1



Interpretation and Context

Whilst perhaps a minority recommendation, given that Kingsgate House fulfils the role as a the principal trade command headquarters (a major marketing function), it seems unusual that there are no dedicated spiral binding facilities available. The nearest available facilities are at Ashdown House across Victoria Street, This necessitates a time delay in accessing the service either personally or through messenger services. Staff suggest that they are often working to deadlines for release of marketing material. This problem is made worse by the reduction in messenger services which results in the last despatch for outgoing mail being four pm.

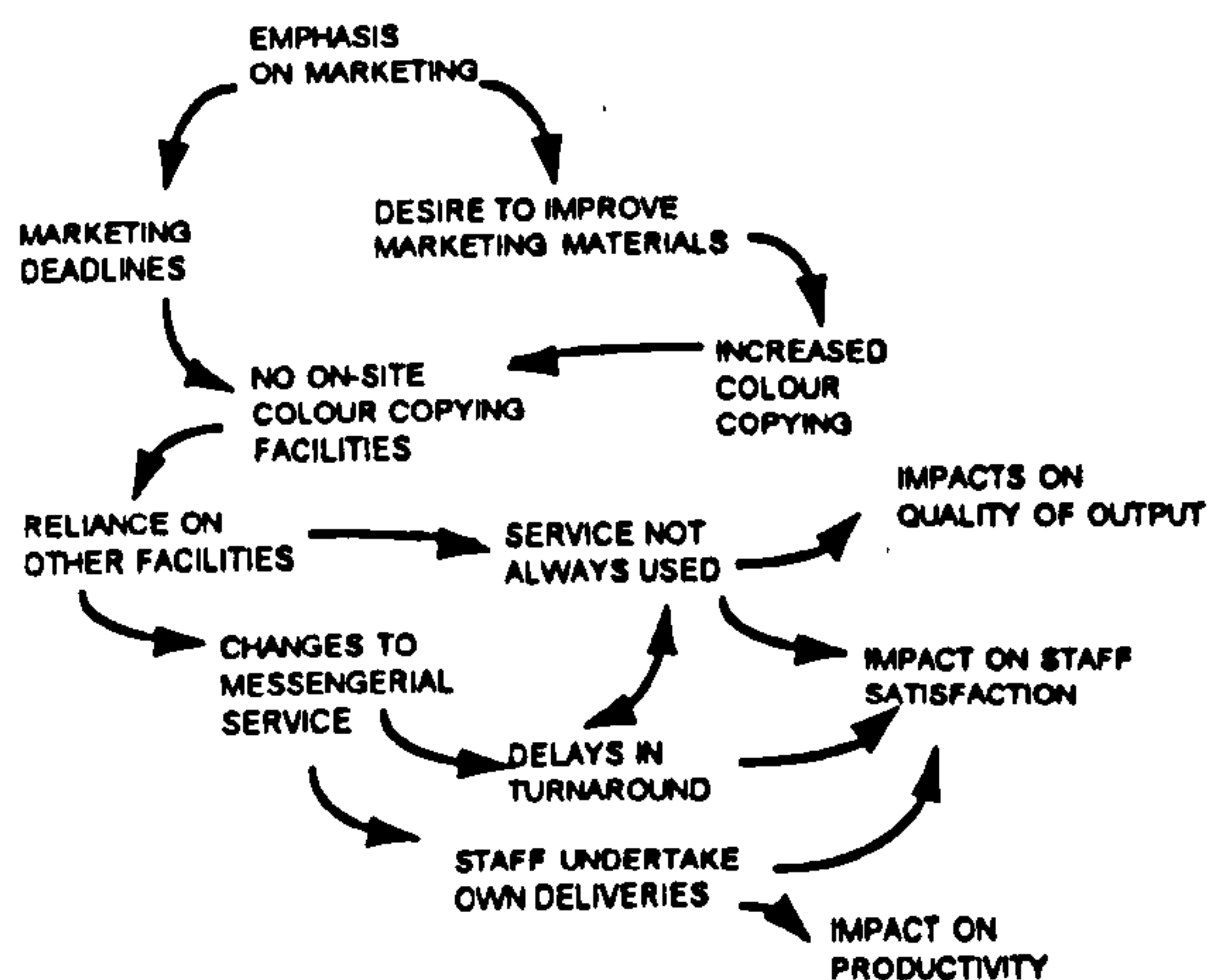
There is an increasing tendency towards the use of colour printers particularly in the production of marketing material. The subsequent points noted above regarding time deadlines apply.

Recommendation c2

Health and Safety - Lighting

Investigate the availability of localised lighting control

Pattern Model c2



Interpretation and Context

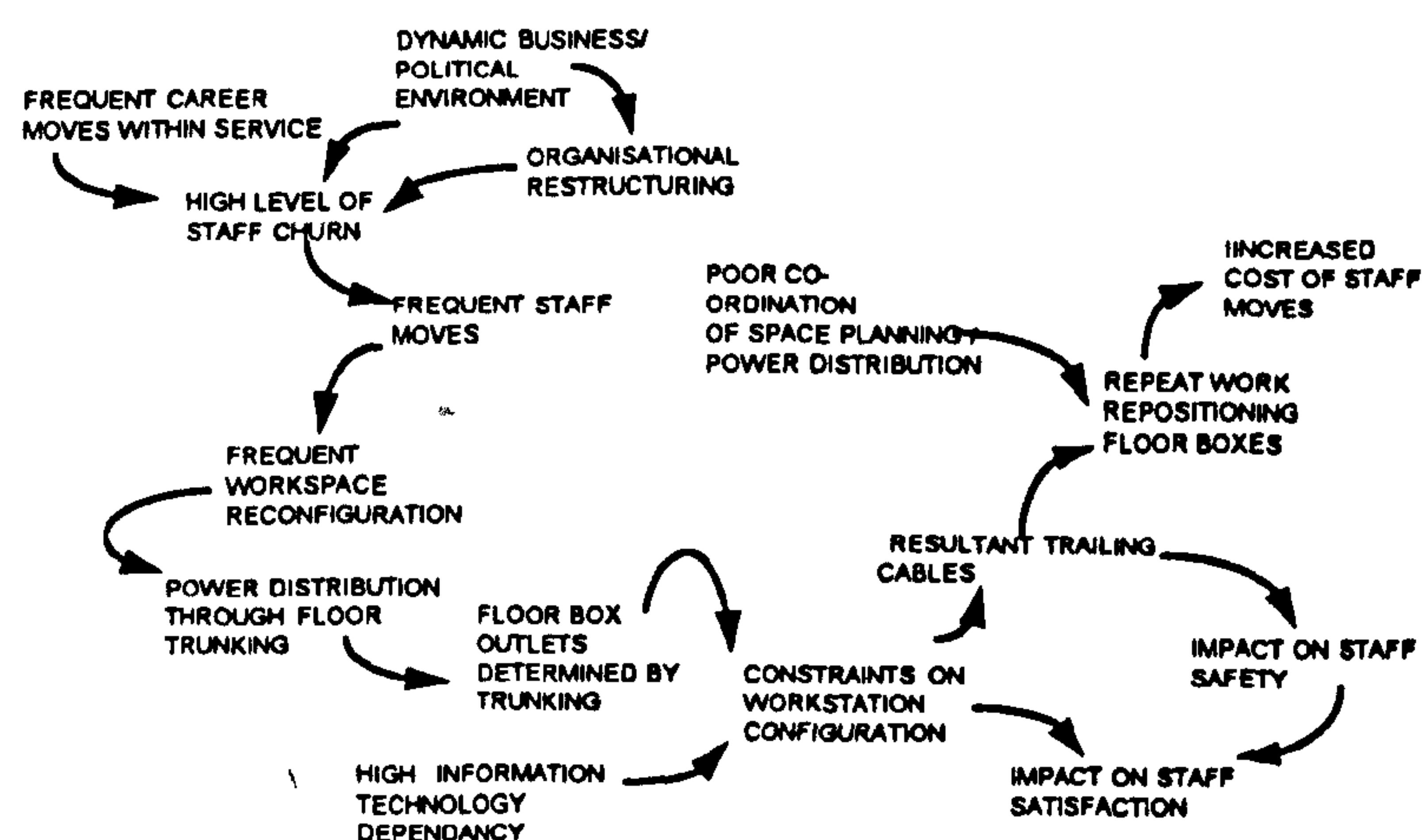
This point has been explored above. The particular context in which this point was raised was in respect of glare from VDU screens. Despite the requirements of new EC legislation on workstations, no workstation risk assessments have yet been conducted.

Recommendation c3

Health and Safety - Cable Management

Investigate the possibility of improved cable management within bays on the ninth floor to reduce floor cabling.

Pattern Model c3



Interpretation and Context

Whilst a specific location was noted, cable management and power distribution was named by most focus groups as a problem. All small power distribution is provided through floor boxes in via floor trunking. The significant levels of organisational churn coupled with the dynamic nature of the business mean that activities are commenced or discontinued at relatively short notice. This results in a high degree of space reconfiguration. Most staff have PC's printers and the like. Whilst partitioning and desk layouts are frequently altered, the floor boxes are less flexible given the trunking distributions system. Floor boxes are currently moved by the maintenance contractors on a measured term contract. The resultant inflexibility of floor boxes results in an increase in floor cables stretching from boxes to desk layouts. Problems have also been highlighted regarding lack of co-ordination of space planning moves and subsequent moves of floor boxes. The maintenance contractors are increasingly required to move wrongly positioned floor boxes following move

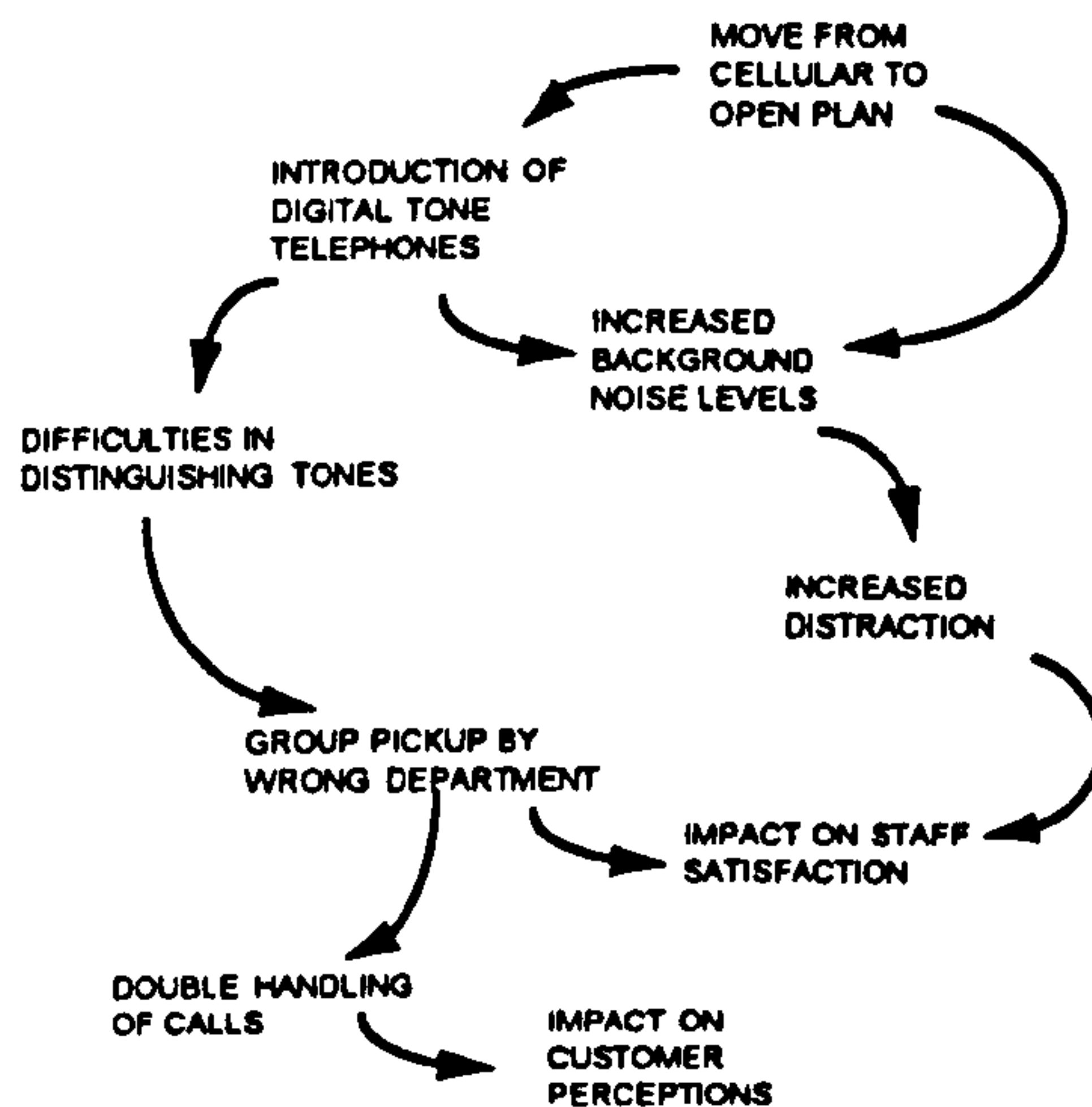
management. This results in repeat work. Improved co-ordination during move management would alleviate this problem. (see also record updating i3)

Recommendation c4

Telephones

Investigate the possibility of partial introduction of key and lamp system telephones to reduce noise levels.

Pattern Model c4



Interpretation and Context

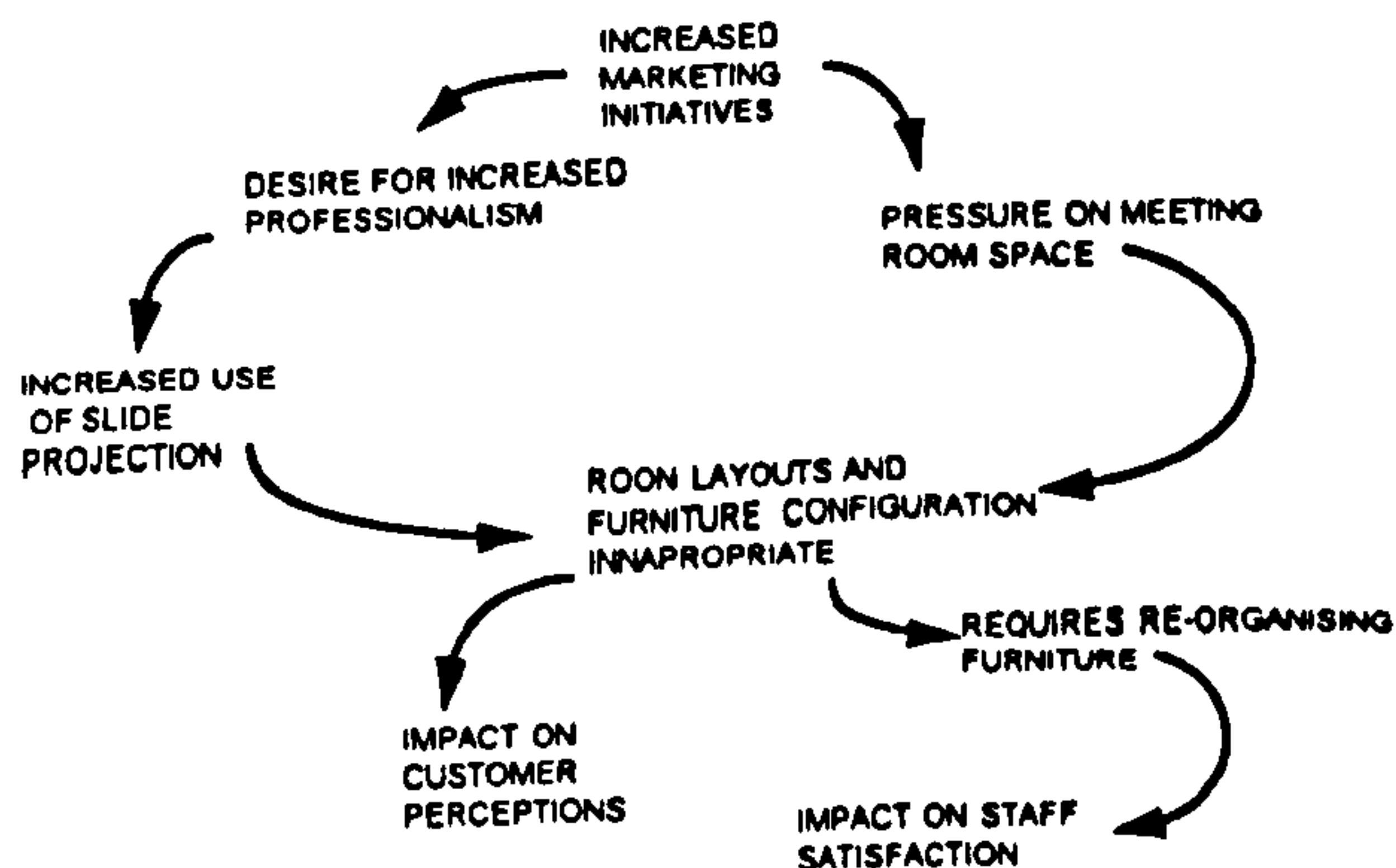
The traditional phones used within government departments were fitted with lamps such that ringing phones could be switched to lamping mode only. Given that the majority of space is open plan the suggestion that a partial re-introduction of such phones, (or their modern equivalent) would reduce background noise levels.

Recommendation c5

Conference rooms

Investigate the possibility of the introduction of more flexible meeting/conference room layouts to accommodate screen presentations.

Pattern Model c5



Interpretation and Context

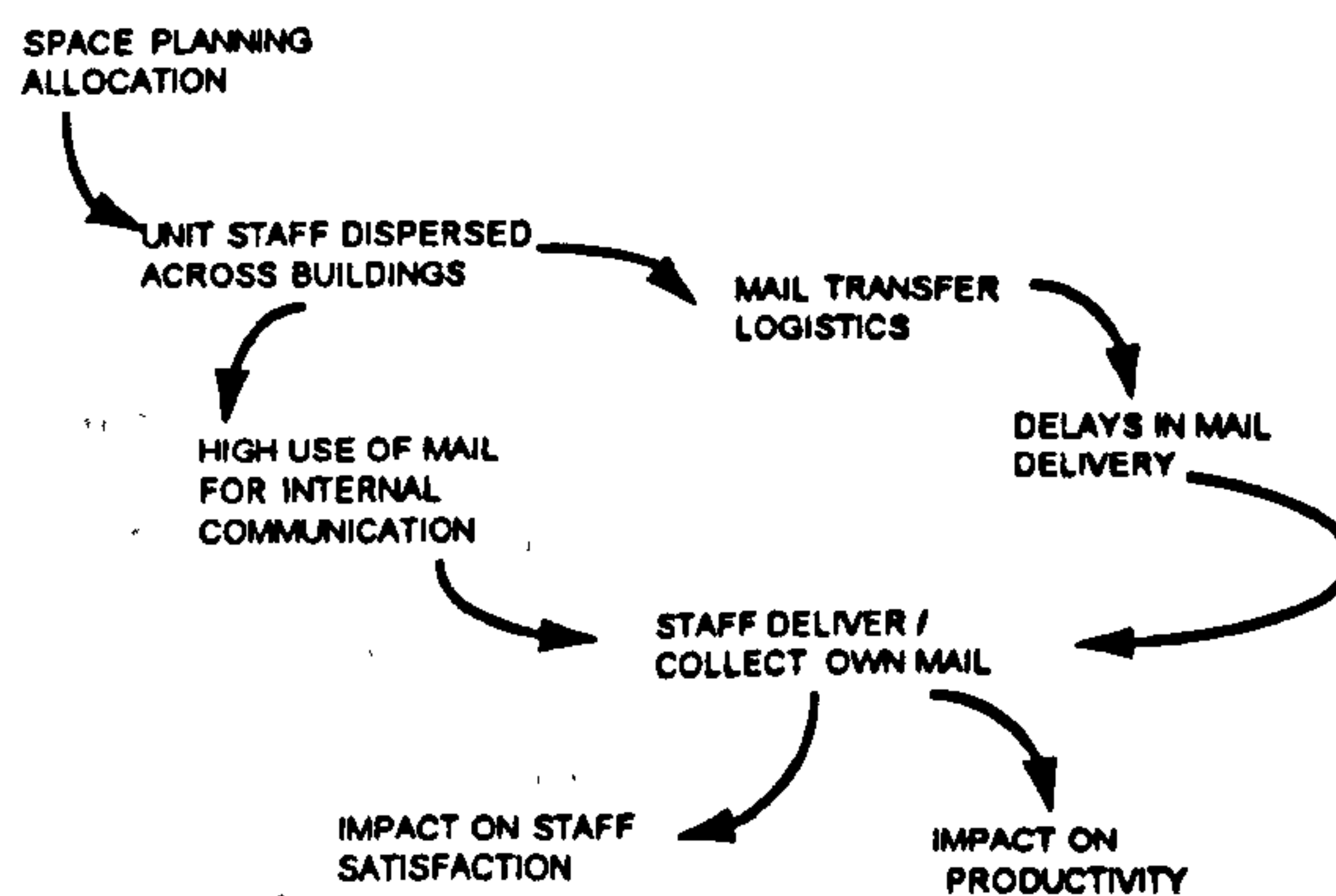
The increased use of meeting rooms for marketing is such that there is a desire for slide projection. The existing room layouts generally consist of central tables with chairs. Whilst often fitted with pull down screens for overhead projection, they are not ideal. Their use necessitates a furniture move to accommodate more people for formal presentations as distinct to discussions. The existing spaces themselves are less flexible than desired in this respect. The suggestion was that either existing spaces could be more flexible in terms of furniture layout derivations or that additional space suitable for presentation purposes could be identified.

Recommendation c6

Internal communications - Mail transfer logistics

Is mail transfer between buildings in the quickest and most efficient manner possible (particularly between Kingsgate and Ashdown)?

Pattern Model c6



Interpretation and Context

The existing mail transfer between Kingsgate House and Ashdown House immediately opposite goes through the messenger mail system. This requires, following sorting, mail for all London DTI buildings going into a van which then circulates between the buildings. There is a high degree of contact between many of the divisions in Kingsgate and Ashdown. In many cases departments are split between the two. The logistic of van delivery are such that it can take two hours for mail to arrive between the two. Staff aware of this tend to deliver

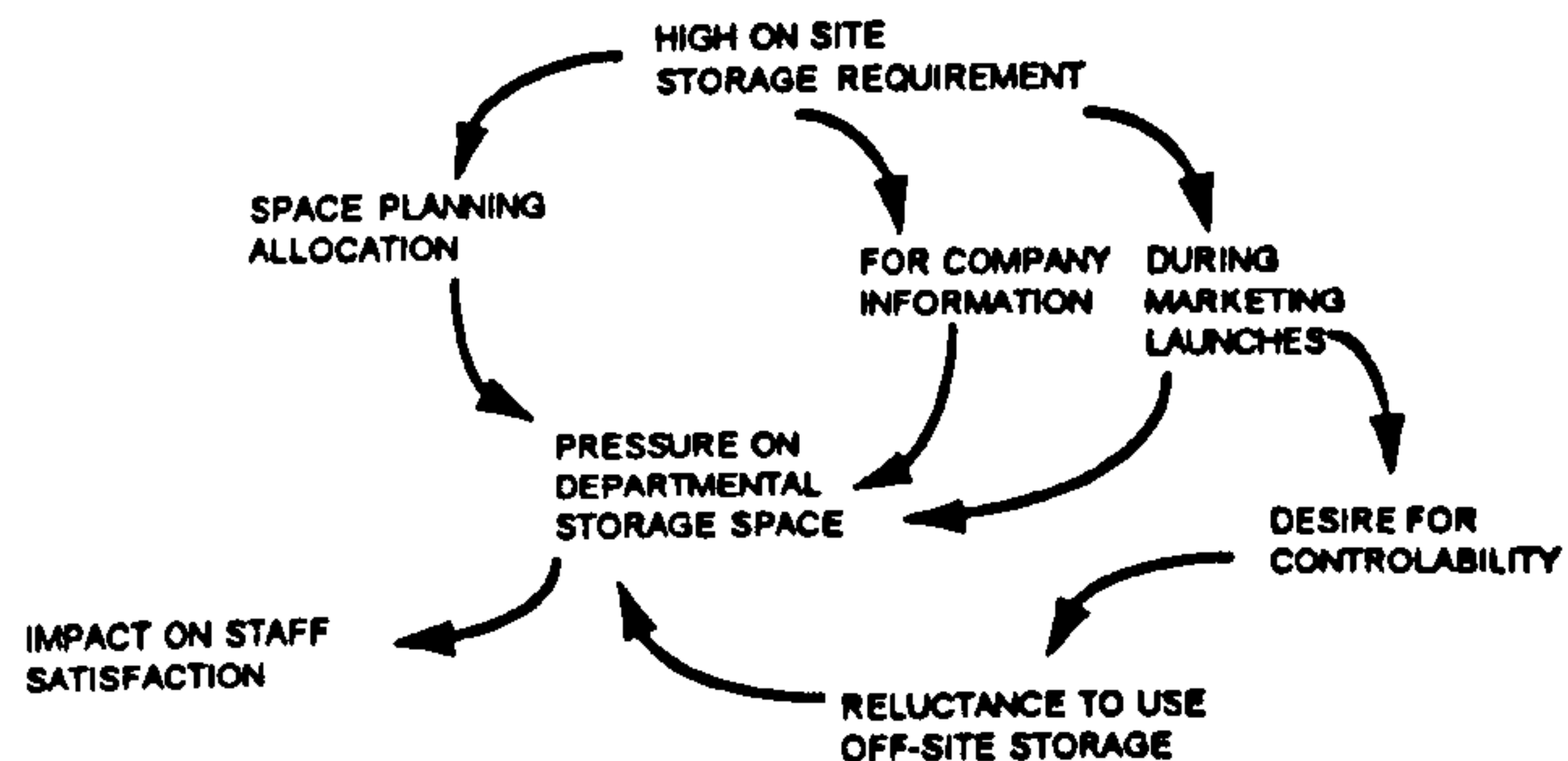
or collect mail personally rather than wait for the system. The suggestion that mail transfer logistics could be reviewed with a view to possibly include a dedicated service between Ashdown and Kingsgate would improve internal communications between divisions split across the two buildings, whilst increasing core staff productivity levels.

Recommendation c8

Storage - departmental

Considerations should be given to the provision of a dedicated room for bulk storage of distribution materials (marketing)

Pattern Model c8



Interpretation and Context

The various divisions within Kingsgate House generally have high levels of storage needs. The trade divisions, for example, are required to keep information on UK and overseas companies, company accounts and trade literature. In addition during marketing initiatives, prior to launches, large amounts of distribution materials have to be stored within the building for collation, addressing and distribution. Central storage facilities within Kingsgate are limited. As a result bulk storage of distribution materials is often held at workplace level until launch dates. Whilst there is both a desire and a tendency to use direct distribution services by third parties, there is a degree of reluctance to do so for fear of loss of control and inability to collate. Whilst Individual cupboard space is allocated on the basis of storage guidelines, divisional storage needs assessments have been conducted.

However staff report that such needs assessments are subsequently disregarded. The resulting lack of available storage results in either the need for an outside storage depot perhaps by direct distribution or smaller print runs which results in an increase the overall cost.

The possibility that either messengers could offer an envelope filling service or that agency staff could be appointed on a call of contract for large mail distributions was considered.

7.54 Group D - XAAA, Exports to Asia, Africa and Australasia

This division is responsible for promoting the development and exploitation of UK trading interests throughout the middle east, Africa, Asia and Australasia. Principally a trade promotion division, it also has responsibility for export trading branch which is responsible for the central collection, validation, indexing and storage of trade information, and for making that information available for exporters.

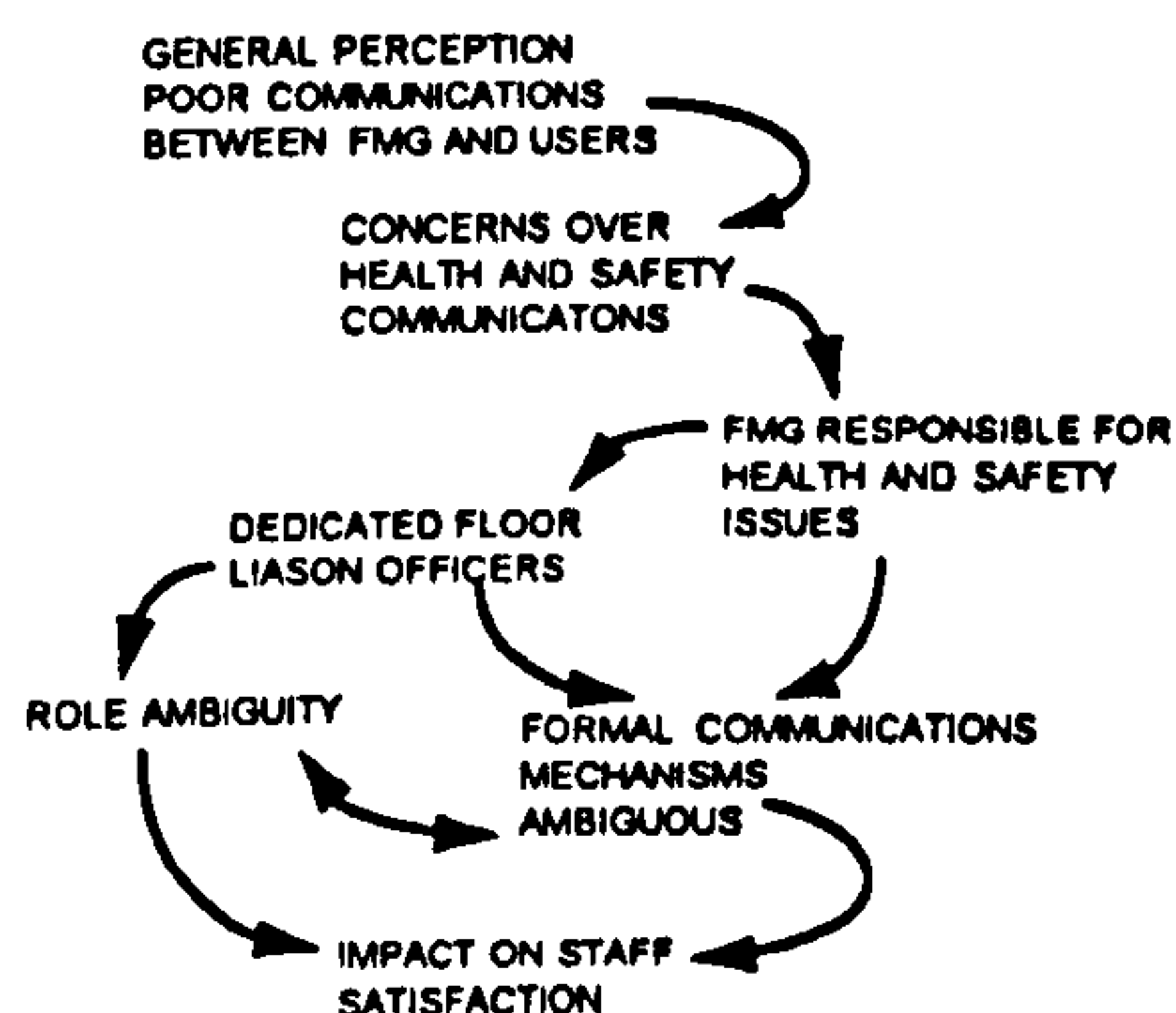
This group represented a fairly broad cross section of staff within the division, however were fulfilling administrative and clerical type functions as distinct to direct marketing roles. Many of the topics generated through the dialogues and subsequent discussion pertained to issues of staff welfare. There were issues suggestive however of perceived inequity about allocation of space and use of lifts. One of the participants had responsibility as a fire warden and used the evaluation to address concerns directly related to his tasks.

Recommendation d1

Health and Safety Communications

Introduce a formal channel of communication whereby users are made aware/updated of health and safety matters in the workplace. For example highlighting initiatives in the DTI staff news.

Pattern model d1



Interpretation and Context

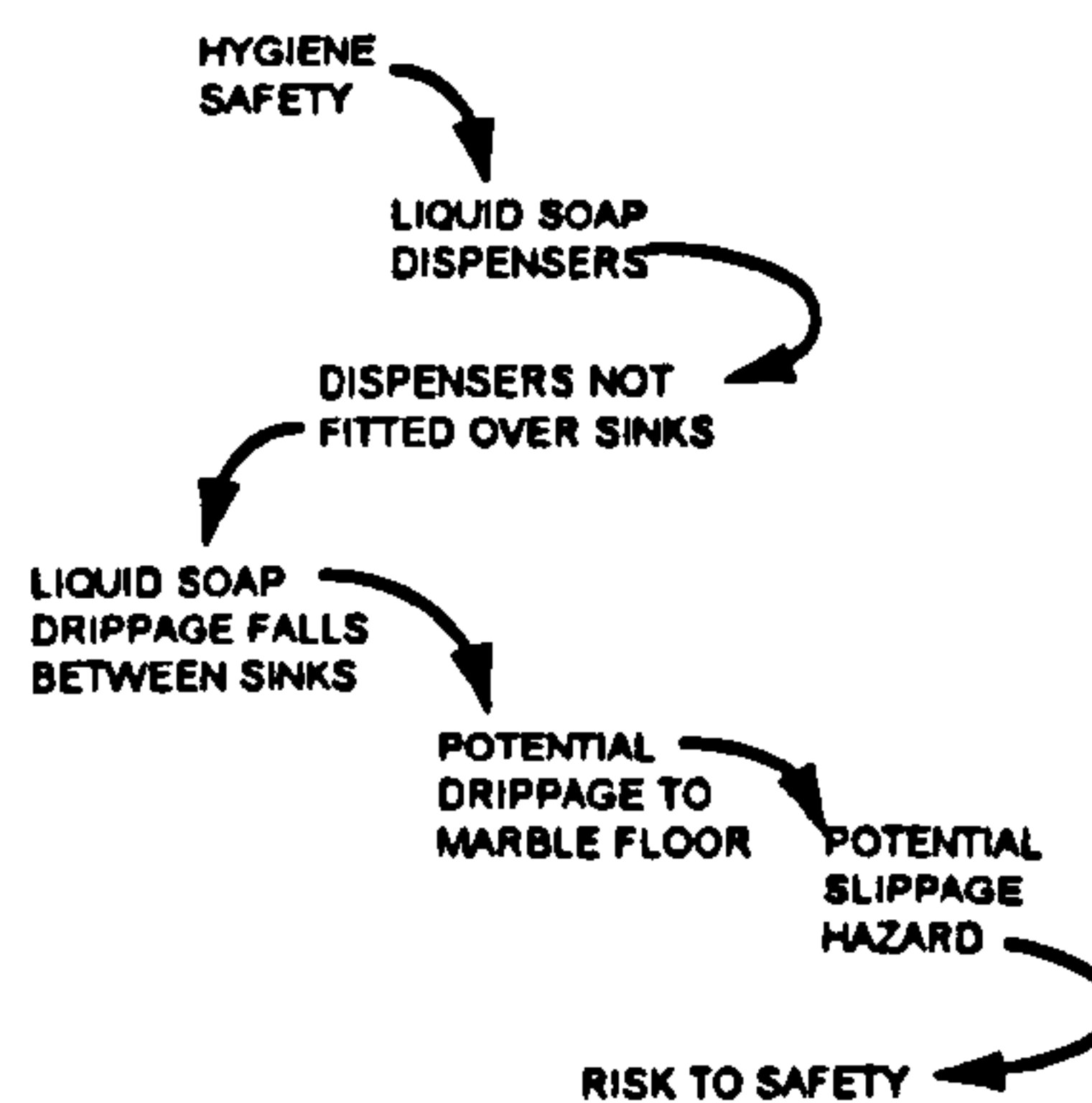
Staff generally felt that communications in the workplace were poor between themselves and FMG who have responsibility for health and safety issues. Whilst each floor has dedicated floor liaison officers, there is little communication from the centre as to roles, responsibilities and initiatives. Staff felt that initiatives and issues concerning their health and safety could be included in the monthly DTI news letter on both local i.e. pertaining to Kingsgate and more general matters.

Recommendation d2

Health and Safety - slippage

Liquid Soap dispensers in (all) toilets should be fitted over sinks such that soap does not drip onto marble floors causing potential slippage hazard.

Pattern Model d2



Interpretation and Context

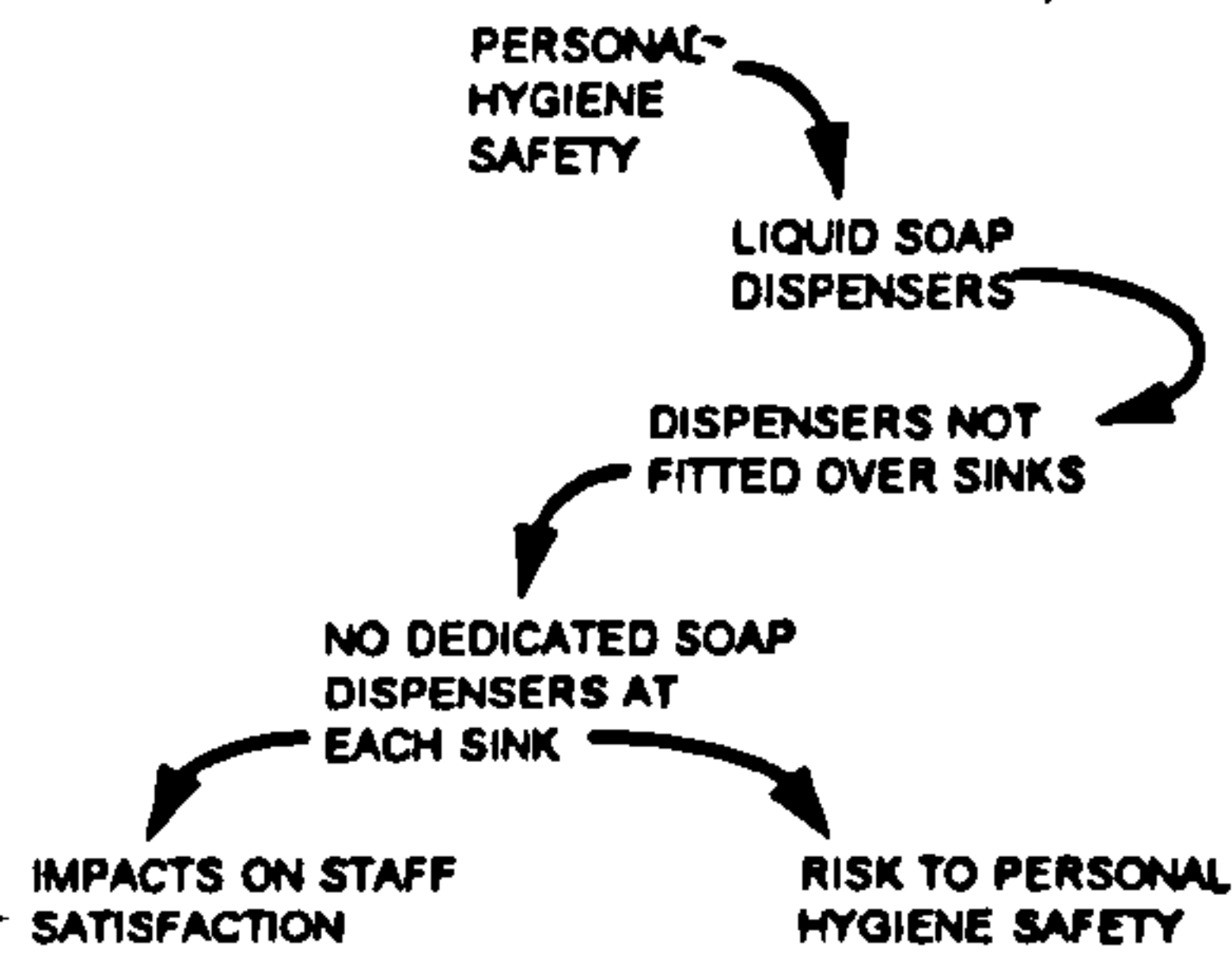
At present washing facilities in toilets are fitted with large mirrors behind individual inset sinks. Liquid soap dispensers are fitted between mirrors, rather than on mirrors in which case they would be over sinks. Dripage from the soap dispensers lands between sinks onto the worktop and can run onto the marble floor, causing a slipping hazard. Whilst fitting dispensers on mirrors may not be desirable perhaps smaller mirrors would suffice allowing dispensers to be fitted to tiled area.

Recommendation d3

Health and Safety - Hygiene

Each sink should be fitted with its own soap dispenser for general hygiene purposes.

Pattern Model d3



Interpretation and Context

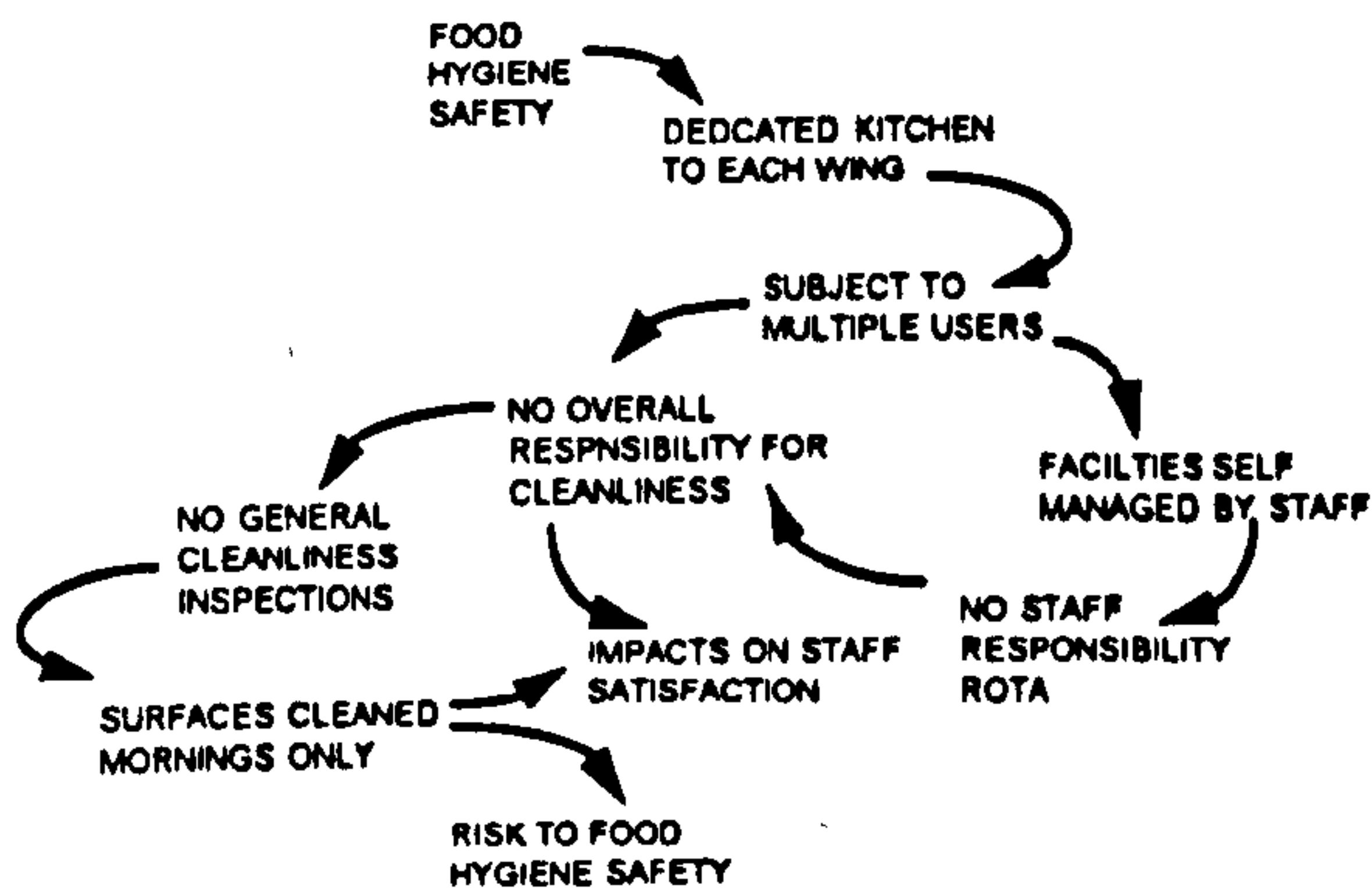
Following on from the previous point as dispensers are between sinks, not all are provided with a dedicated dispenser.

Recommendation d4

Health and Safety - Food Hygiene

Introduce a midday inspection procedure by cleaning staff to departmental tea points. Implement daily cleansing regime to tea points.

Pattern Model d4



Interpretation and Context

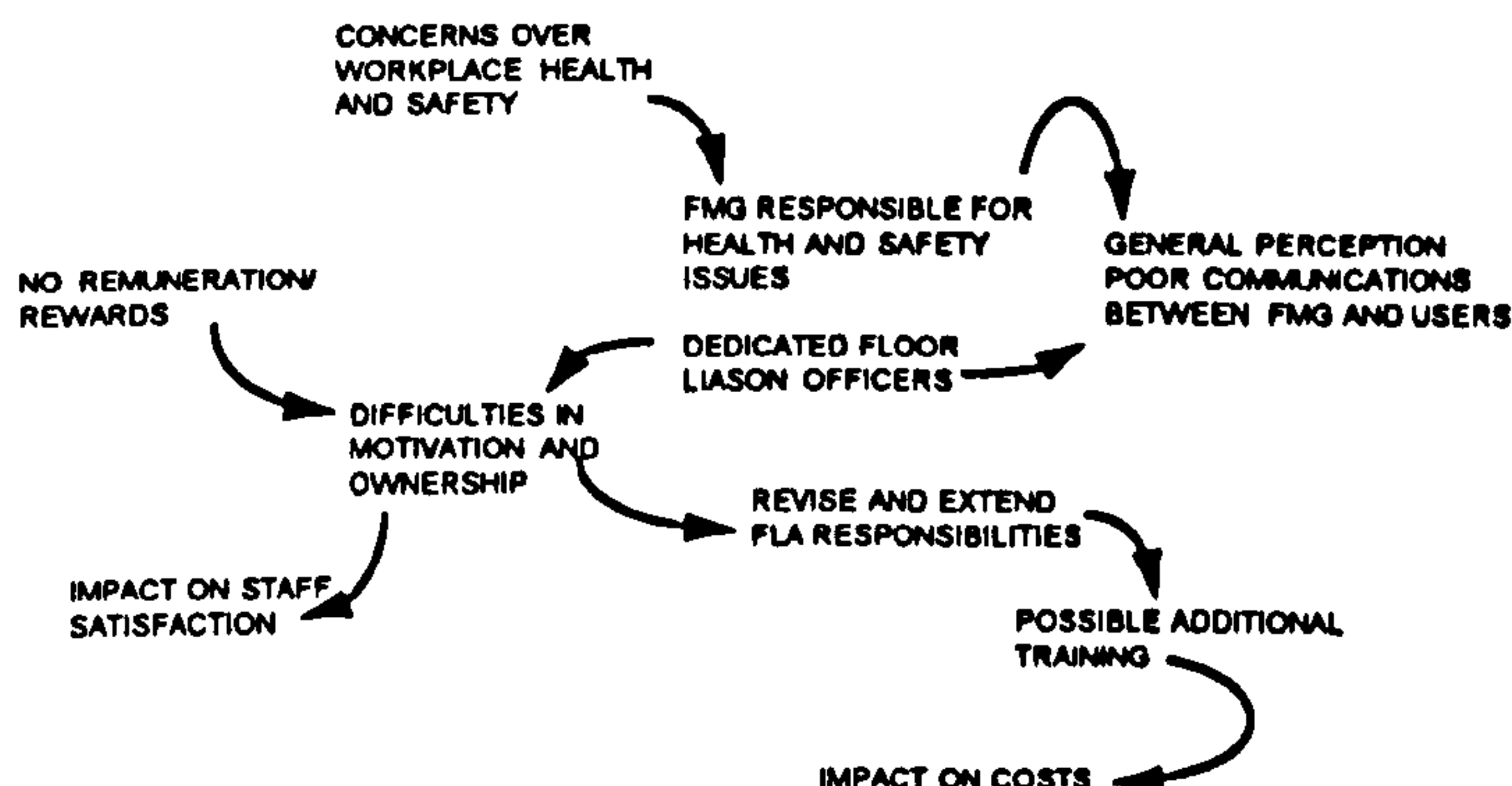
Each floor wing has a dedicated small kitchen as a tea making facility. The tea points which include fridges are essentially self-managed by staff. They often service several departments on the same wing. Whilst work surfaces are cleaned in the morning, there is no midday cleaning conducted. As these are subject to use by many users, cleanliness is dependant upon the individual. However, no-one takes responsibility for general cleanliness. Introduction of a routine inspection followed by any necessary cleaning would ensure general cleanliness.

Recommendation d5

Health and Safety - Fire Safety

Review and revise floor liaison officer duties to include regular local area inspections i.e. fire door operation, IT safety etc.

Pattern Model d5



Interpretation and Context

The dedicated floor liaison officers could fulfil a role as fire warden on each floor. The proposal suggested by staff was that the responsibilities of floor liaison officers could be reviewed with a view to general workplace health and safety on a floor by floor basis. Given that this task is in addition to the principal tasks of staff, with no additional remuneration, it may be possible to offer additional training of such staff so that they are aware of general safety issues. Such an activity could be marketed so that they become members of a

club or committee and feel some sense of ownership and responsibility for their duties.

Recommendation d6

Environment

FMG should investigate the possibility of local environmental controls of heating lighting and ventilation.

Pattern Model d6

Refer to pattern models b10 and b11

Interpretation and Context

This issue has been discussed above.

Recommendation d7

Workstation layouts

The introduction of additional power boxes would improve workstation flexibility and cable safety and management.

Pattern Model d7

Refer to pattern model c3

Interpretation and Context

This issue has been discussed above.

Recommendation d8

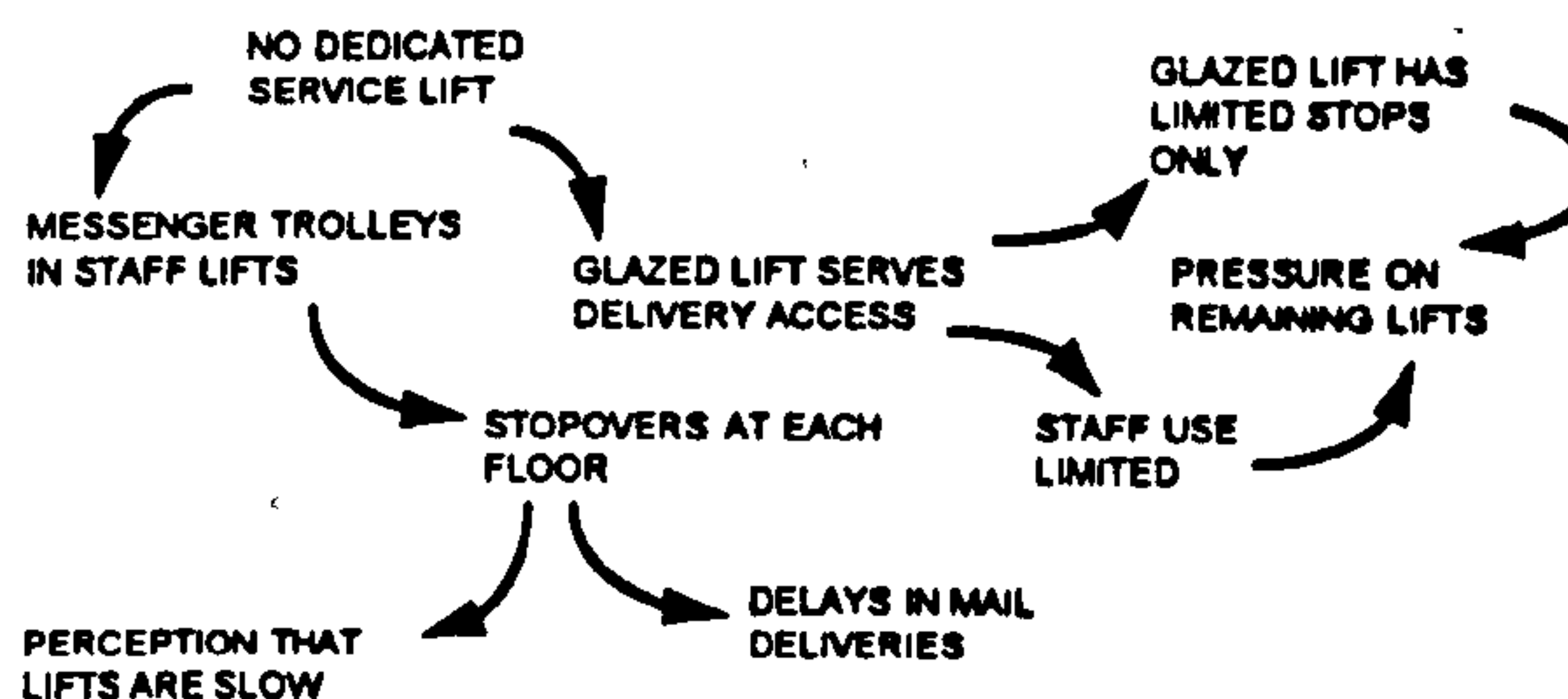
Lifts

Consideration should be given to dedicating one lift as a service lift (for messenger and delivery services).

Examine volume and frequency of users of BOTB lift.

Can existing lifts be speeded up?

Pattern Model d8



Interpretation and Context

This point generally relates to the times taken for delivery of mail throughout the building. There is a general consensus that the lifts are slow which is highlighted by the fact that the glazed lift which services the BOTB services only a three floors. The group felt that lifts could be speeded up, and questioned the logic of the logic of the lift controller. The BOTB lift is reserved for high ranking officials of the Board of Trade who have offices on the ninth floor, and the small number of staff at that level. The lift only stops on the first, eighth and ninth floors much to the consternation of staff waiting for lifts to other floors. The lift stops at the eighth floor to collect mail for delivery to the ninth. Whilst it is possible to get from the eight to the ninth with mail via stairs, it is something of a circuitous route, and obviously difficult with trolleys. Despite this, individuals using the dedicated lift to the ninth floor do not like having to stop at the eighth and sharing the lift with messengers and trolleys.

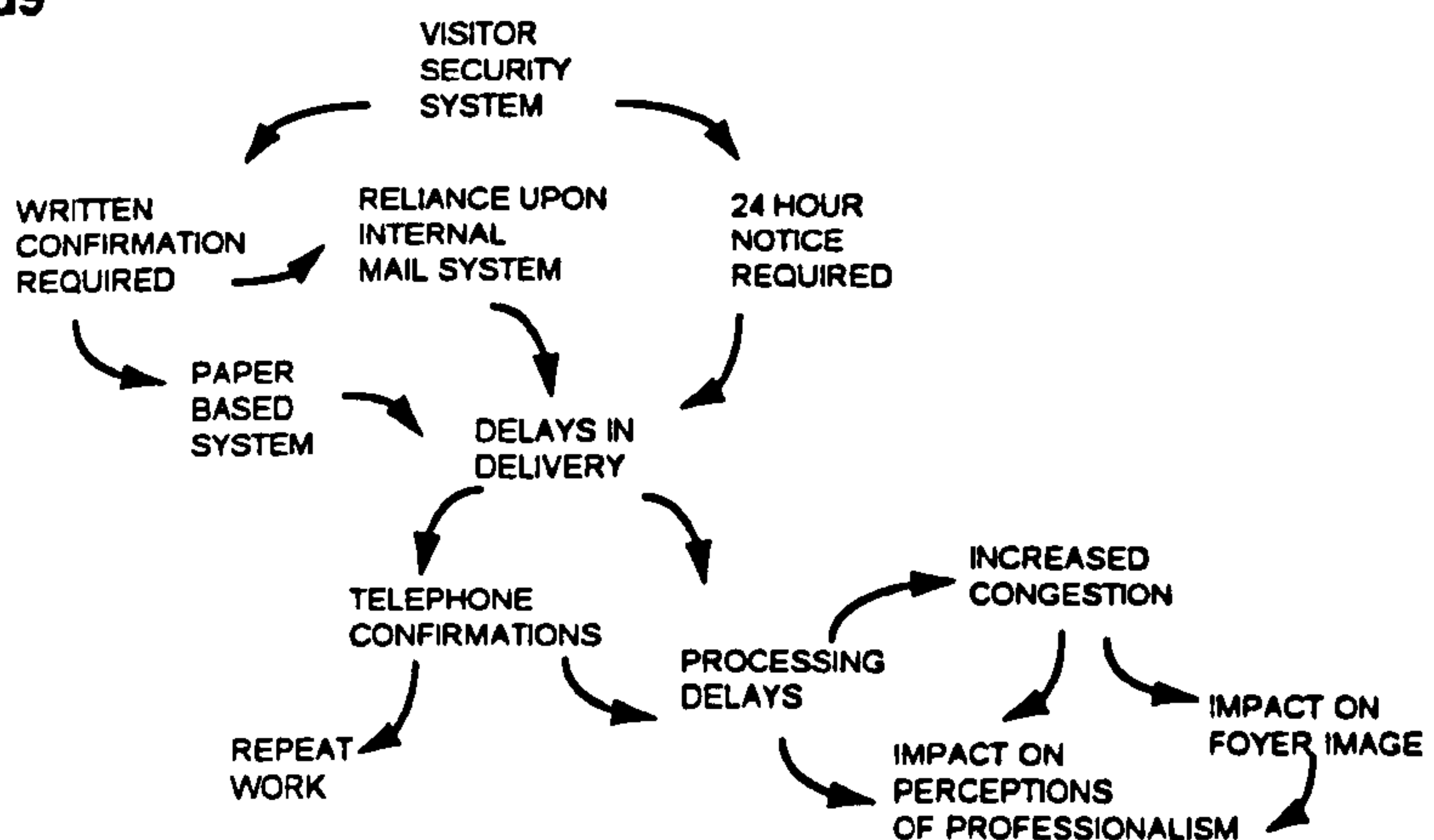
All messenger and delivery services use any lift available. There is no dedicated service lift, there is a perception however that if one were provided the general lift banks would operate more efficiently as service lifts for messenger services, for example, generally travel on a single floor to floor basis. A further problem pertaining to lifts is that the delivery access is to the rear of the building necessitating the use of the dedicated BOTB lift, (see also below).

Recommendation d9

Reception / Foyer

Review notification procedure for the issue of visitor passes with a view to introducing greater flexibility (i.e. acceptance of telephone notifications) and response time to notification generally (i.e. less than 24 hours).

Pattern Model d9



Interpretation and Context

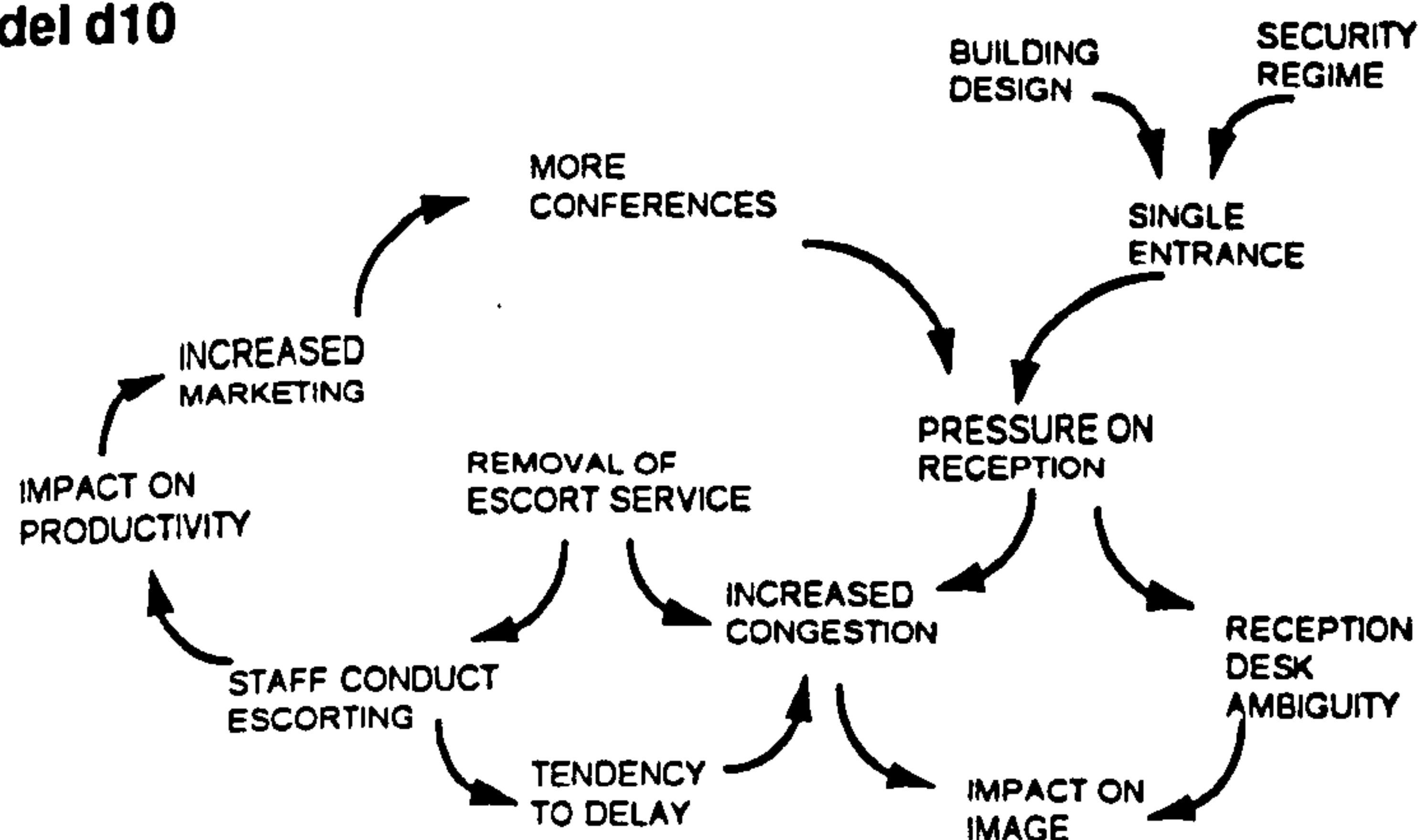
This point has been explored above.

Recommendation d10

Escort Services

Consideration should be given to the deployment of a central escort resource(s) for escort duty during conferences.

Pattern Model d10



Interpretation and Context

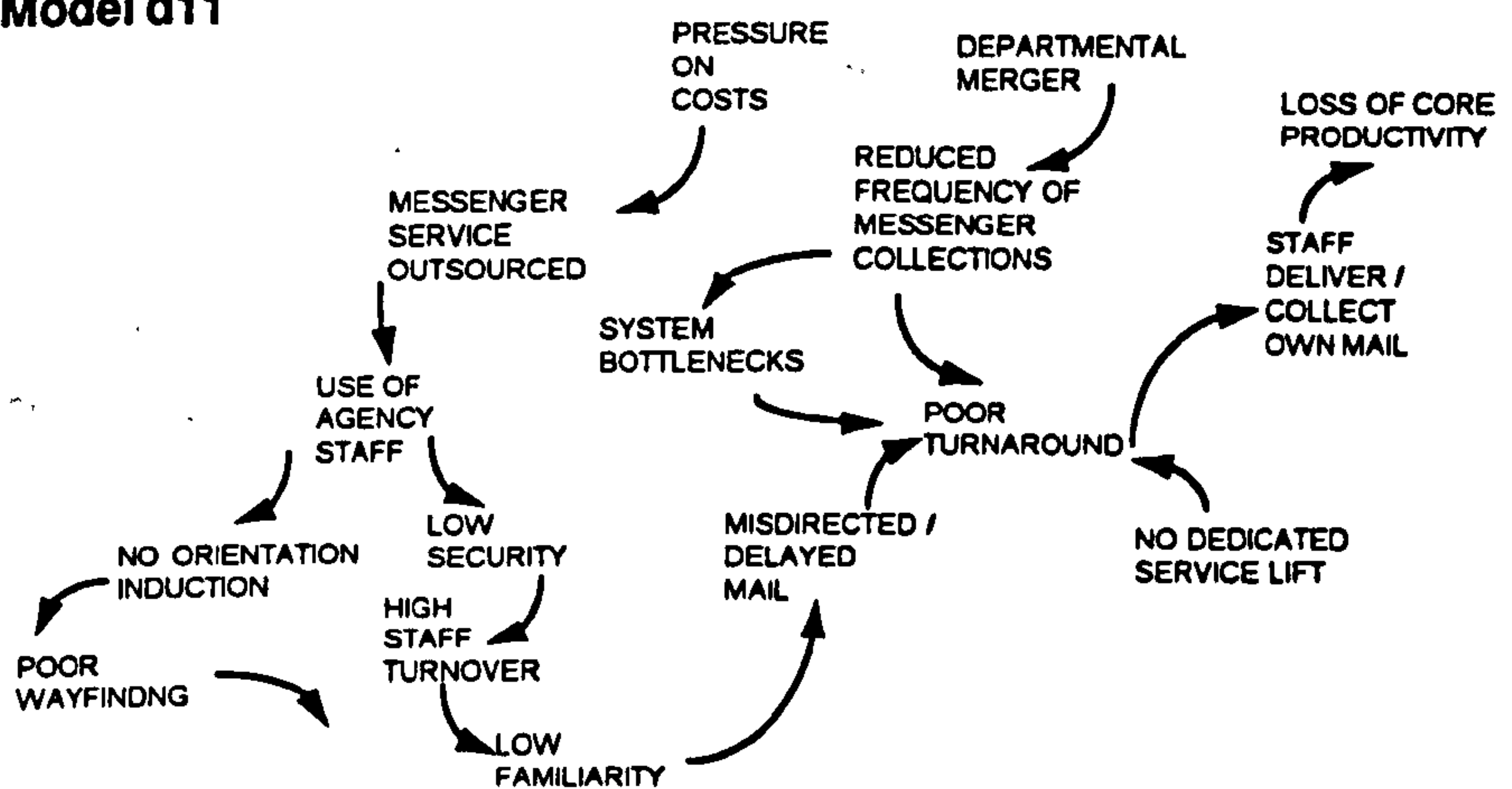
This point has been explored above.

Recommendation d11

Messengers

Review the current messengerial service with a view to service design consistent with the common needs of user groups. (more frequent and responsive).

Pattern Model d11



Interpretation and Context

This point has been explored above.

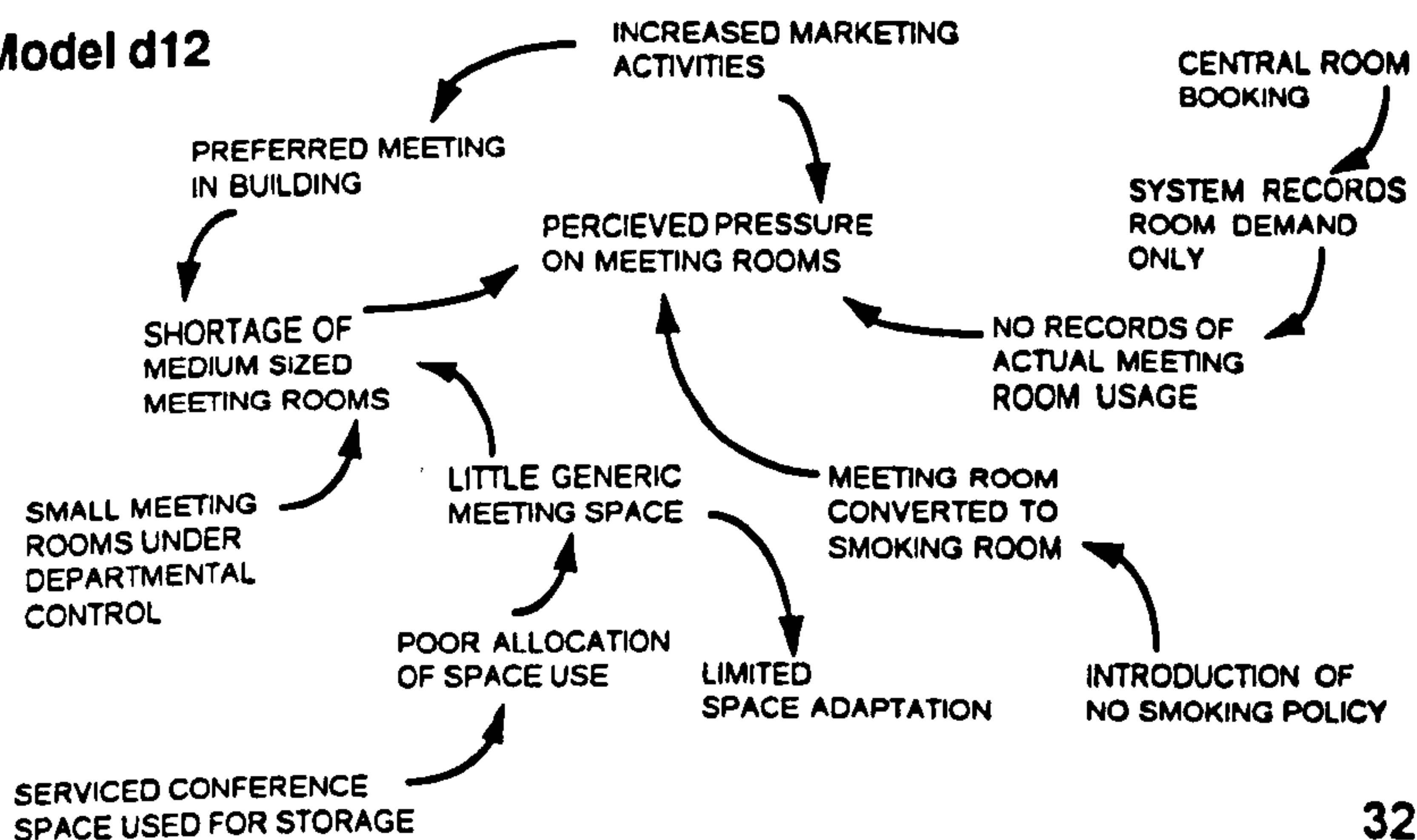
Recommendation d12

Meeting rooms

Review the possibility of identifying spaces (within Kingsgate) readily capable of temporary adaptation to meeting rooms to cope with impromptu demands for space (short notice).

FMG should conduct a space utilisation survey to identify the frequency and intensity of space usage.

Pattern Model d12



Interpretation and Context

This point has been explored above, the suggestion has been extended however to include a study not only of space utilisation but identification of generic space capable of conversion to meeting room use at short notice.

Recommendation d13

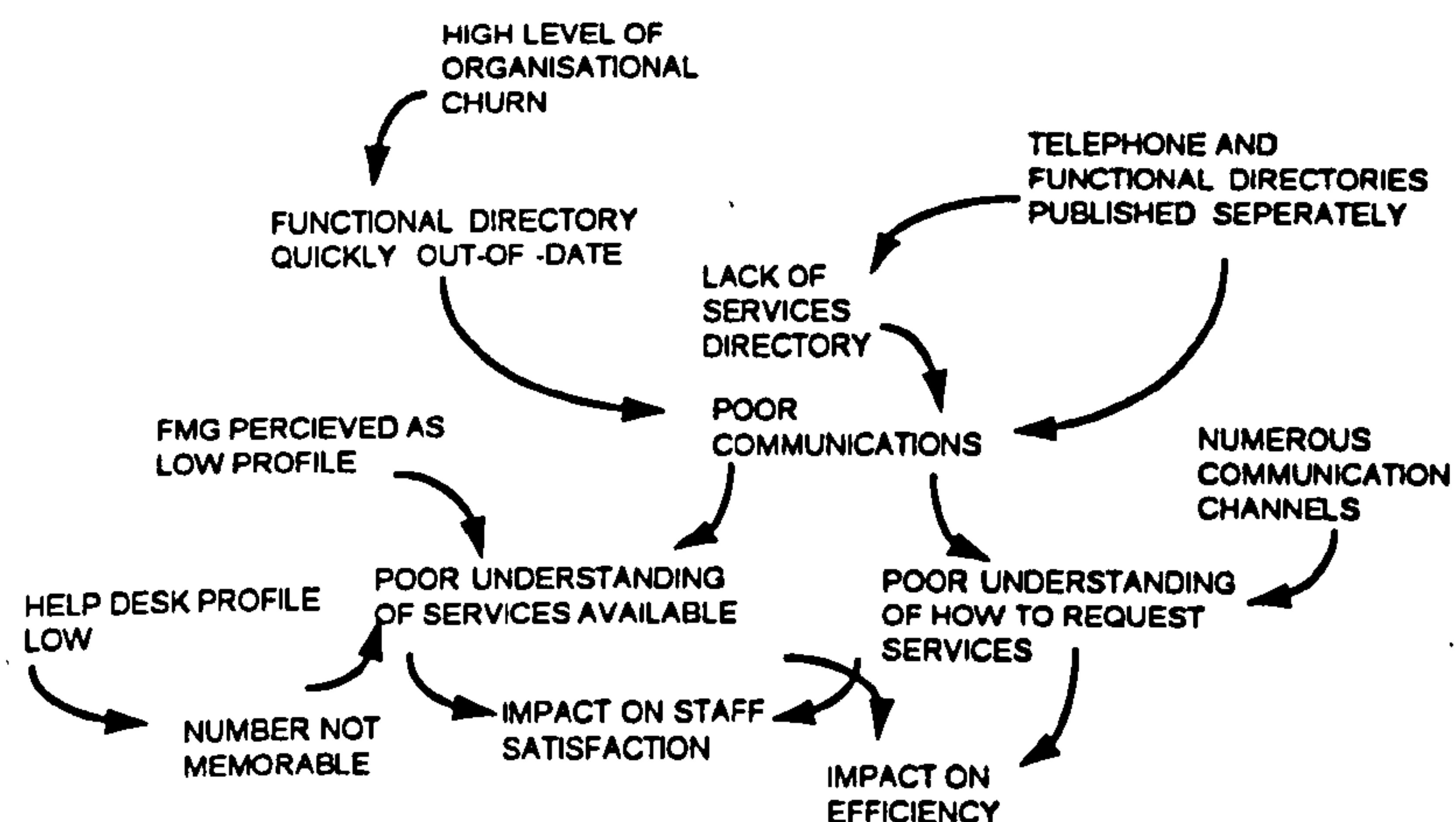
Communications - FMG

FMG should consider raising its profile and publicising its service to customers by:-

- introduction of an introductory leaflet which clarifies responsibilities, structure and emergency contact points.

- Thereafter convey news on facilities related issues affecting users through the DTI staff news.

Pattern Model d13



Interpretation and Context

This recommendation relates also to those regarding the introduction of a service directory. Staff consider that Facilities Management Group does not market or communicate services particularly well. Information currently provided resides in number of formats from memorandum posters, functional directories and general fliers. The introduction of a single page perhaps laminated could include basic guidelines on service provision such as help desk emergency contacts, names and numbers. Information on specific facility related items could be included in the DTI news, again this mechanism exists but does not appear to be utilised. Whilst all inquires are intended to go through the help desk, it was felt that the profile required to be raised. The

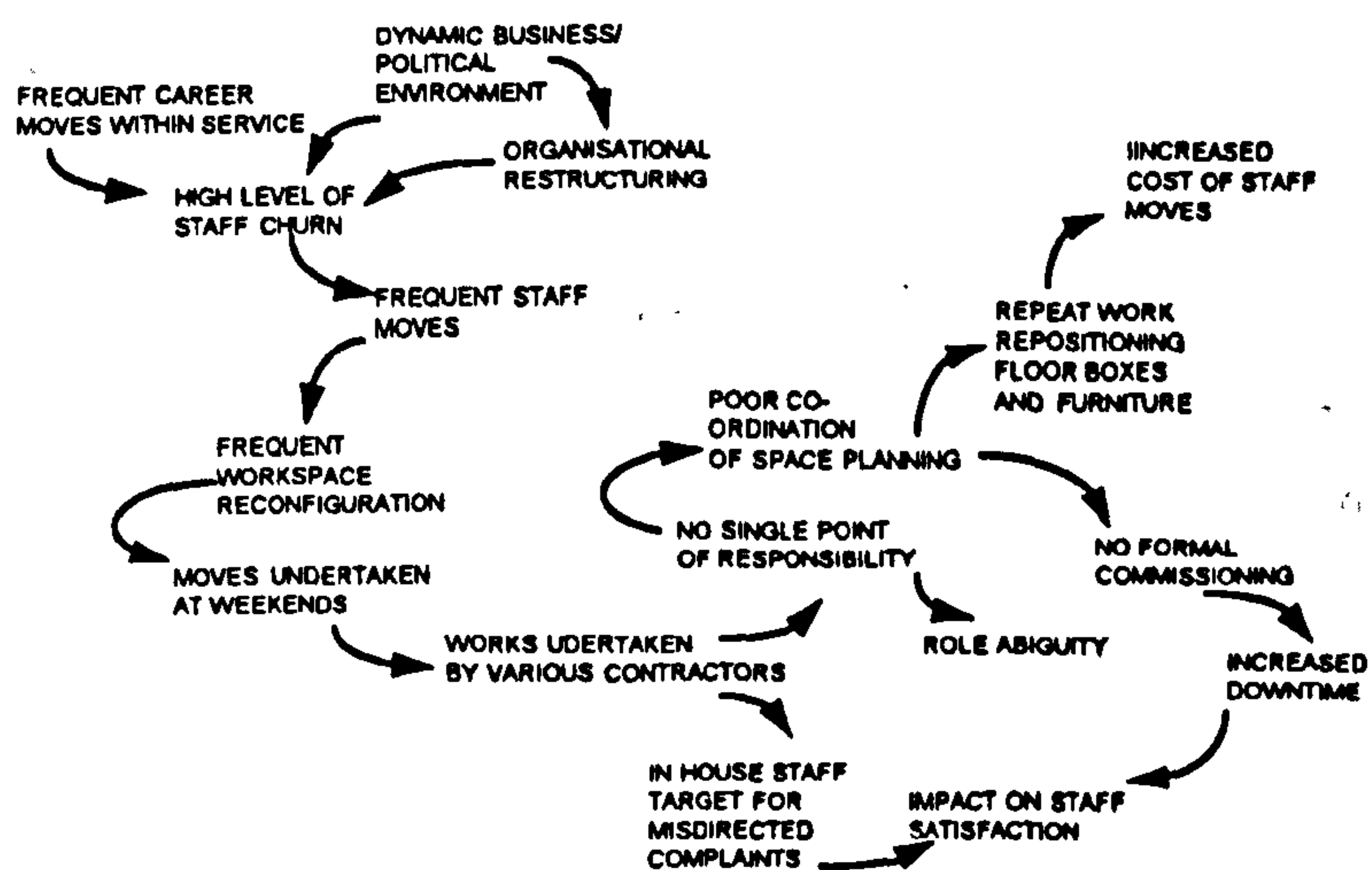
number is not considered to be particularly memorable. management suggest that they attempted to obtain a more memorable number but could not.

Recommendation d14

Move co-ordination

Given the frequency of accommodation moves, re-examination should be made of the deployment of human resources during implementation stage, (particularly for co-ordination and supervision of execution during moves).

Pattern Model d14



Interpretation and Context

This point relates to move co-ordination and supervision. As stated, there is a particularly high degree of office churn. Most moves take place over the weekends and are contracted to a number of companies to manage on a project basis, including separate electrical, portering, and partitioning companies. The in-house staff are generally familiar with organisational needs and work processes but are not allowed to tender for such works for audit reasons.

There is invariably no single point of responsibility for co-ordinating office moves. Issues raised include desks wrongly positioned as plans were read upside down. Failure to reposition floor power boxes, staff being required to shift own crates, drawers changed staff 's own keys not fitting etc. There was a perception that there does not appear to be enough human resources available to assist in moves. The lack of supervision has resulted in significant productive downtime for staff following moves. The suggestion was that a dedicated supervisor should co-ordinate moves and effectively commission

works prior to the Monday morning. This could be either professional move planners or a member of staff to effectively take handover.

In-house maintenance staff and porters increasingly find that they are blamed for poor move management despite the works having been conducted by external contractors. Porters find that they have to clean up general debris and rubbish on Monday mornings following moves. Similarly maintenance staff have general productive downtime snagging works.

7.55 Group E - SMD 3 Service Management Division and RD Regional Development

This combined grouping included representatives from SMD3 which is the management support unit and RD, regional development division. SMD3 coordinates activities delegated to support grades including grade development schemes. This is primarily a personnel function. RD is responsible for general regional industrial policy, industrial development and funding and the provision of advice to regional centres.

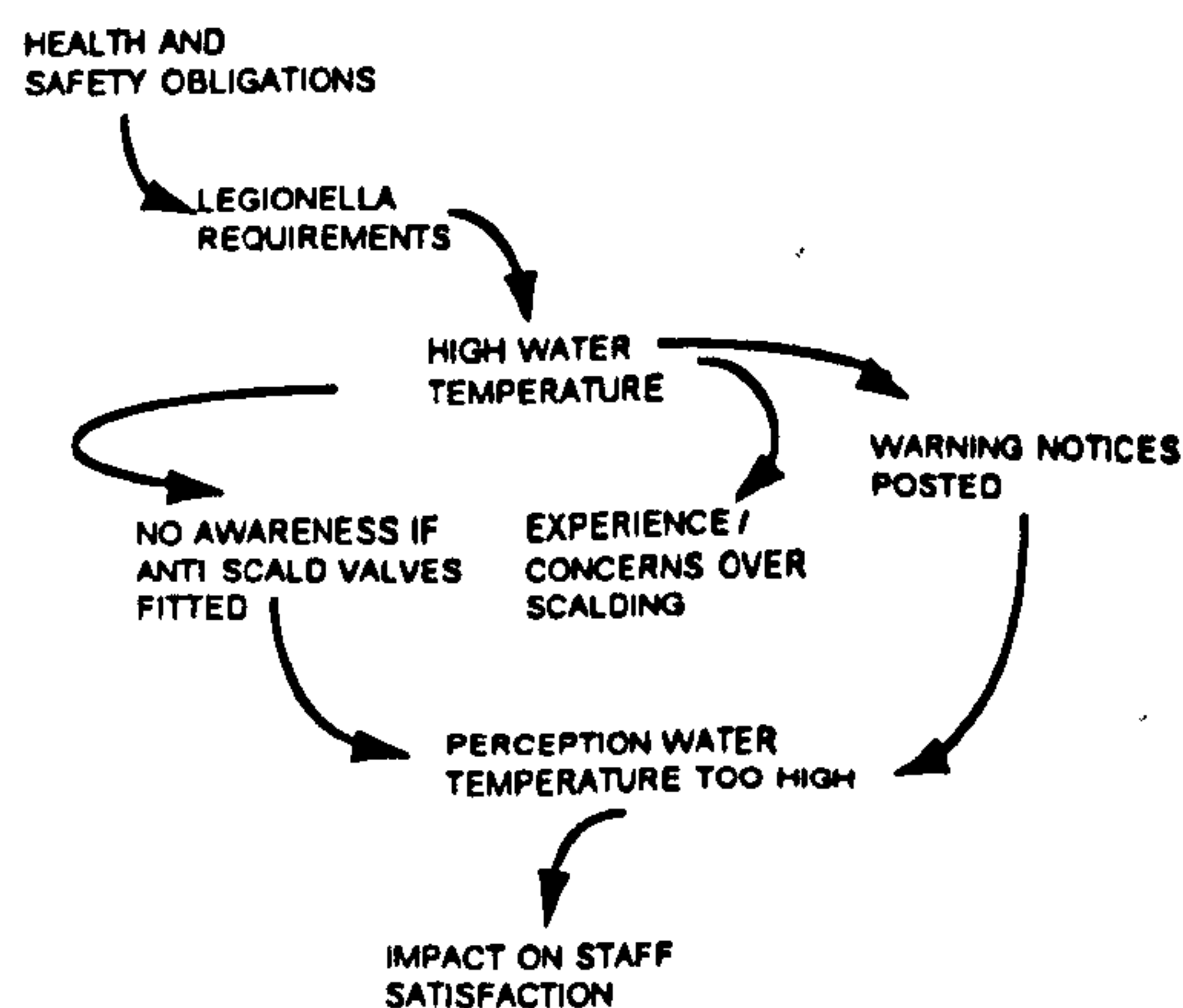
This group represented a good cross section of grades within the divisions. Whereas SMD is a support function RD are involved in marketing activities. The recommendations generated by the groups addressed workplace issues from a personal perspective and from an external client perspective.

Recommendation e1

Health and Safety Toilets and Teapoints

Temperature of hot water taps should be reduced subject to meeting statutory requirements. - existing water temperature is too high and can cause scalding.

Pattern Model e1



Interpretation and Context

Water temperature throughout the buildings distribution points are high. Despite the need to avoid Legionella, there is a general perception that the water temperature is too high. Whilst warning notifications are posited at draw-off points, it is not clear whether anti-scald valves have been fitted.

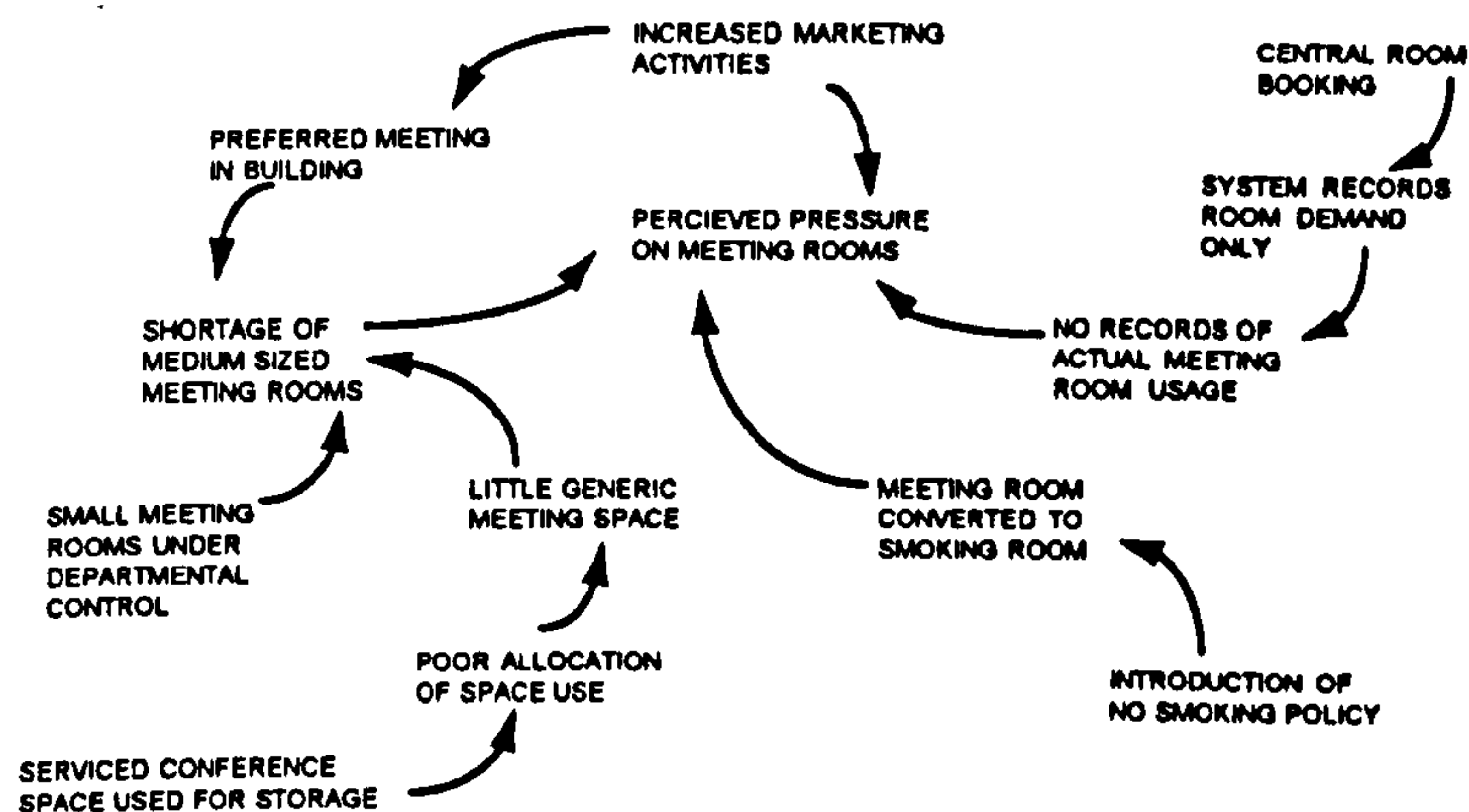
Recommendation e2

Conference rooms

An adequate supply of medium sized (20-30 person) meeting rooms should be maintained within Kingsgate house.

- *Meeting room recording system only records actual bookings not demand.*
- *Meeting room space available has been reduced. (e.g. through the introduction of smoking room).*

Pattern Model e2



Interpretation and Context

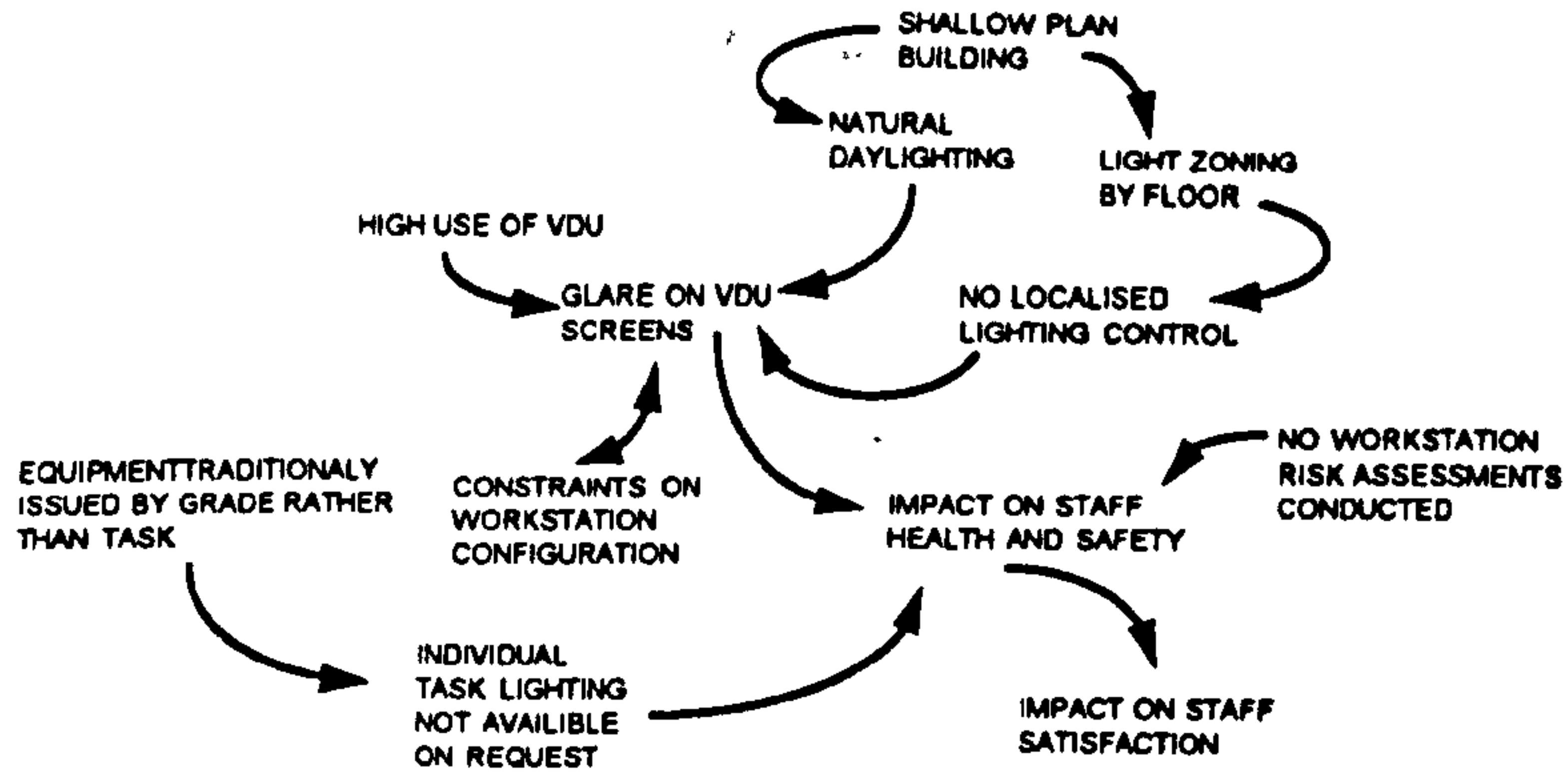
This point has been explored above. In addition to the recommendation statement, this focus group wished to draw attention to the fact that the true picture of meeting room usage is not known as the system does not record actual usage, for example, cancelled meetings, nor does it record actual demand for which provision is not made available centrally.

Recommendation e3

Lighting

Consideration should be given to the provision of desk lamps on demand.

Pattern Model e3



Interpretation and Context

This issue has been explored above and related to both local environmental controllability and the provision of equipment based on task rather than grade.

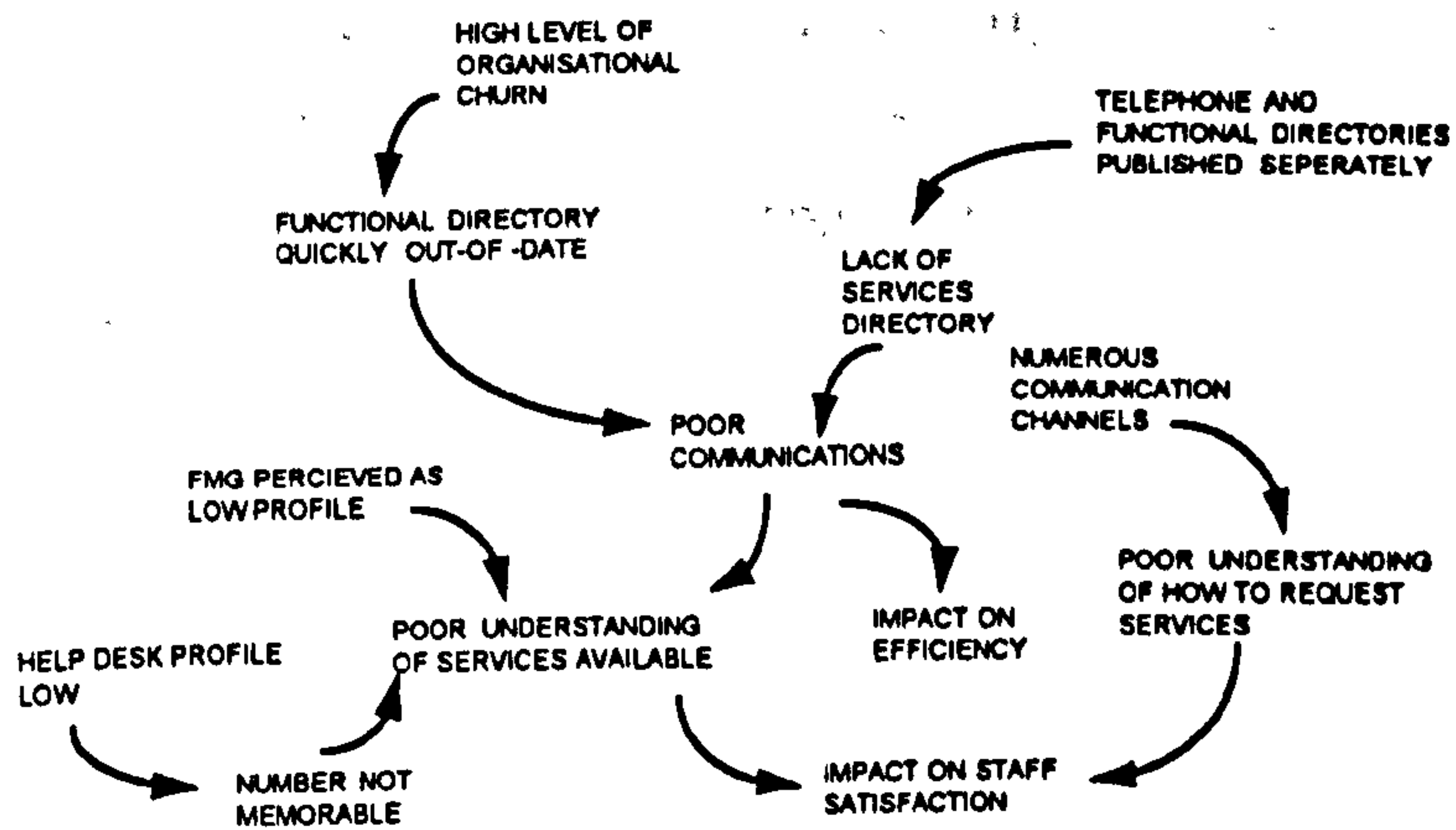
Recommendation e4

Communications

The Help desk service should be more effectively marketed.

Help desk telephone number should be changed to one that is more memorable.

Pattern Model e4



Interpretation and Context

These two recommendations have been explored above

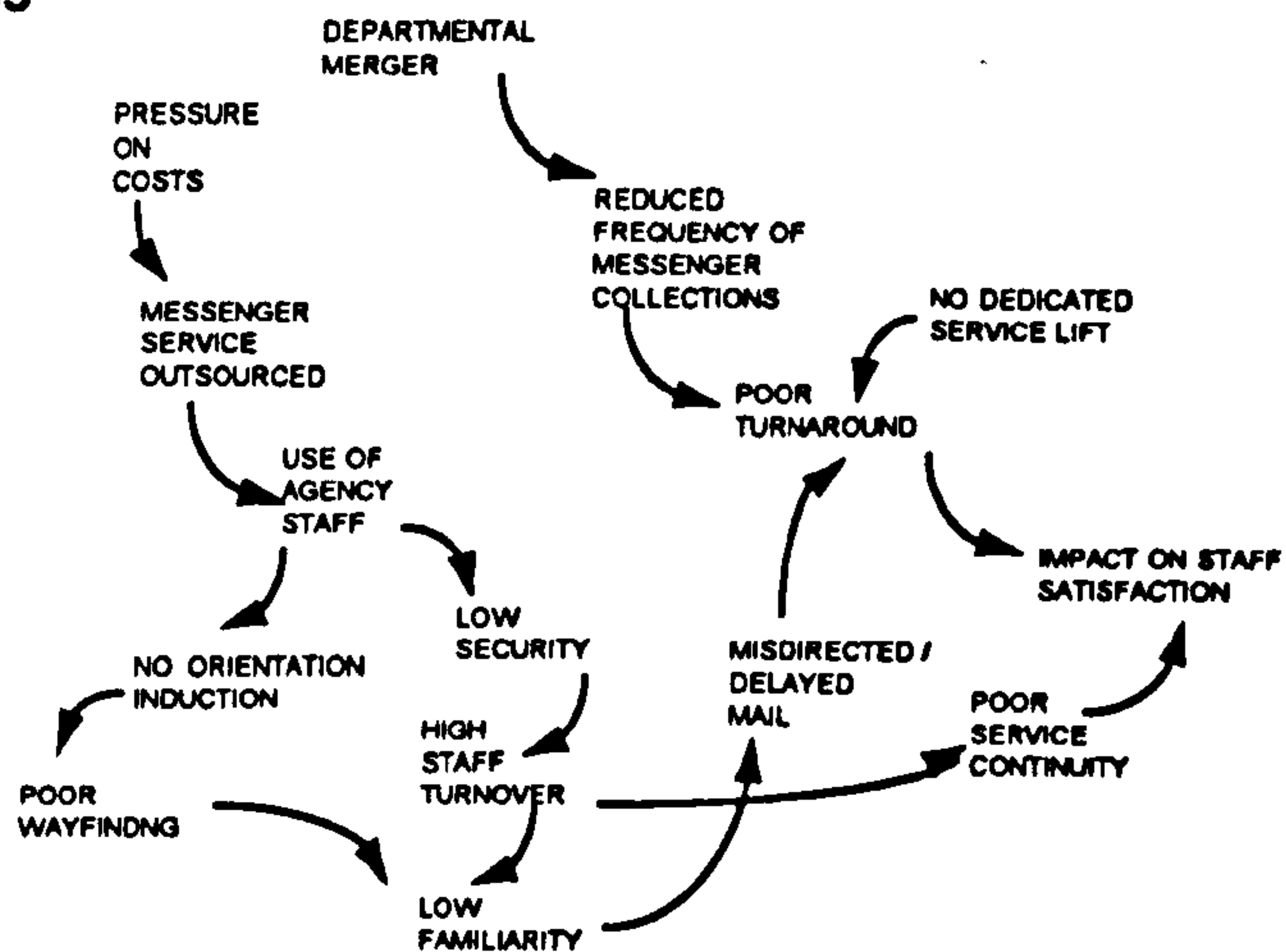
Recommendation e5

Messengers

Misdirected mail - Review the possibility of building incentives to messengers (agency staff) to reduce staff churn.

Consideration should be given to the introduction of induction/familiarity training for messenger staff.

Pattern Model e5



Interpretation and Context

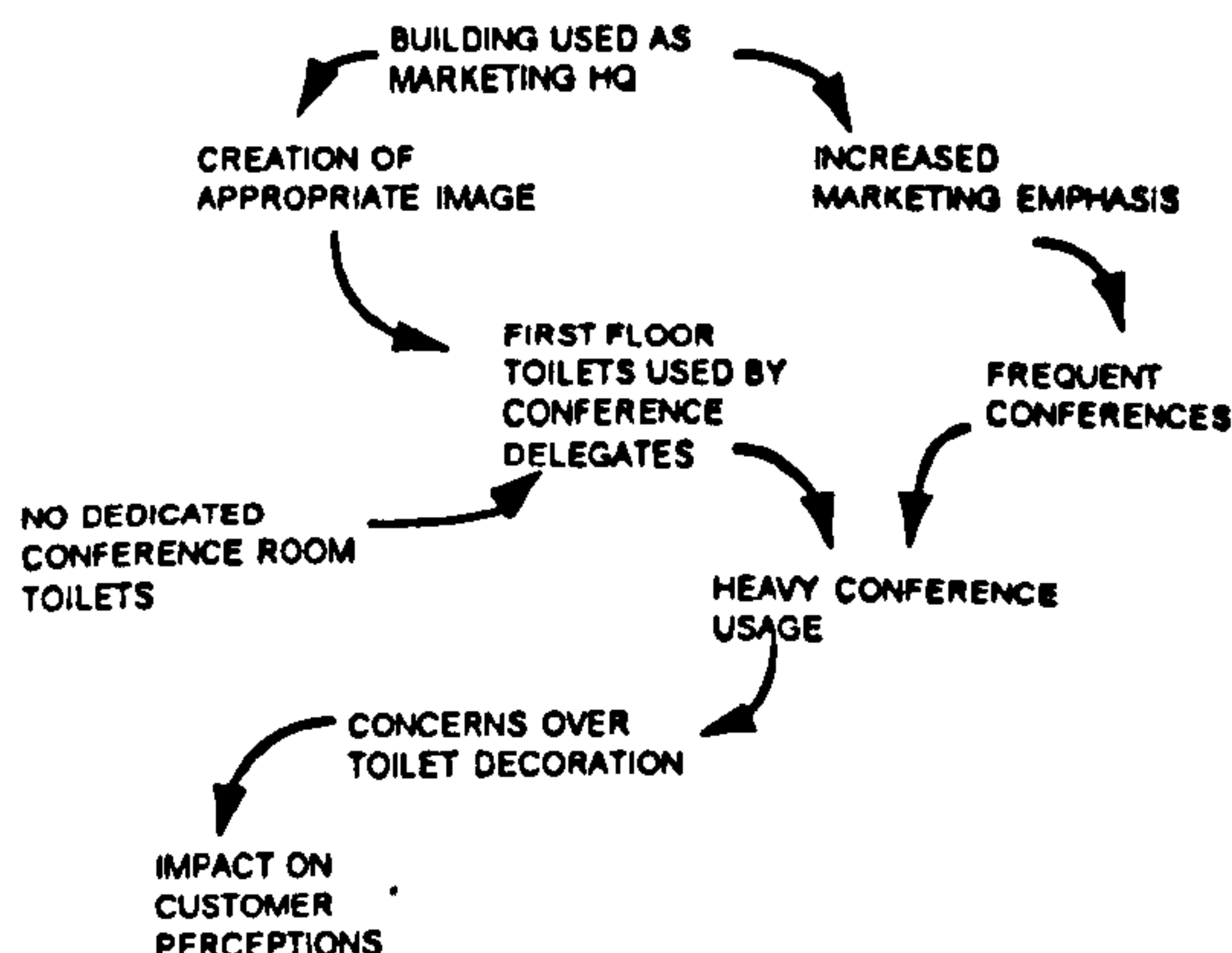
The general issues surrounding these recommendations has been explored above. The principal concerns in this case however are that of staff retention and wayfinding/familiarity. Given that staff are on agency contracts, they are often seeking increased security or return through either other agency contracts or more permanent employment elsewhere. The possibility of the introduction of some form of incentive payment to both agency company and staff on the basis of higher remuneration for longer service may assist in retention and reduce staff turnover. This in turn would help the continuity of service.

Recommendation e6

Toilets

Improve DTI image by upgrading the quality of decoration in toilets, particularly on the first floor as these are subjected to conference delegate use.

Pattern Model e6



Interpretation and Context

This particular recommendation pertains to the creation of an appropriate corporate image for conference delegates. The first floor toilets are subjected to particularly heavy usage and may require a higher frequency of refurbishment than other toilet facilities in the building.

Interpretation and Context

This issue created a great deal of debate amongst the focus group which constituted both service managers, local building management team, and Facilities Management Group Policy makers who introduced the original policy on smoking. It was generally agreed that the existing policy did not go far enough in that there is a great degree of inequity regarding smoking provision throughout the building. Whereas individuals can smoke in single offices it is not permissible in open plan areas. The air conditioning system has also been cited as transmitting fumes between areas. The suggestion that the ban should extend to all individual offices was aired, however was recognised as being very politically sensitive amongst some high ranking officials. Discussion focused around the fact that the dedicated smoking room was not adequately ventilated. Moreover that there was no rest facilities for non-smokers available in the building.

Service managers felt that the introduction of the policy generally had a negative affect on productivity, including that of their own staff. The issue of non-smokers observing smokers go to the smoking room several times per day was also discussed.

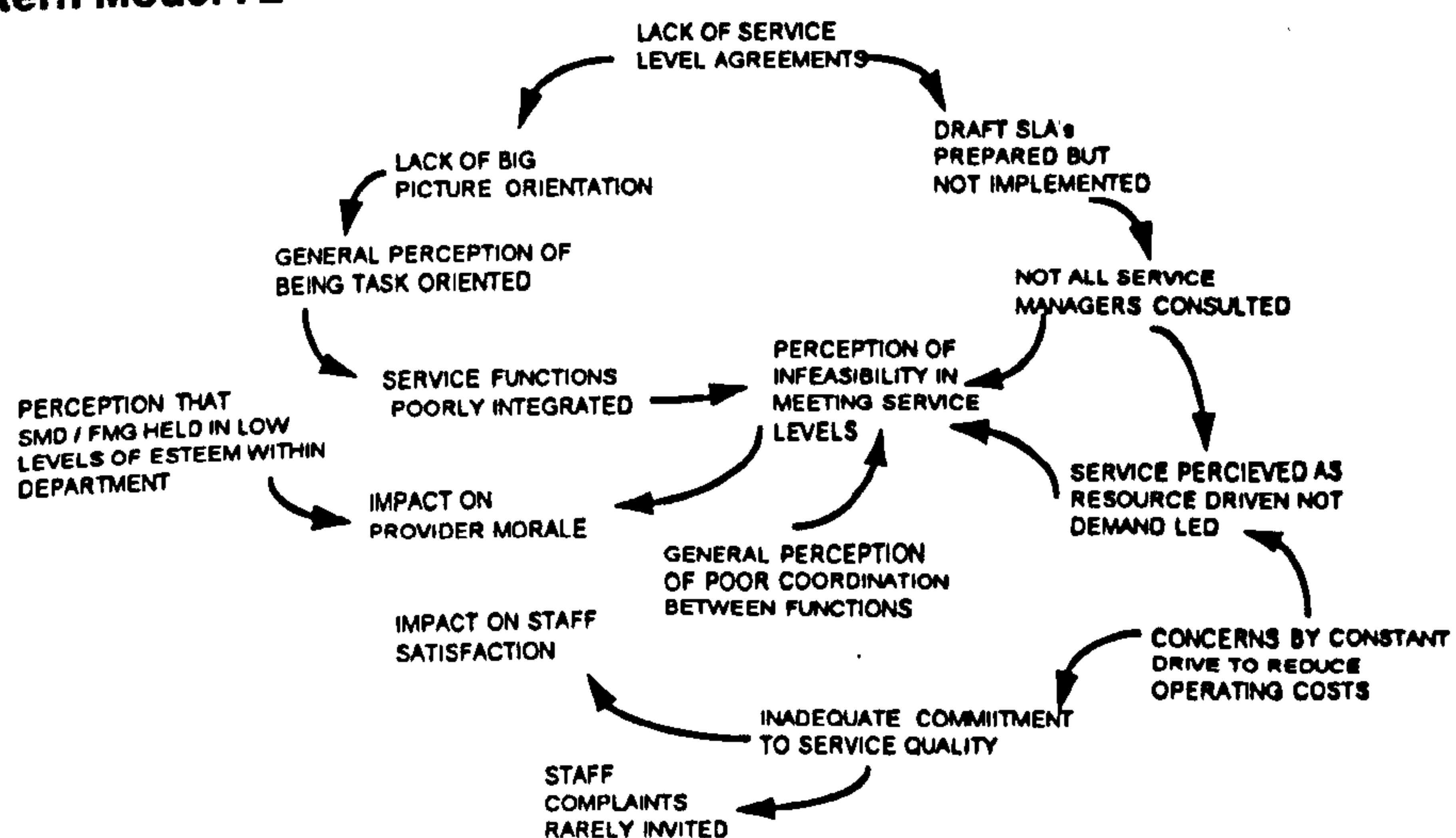
The conclusion was that the smoking policy as a whole should be reviewed. The group were content to establish two statements which summarised their consensus view.

Recommendation f 2

Service Level Agreements

SLA's should be developed for all customer services and should integrate service functions.

Pattern Model f 2



Interpretation and Context

Despite the fact that a draft service level agreement between FMG and users had previously been drawn up and circulated for discussion, this has never been implemented. Many of the service managers were unaware that such a document existed and had not been consulted as to whether the service levels set out could be met. Whilst some services already had Service level agreements with customers e.g. reprographics, none of the services were co-ordinated. The interdependency of services such as messenger and reprographics results in poor co-ordination of the full service offering and a lack of controllability in ensuring service levels are achieved. It was agreed that the SLA's should be integrated such that the available resources for each service offering could be more fully appraised and more realistic service levels set. There was a general desire to provide the levels of service demanded by customers. However there was a perception that service providers are too task oriented often failing to communicate with the customer or adopt a big picture orientation. Managers concurred that the existing service provided is resource-driven rather than dictated by customer demand. The service itself was regarded as being driven by running costs and the need to constantly reduce these. The only time the current service was reviewed it was felt was in order to minimise costs rather than provide service augmentation. Managers felt that FMG, is regarded as an invisible service which is widely regarded as second best. It is often considered to be the 'dumping ground' for civil servants from elsewhere in the organization. The managers concurred that on the whole they did not invite complaints.

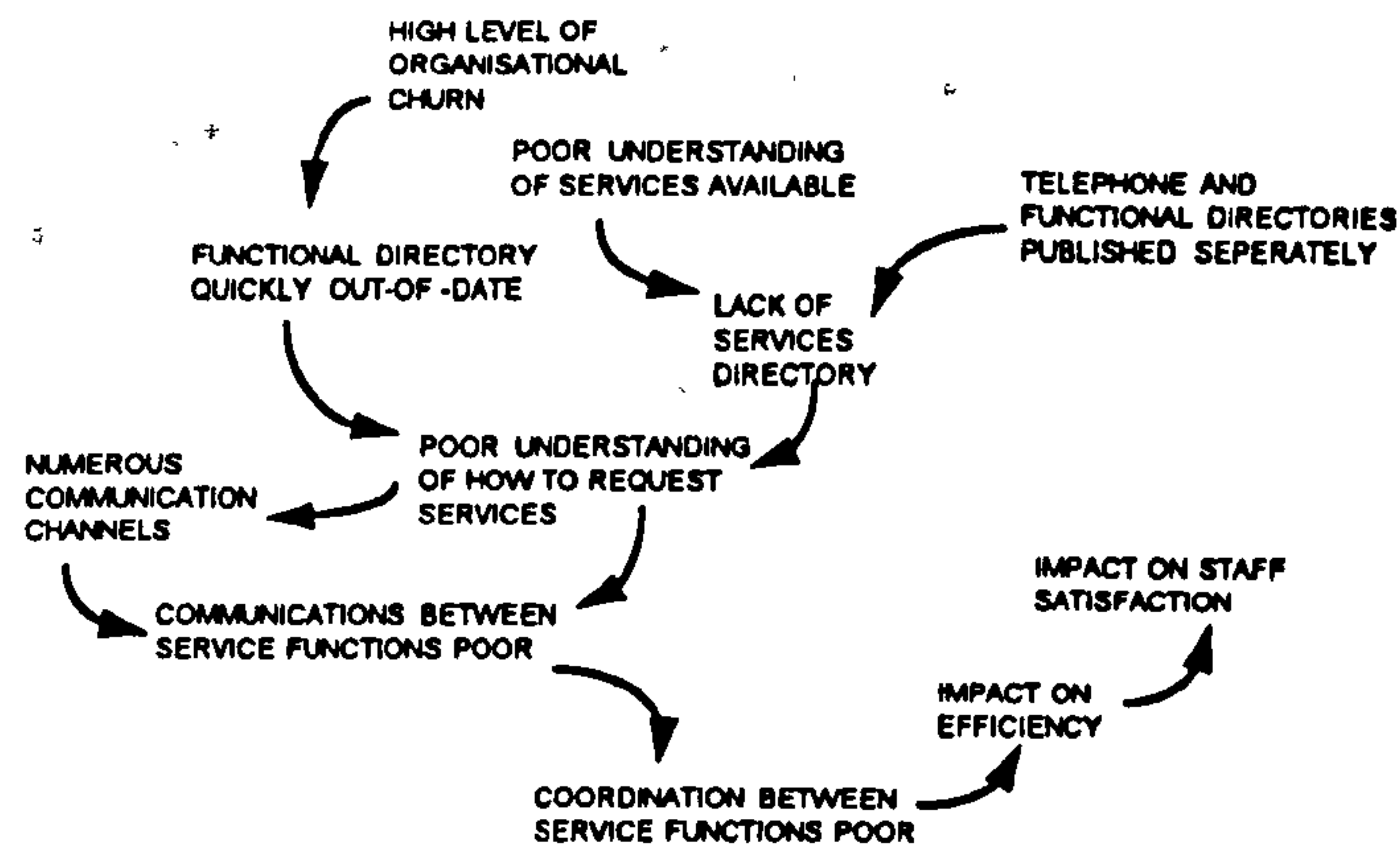
Recommendation f 3

Communications - customer

The introduction of a service directory for customers should be introduced highlighting the range, availability and use of services.

- this could be included as part of the London telephone list, which is more regularly updated than the service directory.

Pattern model f 3



Interpretation and Context

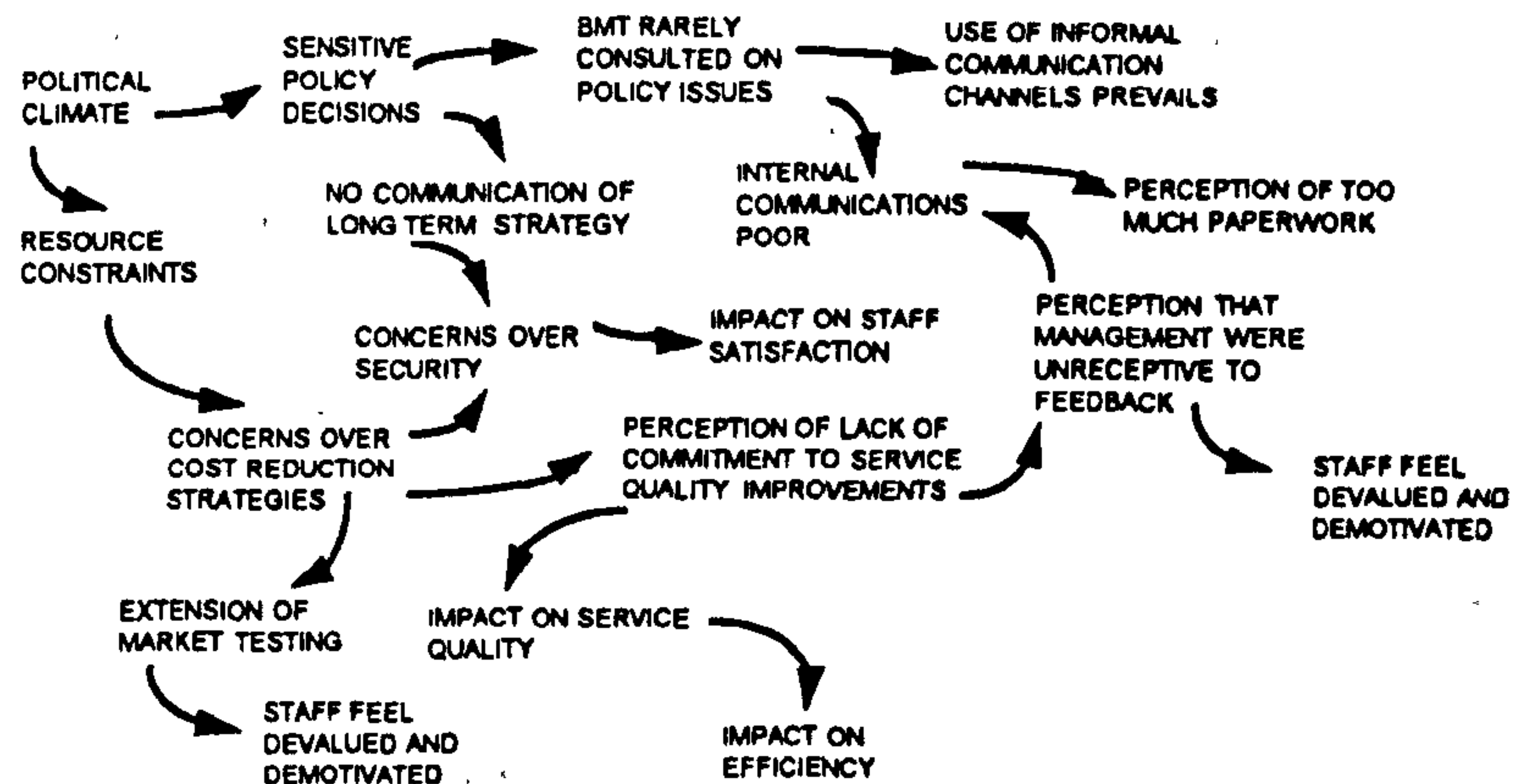
Service managers were aware that the range of services provided to customers was both diverse and at times poorly communicated. Within the group, managers sought to clarify for themselves exactly how services were requested and charged. It was recognised that inter-group communications required to be improved as did those with customers. The managers felt that a single directory which contained the full list of services and how they might be obtained should be provided. It was felt that the existing functional directory was both confusing and user unfriendly. Managers felt that the functional directory was frequently out of date in terms of people moving within SMD and the organization and generally. As a consequence, it was felt that the service directory should be included as part of the London Telephone directory which is more frequently updated. Specific problems were noted with stationery in that the contract itself requires a specific catalogue. many of the items in the stationery catalogue were not available as they were not covered under the existing contract.

Recommendation f 4

Communications - organisational

Appropriate feedback mechanisms need to be introduced whereby recommendations made to senior management, and not subsequently acted upon are informed to staff.

Pattern Model 14



Interpretation and Context

Managers felt that internal communications within the Service Management Division and FMG were very poor. It was felt that there were little opportunities for consultation with local BMT as to policy decisions affecting facilities management. Whereas in the past there was a general perception that the service had operated more smoothly, it was now felt that the service had become much more 'paper-oriented'. Many things were 'heard by rumour' rather than through formal communication channels. Local service managers felt that senior management were unprepared to listen to their local needs or recommendations pertaining to the service. The Local Building Management Team (who have been told that they were surplus to requirements) felt that there were too many layers of management between them and the FMG policy makers. One member of the BMT with long service felt that the exercise of generating recommendations was a waste of time as nobody would listen. It was suggested that similar exercises has been conducted (the previous and ongoing Quality Initiative and service improvement programme) and that rather than being driven with a view to improving service quality, the exercise was being used to cut service provision and reduce the cost base. Since the introduction of the help desk the role of the BMT has principally been in receiving complaints, mostly regarding poor communications and co-ordination of deliveries and move management. It was felt that the help desk was being misinterpreted and misused at present and that clearer guidelines should be prepared.

The staff on the whole felt demotivated, de-valued and generally disillusioned with the organization.

This focus group was generally characterised as being full of contention and friction. Comprising of both those responsible for the provision of the service at an operational level and policy makers who in part allocate resources and make decisions on service levels. The policy makers, whilst not unsympathetic to the needs of service managers, were operating under resource constraints and were being driven through government policy to extend market testing of all services. Whilst service managers were well aware of resource constraints, they felt that the true cost of service provision was not being quantified in terms of service loss or dissatisfaction and morale. Moreover they felt that feedback to management was ignored in the interests of political expediency. The principal recommendation was that staff want to be heard and acknowledged that they have experience of the way in which the system is operating post-decision to change the service. As such they feel that the original decisions require revisiting in the light of the consequent outcomes. Staff want to be made aware of the big picture and have some degree of certainty as to the medium to long term strategy of the way the service will be provided. The current strategy was described as "Death by a thousand cuts". The group concluded that all of their recommendations were a number one priority, all of which could go under a banner heading of communications.

7.57 Group G - Service Management Divisions SMD1 and SMD2

This grouping consisted of members from the information technology services division, providing policy and advice on systems selection, development of data communications services and the provision of infrastructure services. In addition the division provides planning, installation and support of IT applications.

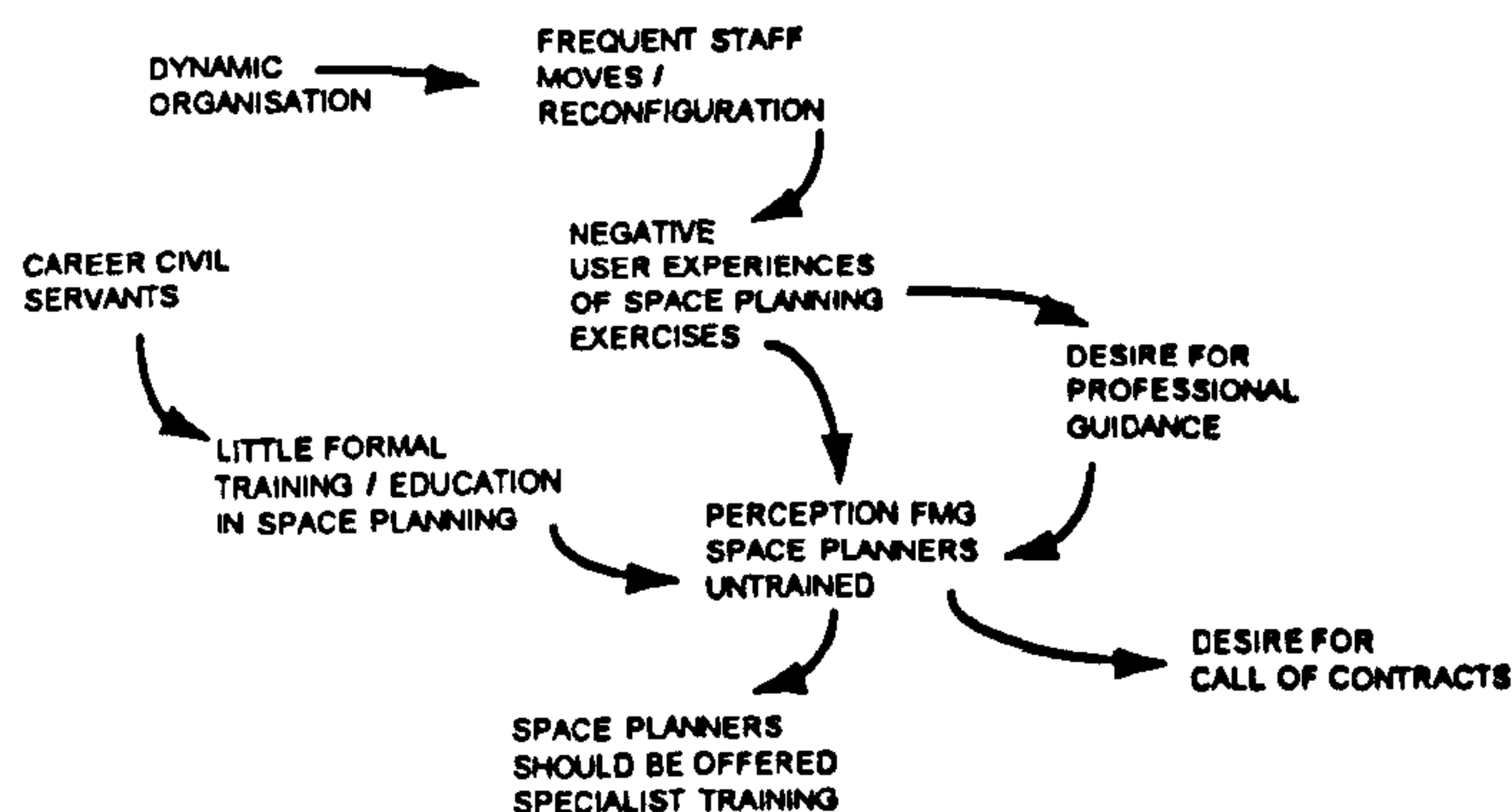
Individuals within this group were representatives of units that had recently lost market testing exercises to the private sector and were facing an uncertain future. Whilst the level of morale was not high, participants were relatively pragmatic and were able to generate more recommendations for improvement than other groups.

Recommendation g1

Space Planning

Management should give consideration to employment of Professional Space Planners.

Pattern Model g1



Interpretation and Context

Whilst move management has been explored in some detail above, the context behind this particular recommendation was that staff felt that the space planners within DTI were not appropriately skilled or qualified to undertake space planning exercise. It was felt that, whilst space planners attempted to do a good job, they could benefit from specific training. Like many staff in the civil service, the space planning team were perceived to have no formal training or qualifications in space planning and have migrated to the post from

other functions within the civil service. This group subsequently revised recommendations to be more specific as to how their requirements might be interpreted:-

(a)FMG should set up a call off contract to make available Professional space planning advice to management units.

(b)When space planning management units should consider obtaining independent Professional advice.

or

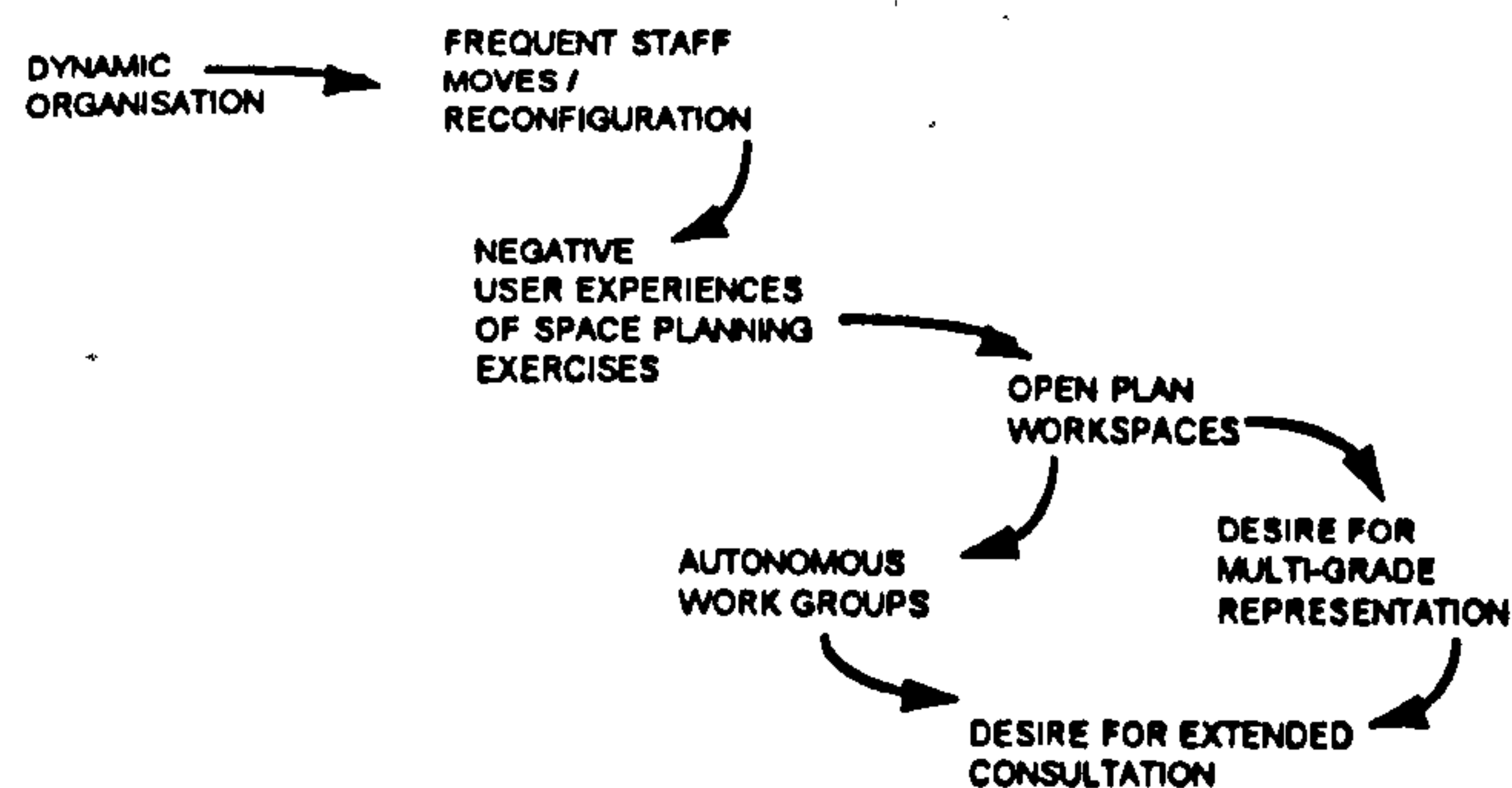
DTI space planners should be given professional training space planning leading to a recognised qualification.

Recommendation g2

Space Planning - user participation

Management should introduce a policy which will involve predesign consultation with multigrade working groups to take account of individual units and the and needs of neighbouring units.

Pattern Model g2



Interpretation and Context

Staff felt that there was little opportunity for consultation prior to space planning exercises. Where consultation took place it was usually with the departmental managers rather than with representatives from all grades. Given that the large open plan office areas often accommodate several independent working

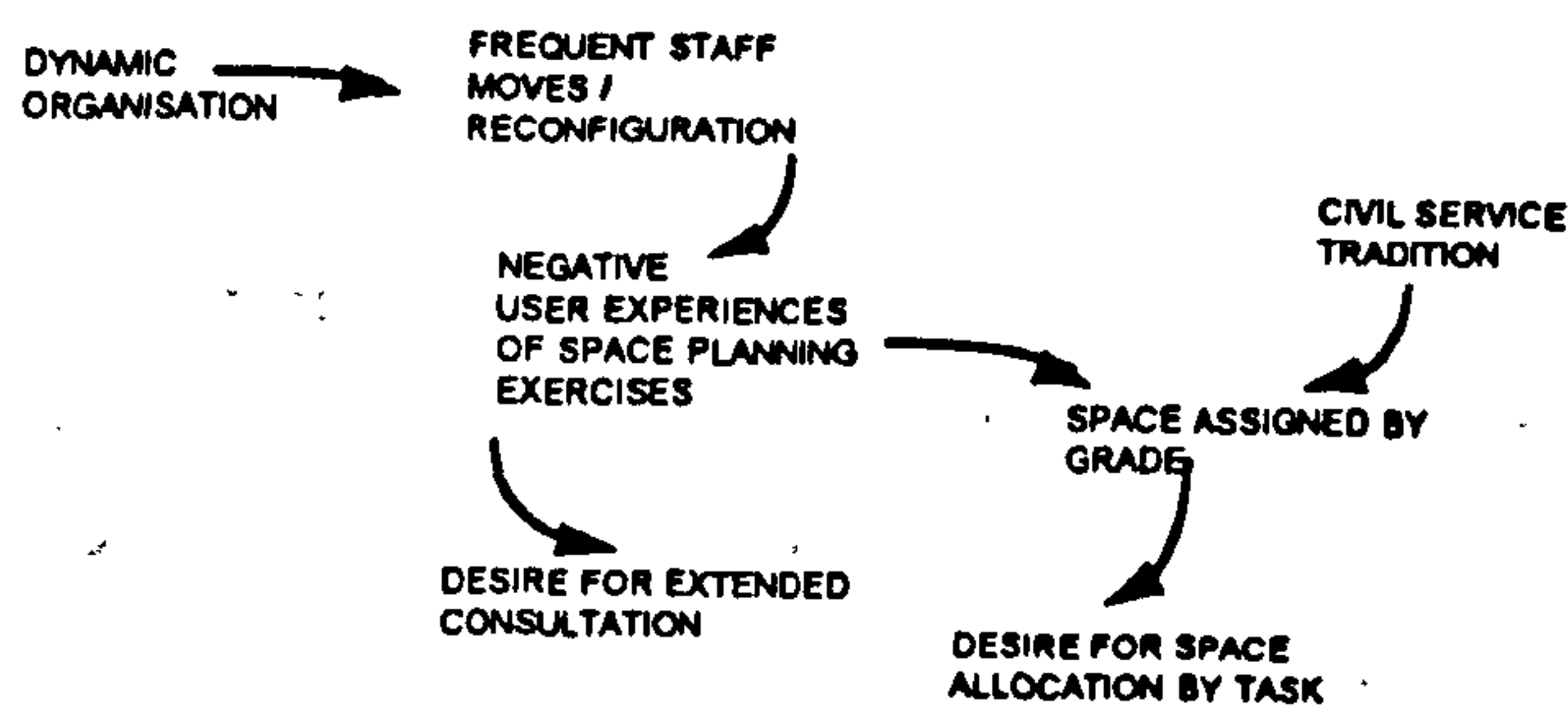
groups it was felt that adjacent groups likely to be affected by changes should also be considered for consultation.

Recommendation g3

Space planning

Future space planning and allocation should be determined by tasks and special needs rather than grades.

Pattern Model g3



Interpretation and Context

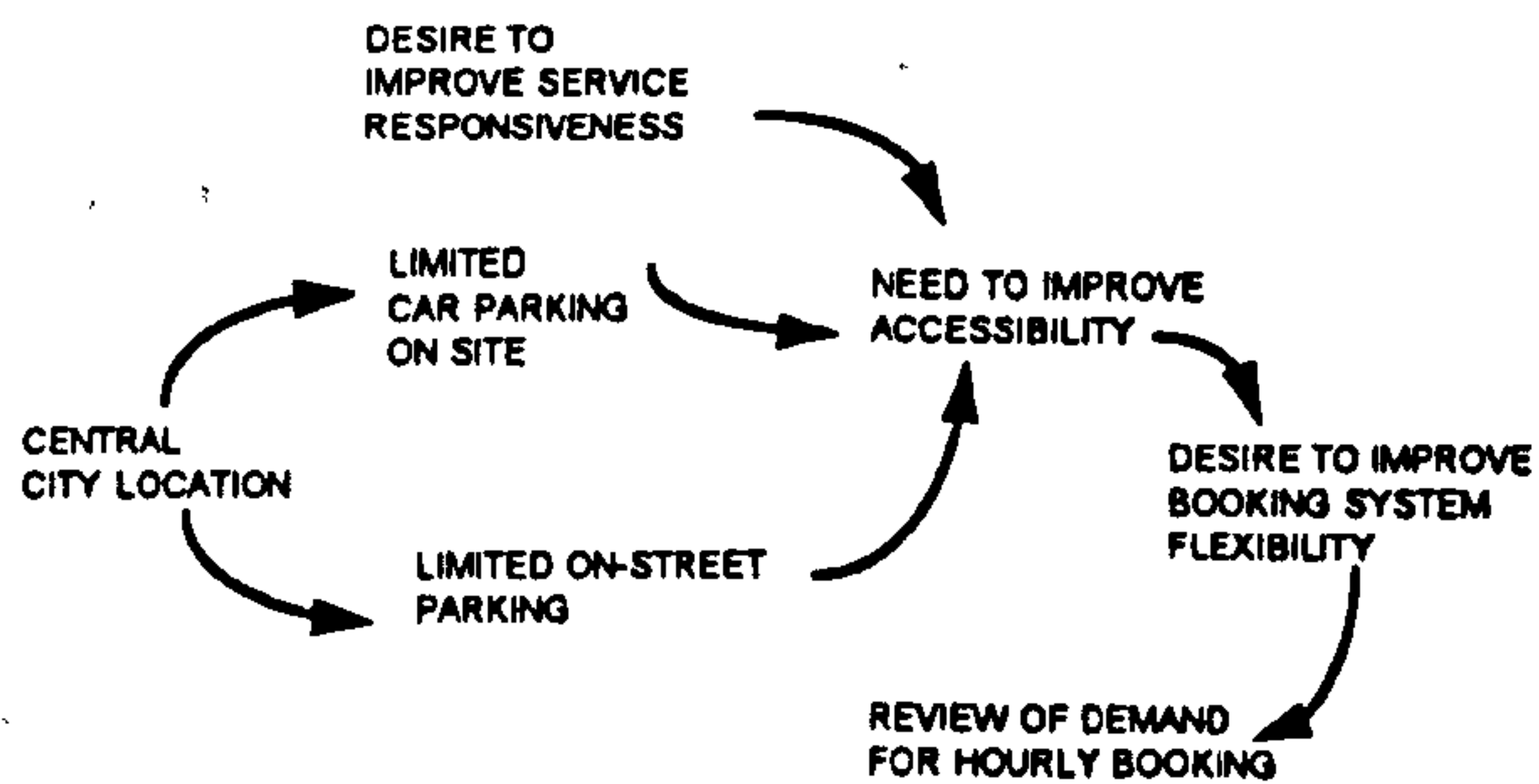
This has been explored above, Traditional policy with civil service was that space and equipment are assigned by grade irrespective of task performed. One participant cited the ludicrous example of an office shared by two people where one half of the office was carpeted to reflect a higher grade. It was felt that whilst there had been a partial move away from this policy, inequalities remained and that standards were invoked to control expenditure.

Recommendation g4

Car Parking

Management should reserve two dedicated car parking spaces in the vicinity of KGH for the use of service personnel - bookable by the hour - to be reviewed after 6 months.

Pattern Model g4



Interpretation and Context

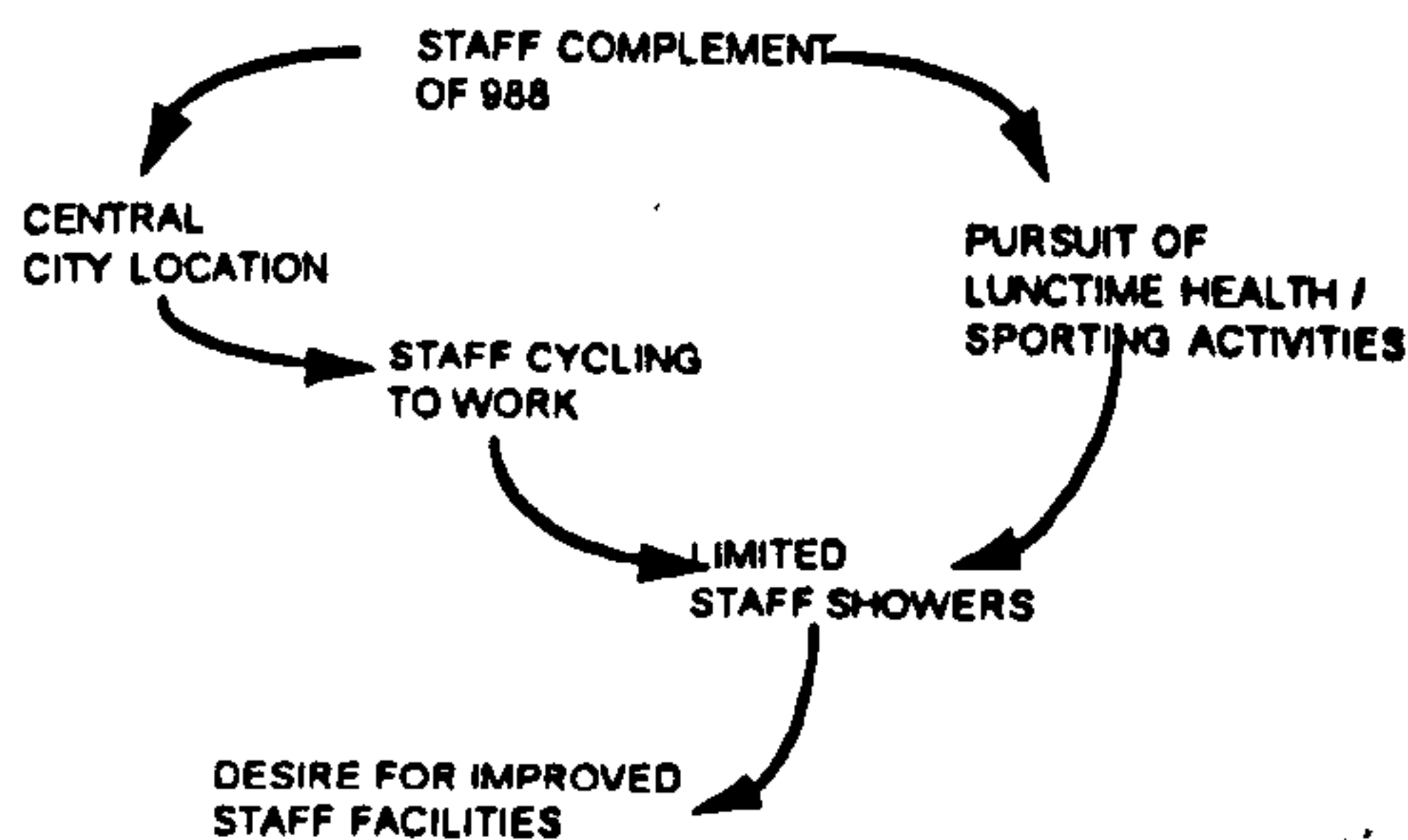
This particular focus group were principally concerned with computer resources and frequently use technical service personnel for both service deliveries and technical assistance. The number and availability of car parking spaces, as noted above, is limited. It was felt that rather than book spaces by the day, two parking spaces could be booked hourly to improve accessibility and consequent service responsiveness of visiting service personnel. Whilst staff were unsure as to the exact demand for such services, they suggested that the utilisation of the provision be reviewed after a representative period.

Recommendation g5

Staff facilities

Changing/showers for general staff use should be increased in number.

Pattern Model g5



Interpretation and Context

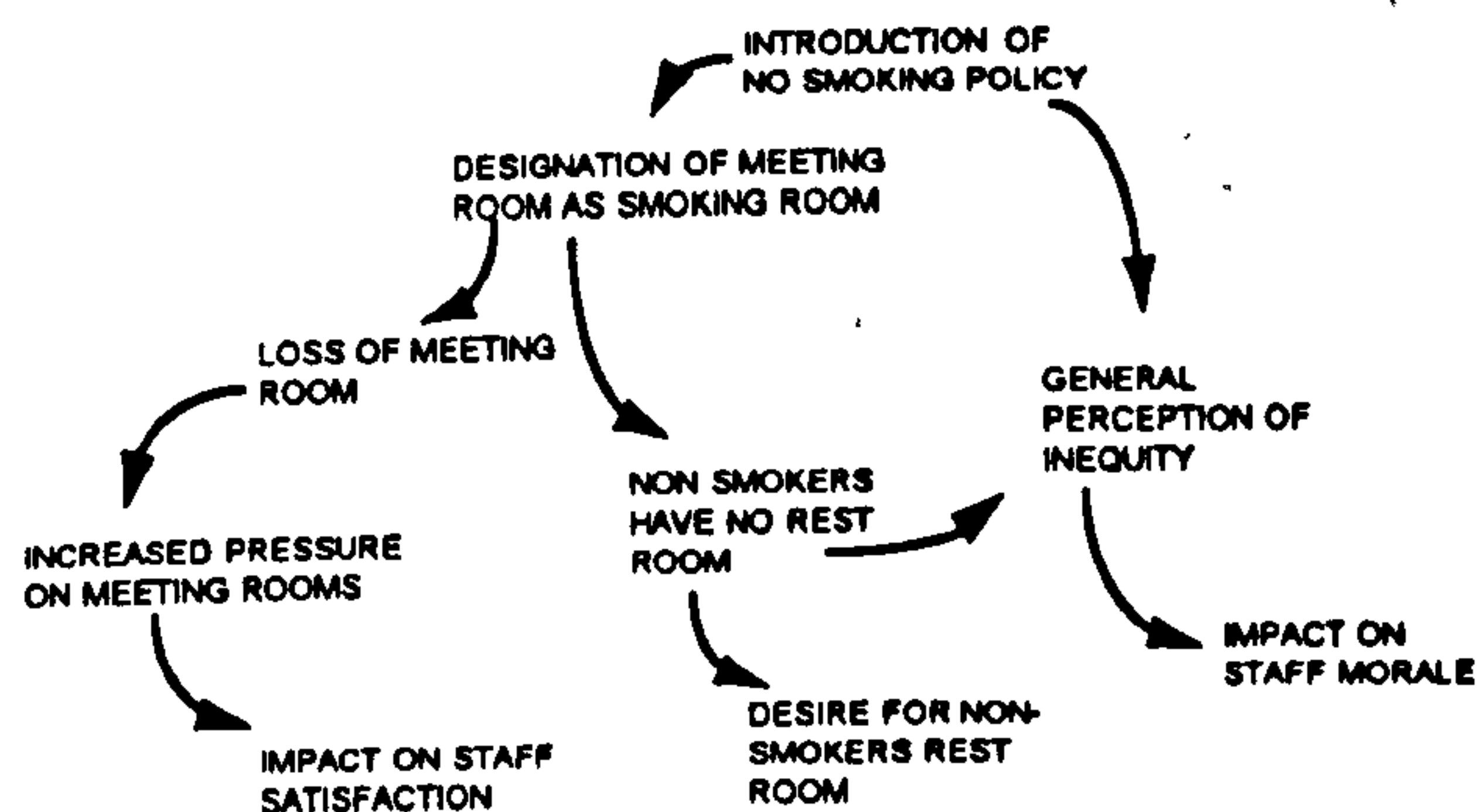
Despite accommodating 988 people at present, with a theoretical capacity of 1010, there are only two showers available, one for each sex. It was felt that this number is inadequate given that a number of staff cycle to work, pursue lunchtime sports, etc.

Recommendation g6

Staff facilities - rest rooms

A non-smokers rest room should be provided for staff to take breaks/lunch.

Pattern Model g6



Interpretation and Context

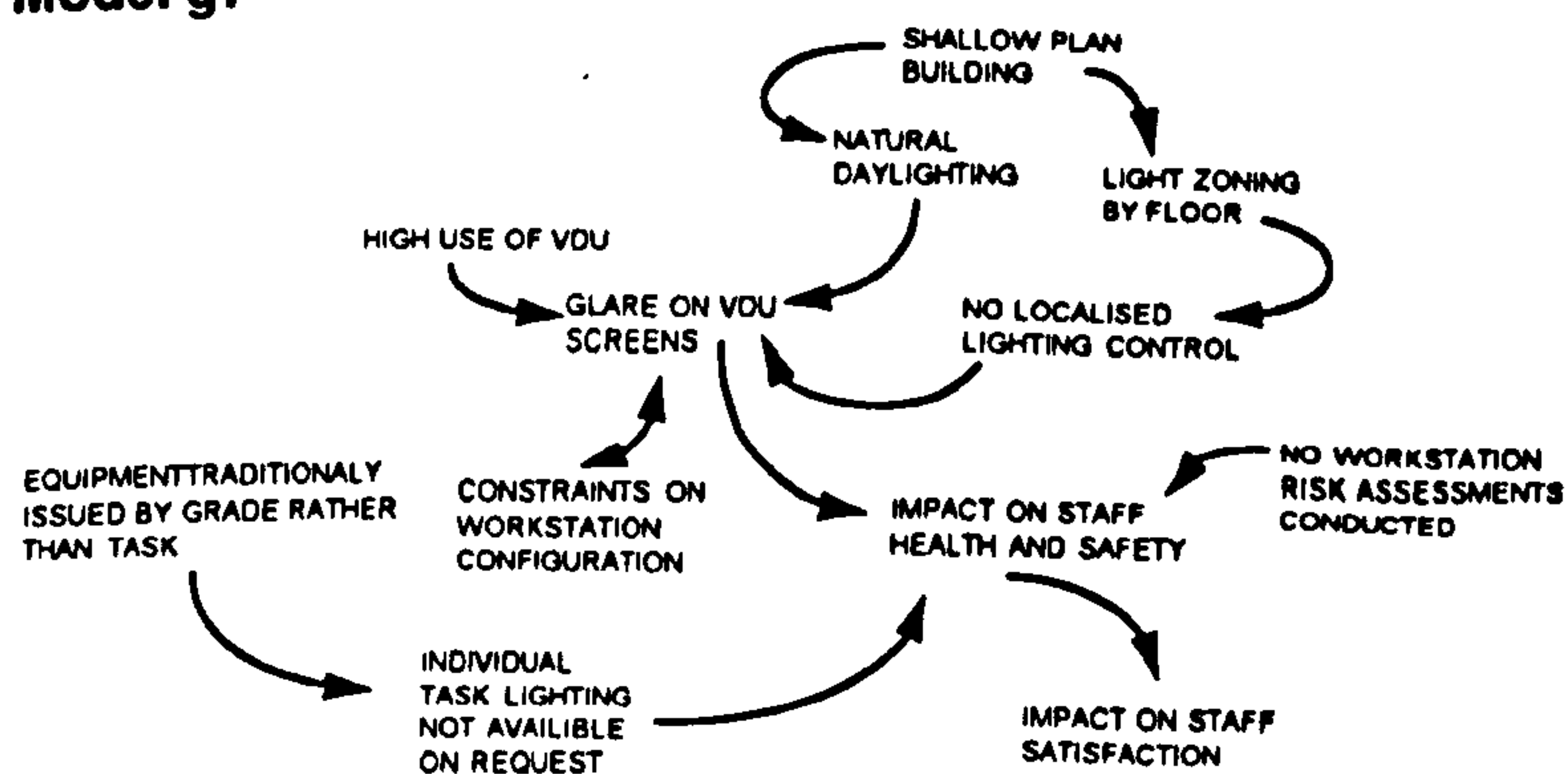
This issue has been explored above. There is a general issue however of limited space available for staff breaks away from the workstation. Whilst some floors have small seating areas in the entrance foyers, these are outside existing offices and on a primary circulation route.

Recommendation g7

Lighting

Task lighting to be made more readily available.

Pattern Model g7



Interpretation and Context

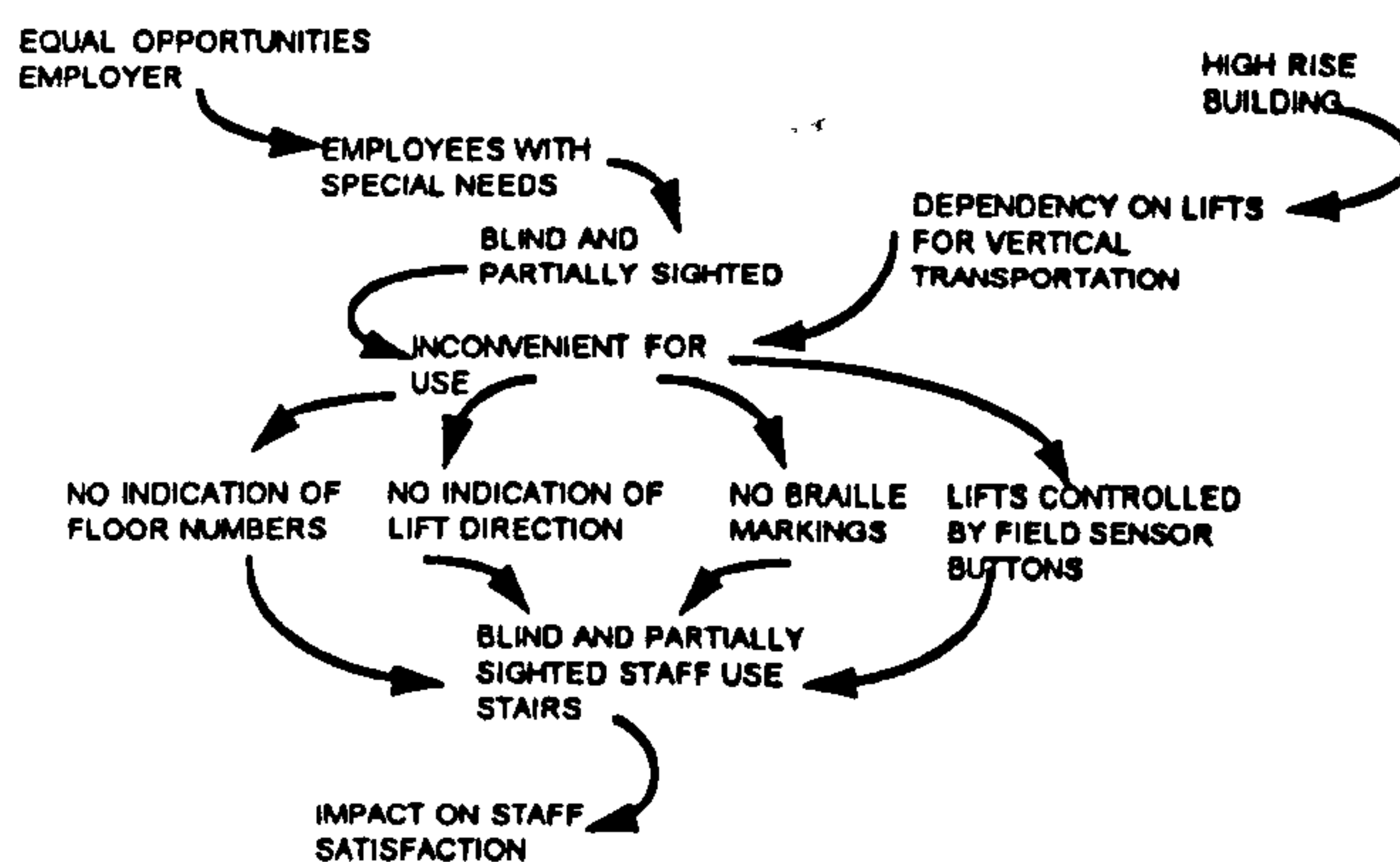
This issue has been explored above.

Recommendation g8

Lifts - Special Needs

Kingsgate lifts are unsuitable for use by blind people. FMG to investigate ways of making them more suitable.

Pattern Model g8



Interpretation and Context

[The civil service prides itself on being an equal opportunities employer. I also also recognised that, during the original research design, no specific attempt was made to ensure users with special needs were represented. This was corrected as the research progressed, however, to ensure appropriate representation. This involved additional work in both reading out the questionnaire and ensuring recommendations generated on flip charts were frequently read out and acknowledged.]

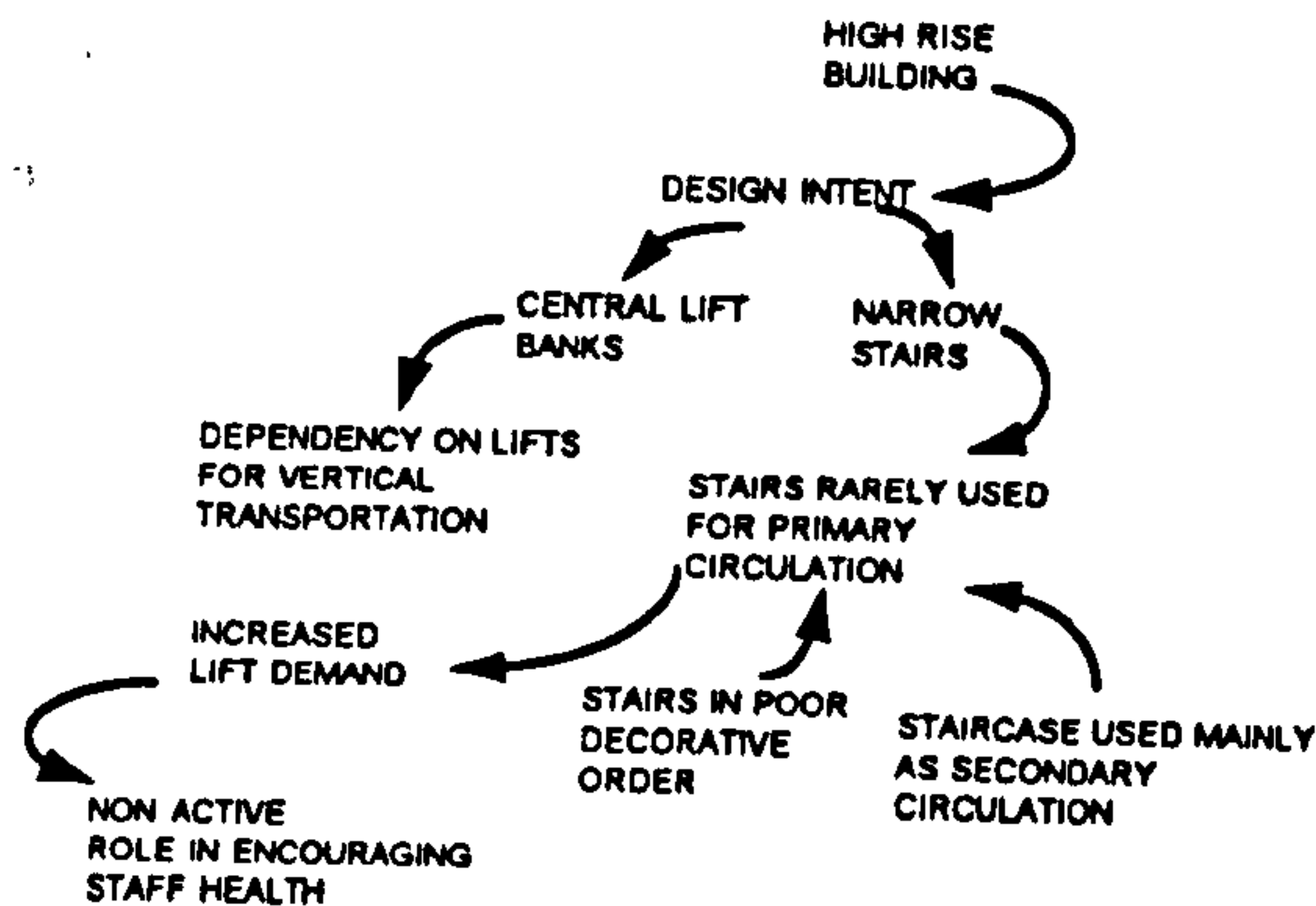
All the existing lifts with Kingsgate house have touch sensitive field sensors for floor buttons. As a result blind or partially sighted staff cannot Braille read lift floor numbers. The lifts themselves have no distinguishing tones to signal which one has arrived or whether the lift is going up or down. In the lift there is no voice message confirming which floor it has arrived at. Blind staff within the building tend to use the stairs as a consequence.

Recommendation g9

Primary Circulation. - Stairs

FMG during building procurement briefing should seek to increase the use of staircases as a primary circulation route to encourage fitness/health/energy savings.

Pattern model g9



Interpretation and Context

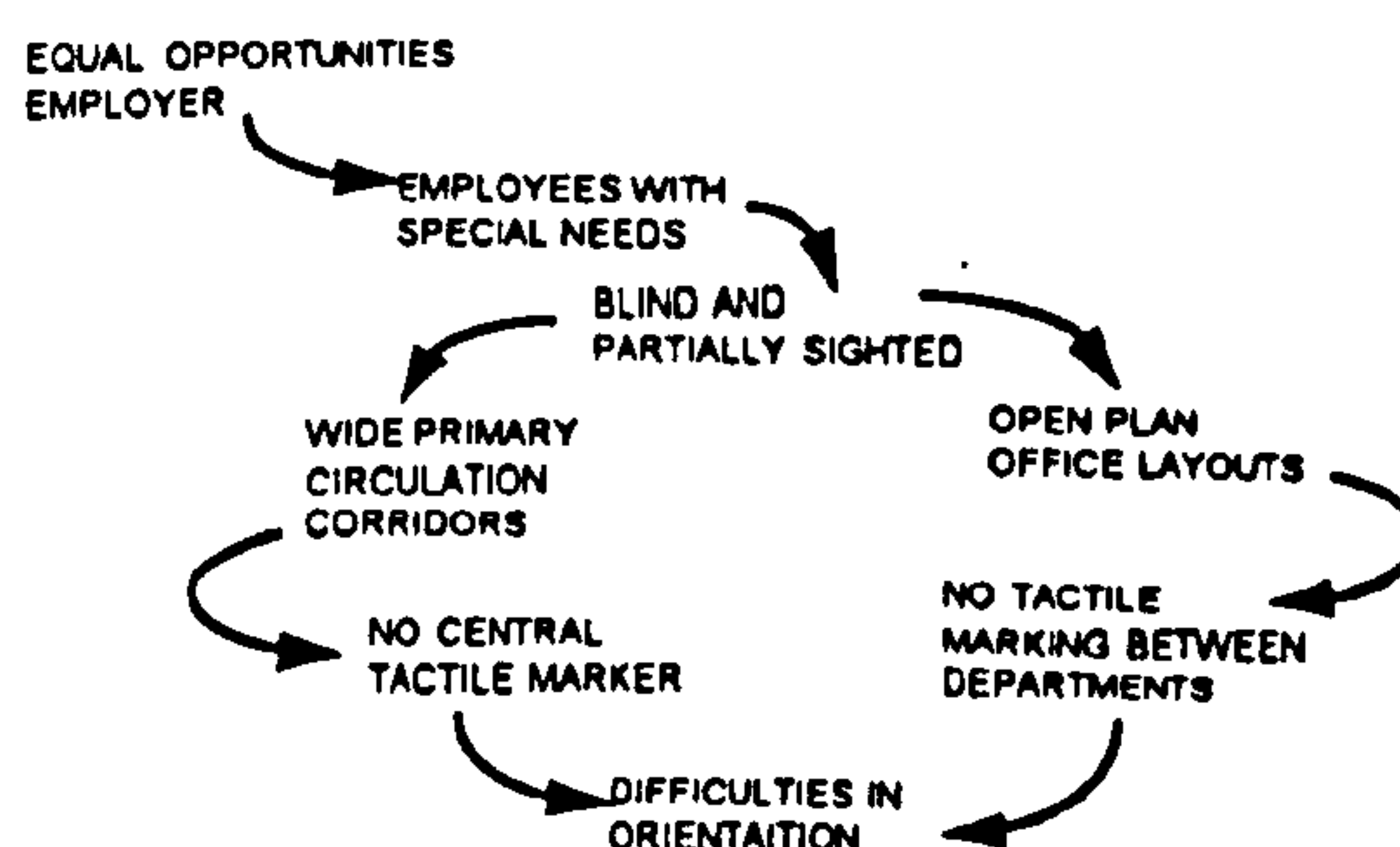
This particular focus group felt that stairs were underrated and underused as a means of primary circulation. The existing stair wells within Kingsgate are both poorly decorated and narrow, more akin to fire escape stairs. The group felt that, during building procurement, FMG should consider the role of stairs as a primary as distinct from secondary circulation route to reduce demand for lifts and generally promote staff fitness.

Recommendation g10

Circulation routes - special needs

Primary circulation routes in open plan offices to be provided with tactile reference marking for the blind and partially sighted.

Pattern model g10



Interpretation and Context

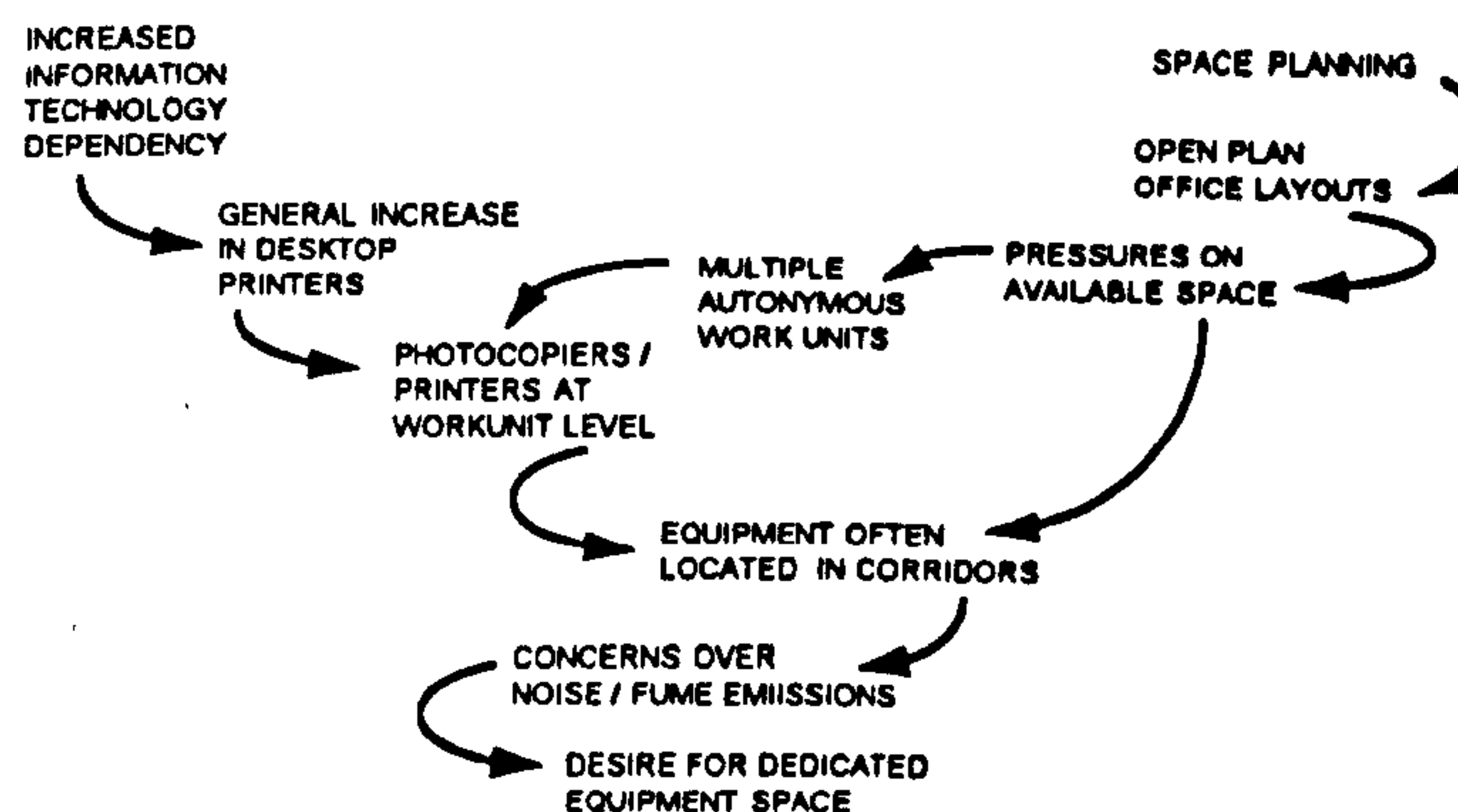
There are two specific points to this recommendation. The first is that blind or partially sighted individuals using sticks require some point of reference to indicate the central line of wide corridors. It was felt that some form of tactile marking affixed to the centre of the floor would suffice. This may have to be recessed in some way to avoid a potential tripping hazard for other however. The second issue is that tactile markers should be provided at specific department entrances. Both of these issues, but particularly the second point, will be influenced by, and will influence, the general amount of internal configuration of office layouts.

Recommendation g11

Space planning - equipment siting

Where possible space planning team should give consideration to accommodating equipment which emits fumes/noise in dedicated space..

Pattern model g11



Interpretation and Context

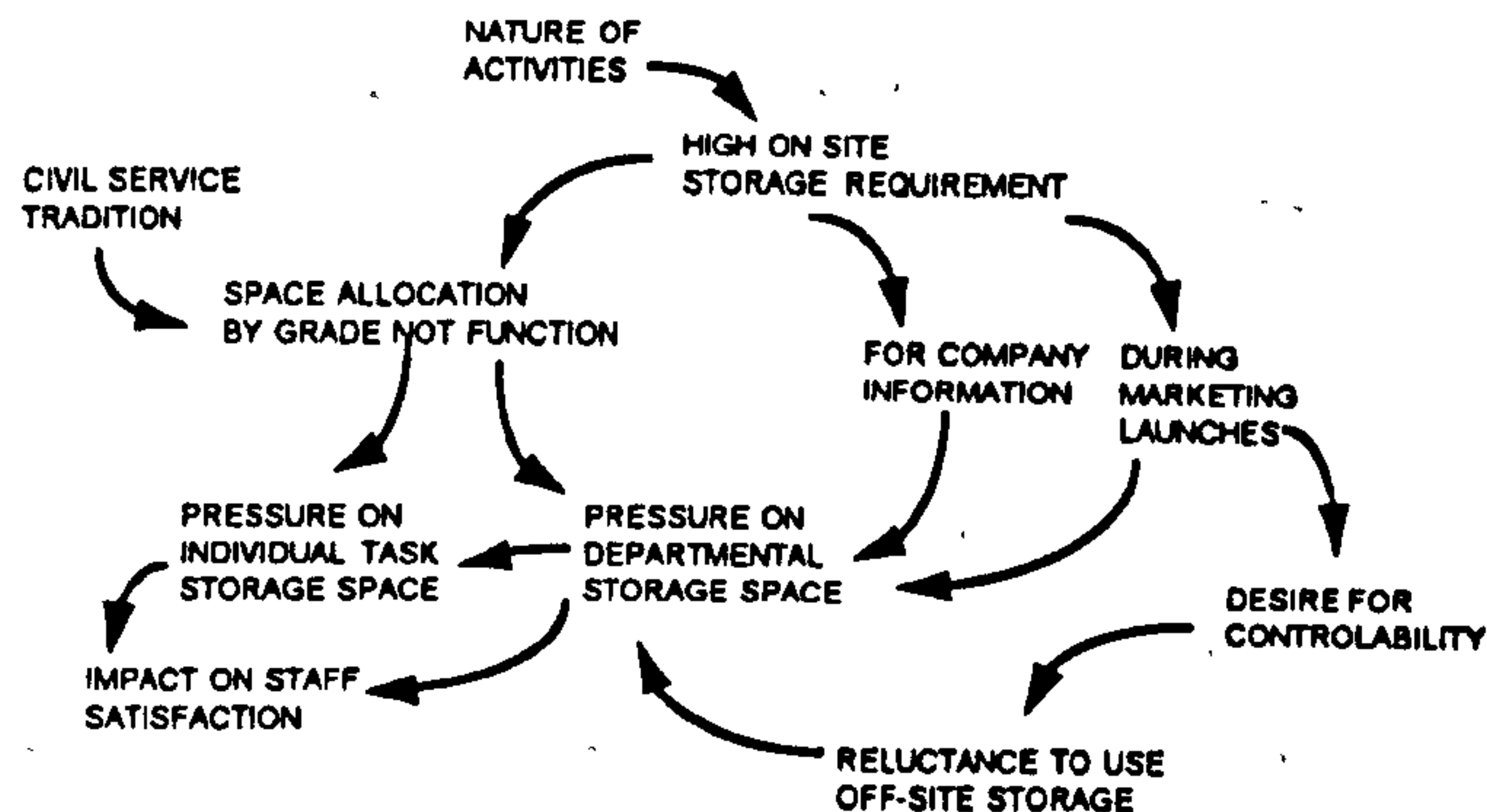
The general increase in desktop printers and the like, together with small photocopiers at departmental level, it was felt these had a negative effect on the quality of the environment. Whilst fume emission should be controlled under COSHH regulations, the provision of dedicated space, it was felt, would improve environmental quality.

Recommendation g12

Space Planning - storage

Space Planning and storage etc. allocation should be assigned on the basis of tasks undertaken rather than grade.

Pattern model g12



Interpretation and Context

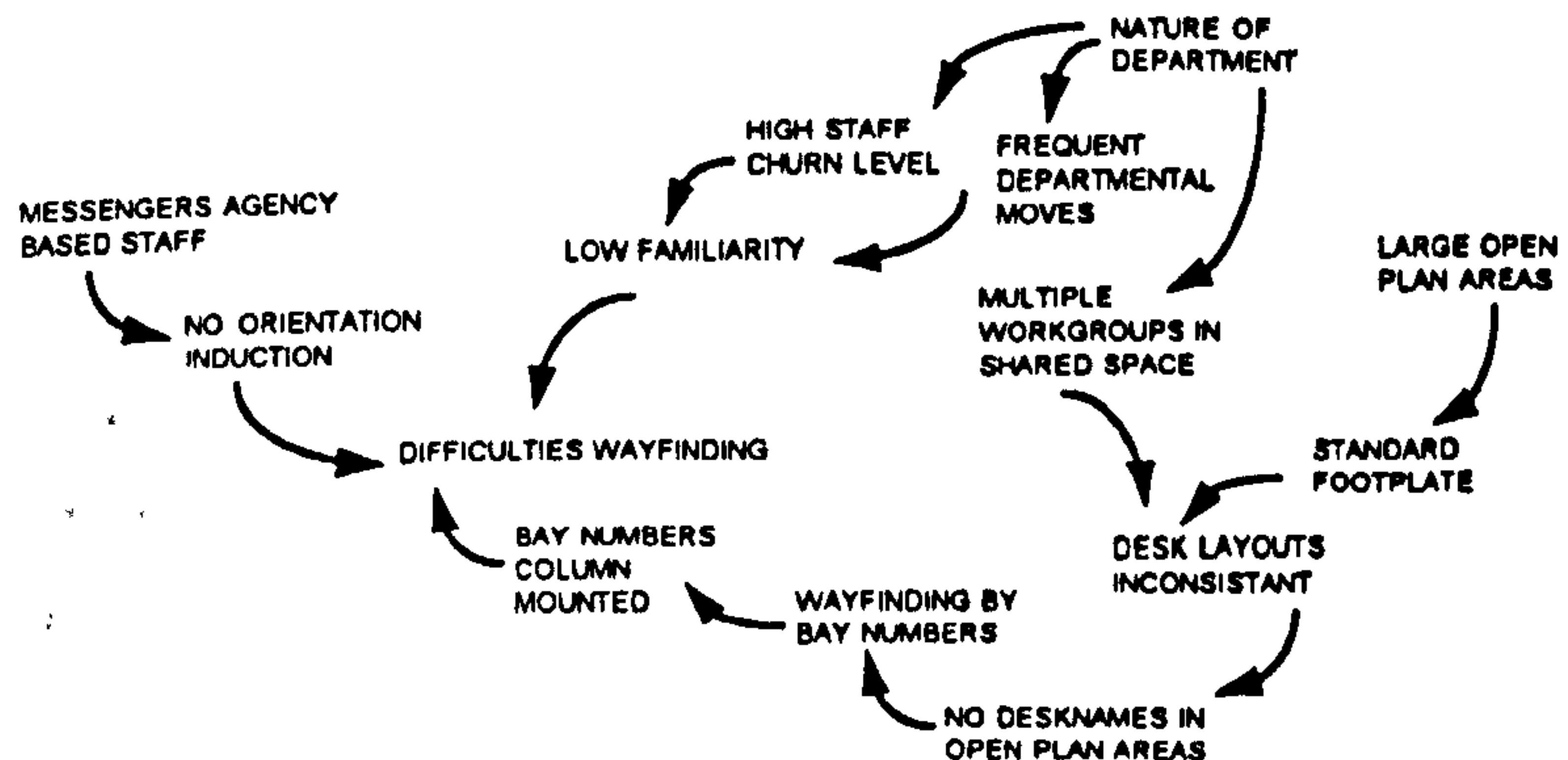
This issue has been explored above.

Recommendation g13

Space planning - Wayfinding

Space planning team should investigate means of improving wayfinding. By introducing floor plans, of workgroups and bay numbers or desk numbers. General circulation routes should be delineated by different coloured partitions to avoid intrusion on personal working space.

Pattern model g13



Interpretation and Context

Kingsgate House, whilst fairly straightforward in terms of general floor plate, uses bay numbers to delineate spaces. Bay number signs are usually mounted on columns as distinct from suspended over particular bays. It was felt that general orientation plans should be fitted at the entrance to each wing and dispersed adjacent to bay number signs to delineate different work groups. At a local level, this could include desk positions and names assigned to desk numbers to improve general interpersonal communication and improve familiarity.

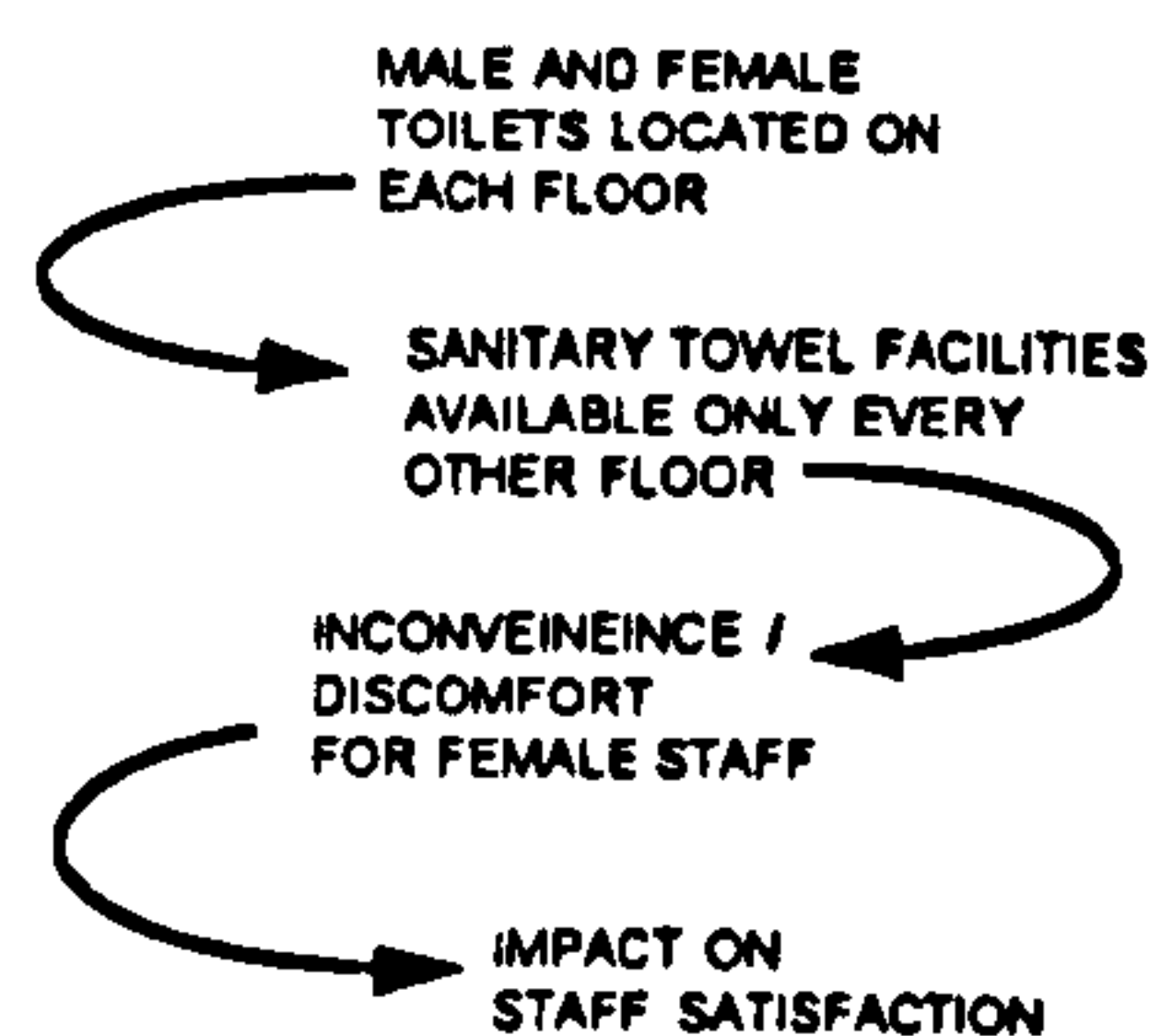
The second aspect of this recommendation is based on the fact that all internal partitions used are currently the same colour. It was felt that the introduction of different coloured screens may assist in delineating primary from secondary circulation routes thus avoiding unintentional intrusion into personal workspace and at the same time improve general wayfinding.

Recommendation g14

Toilets

Management should install sanitary towels/tampons in all ladies toilets.

Pattern model g14



Interpretation and Context

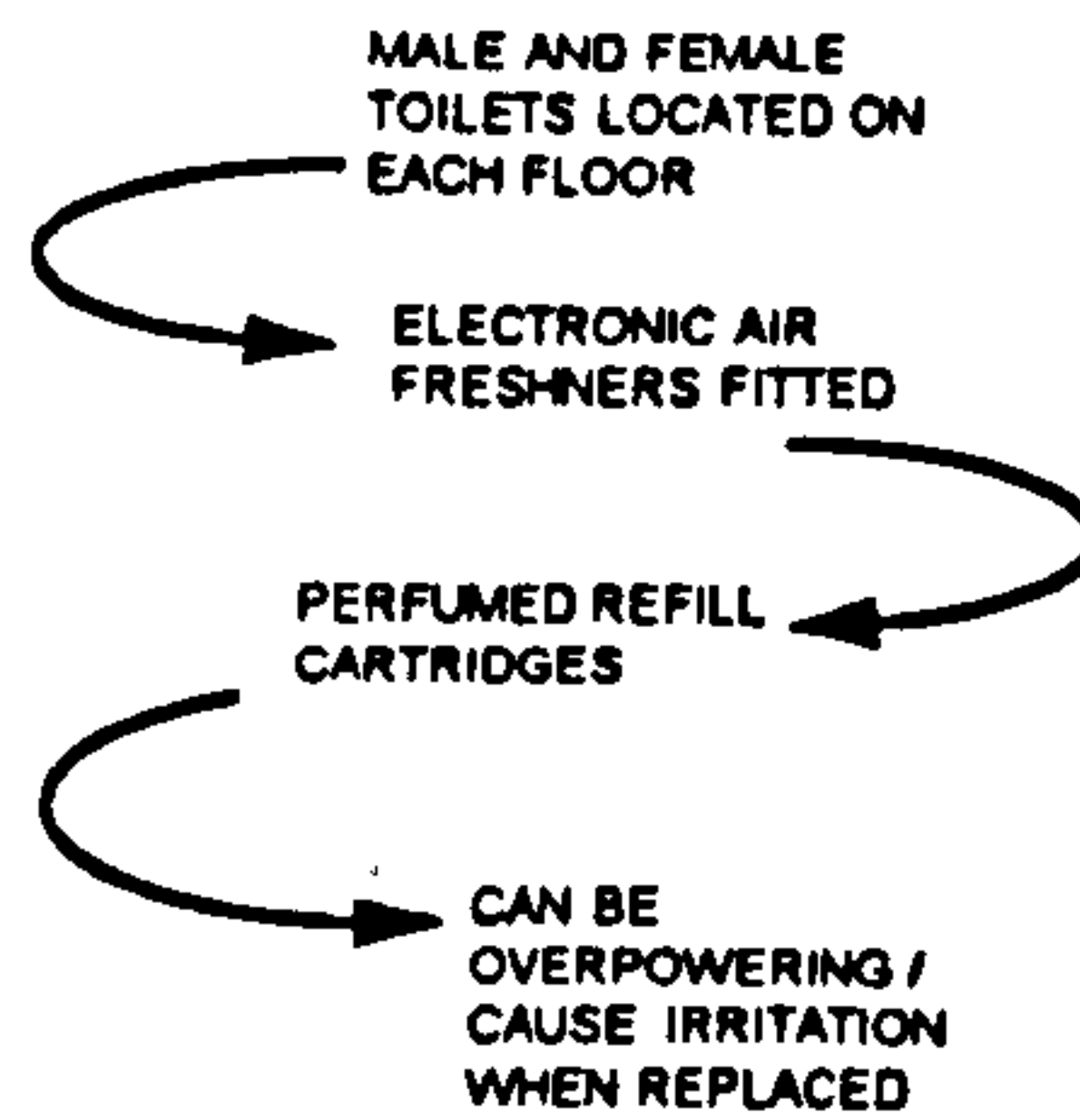
At present sanitary towel dispensing facilities are only available in ladies toilets on every other floor. The group felt that this was an unnecessary inconvenience (and incidentally suggested the blame lay with male designers!) The suggestion was that facilities should be provided in toilets on every floor.

Recommendation g15

Toilets -air freshners

Management should investigate the automatic air freshners in toilets.

Pattern Model g15



Interpretation and Analysis

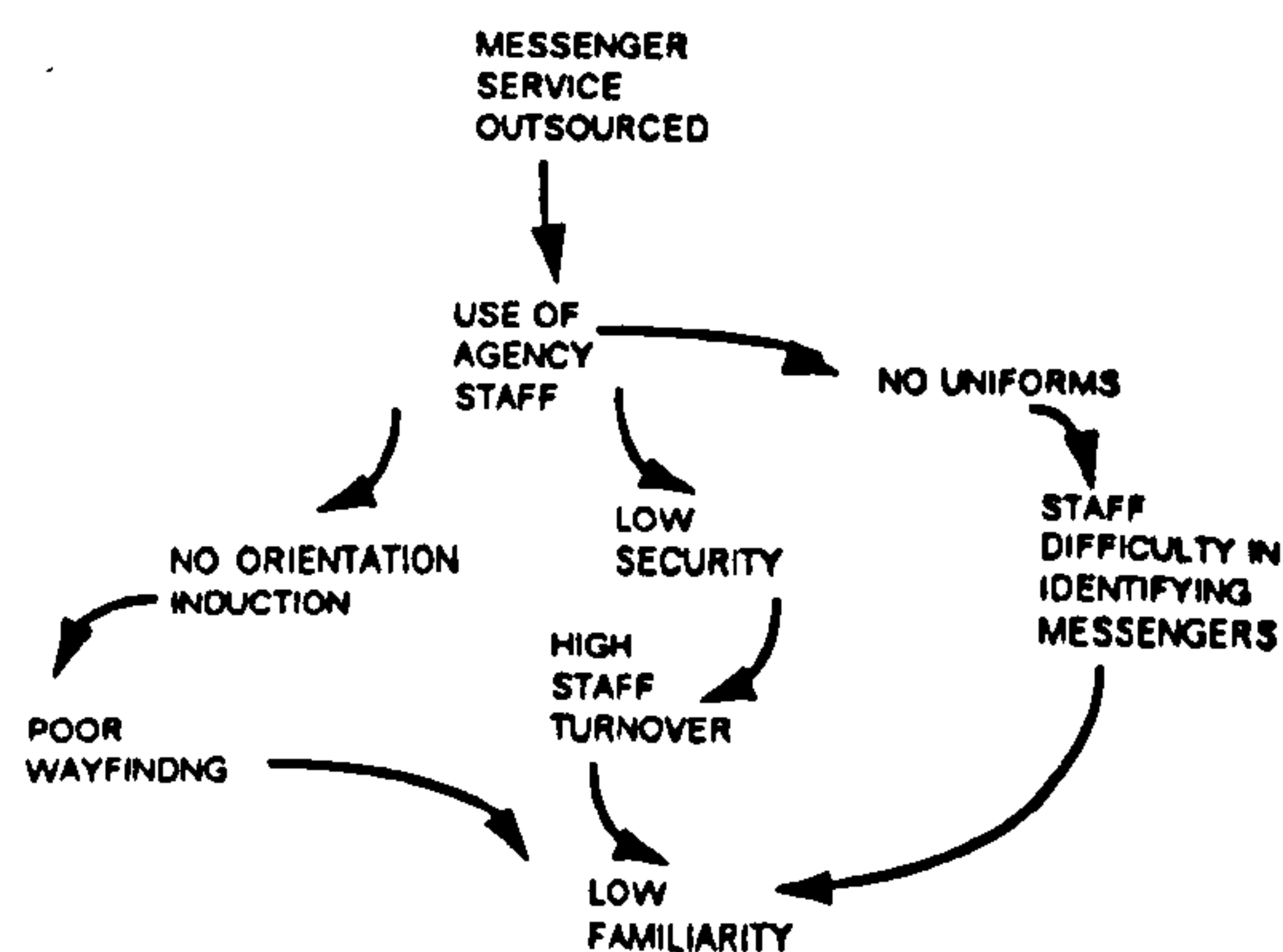
Toilets have been fitted with electronic air freshners which are fitted with perfumed refill cartridges. The group concurred that, when newly replaced, the freshener was somewhat overpowering, causing irritation to the olfactory senses.

Recommendation g16

Communications - Messengers

Immediately upon appointment/relocation messenger staff should be issued with equipment such that they can be readily identified.

Pattern Model g16



Interpretation and Context

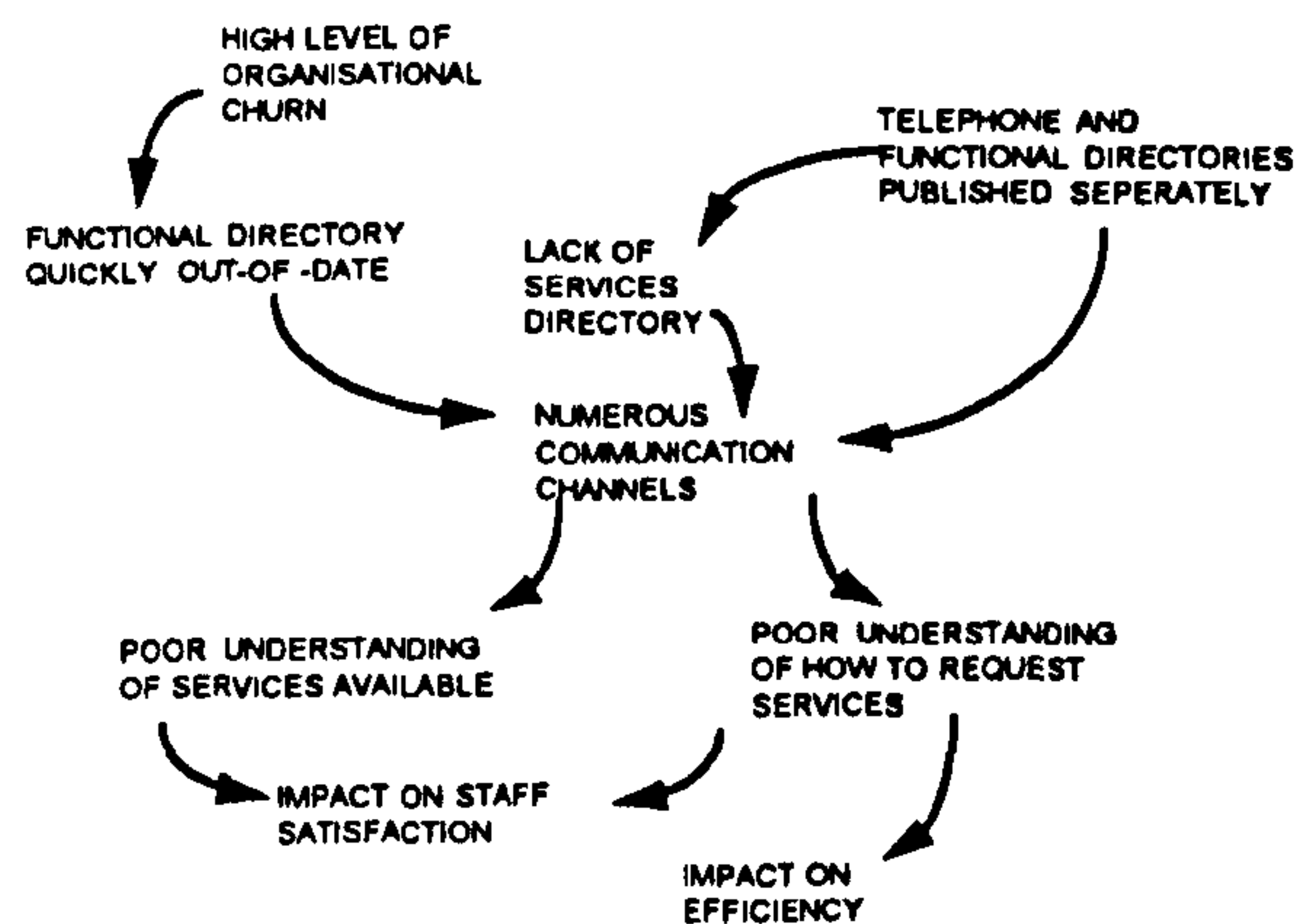
The issue of messenger has been extensively explored above. Staff felt however that in addition to messengers gaining familiarity with staff and departments, staff need to be able to identify new messengers. The provision of some means of tangible identification such as uniforms was suggested.

Recommendation g17

Communications - FMG

Management should consider the introduction of a "Service Directory" which clarifies the availability use and charges of support services and useful information requirements.

Pattern Model g17



Interpretation and Context

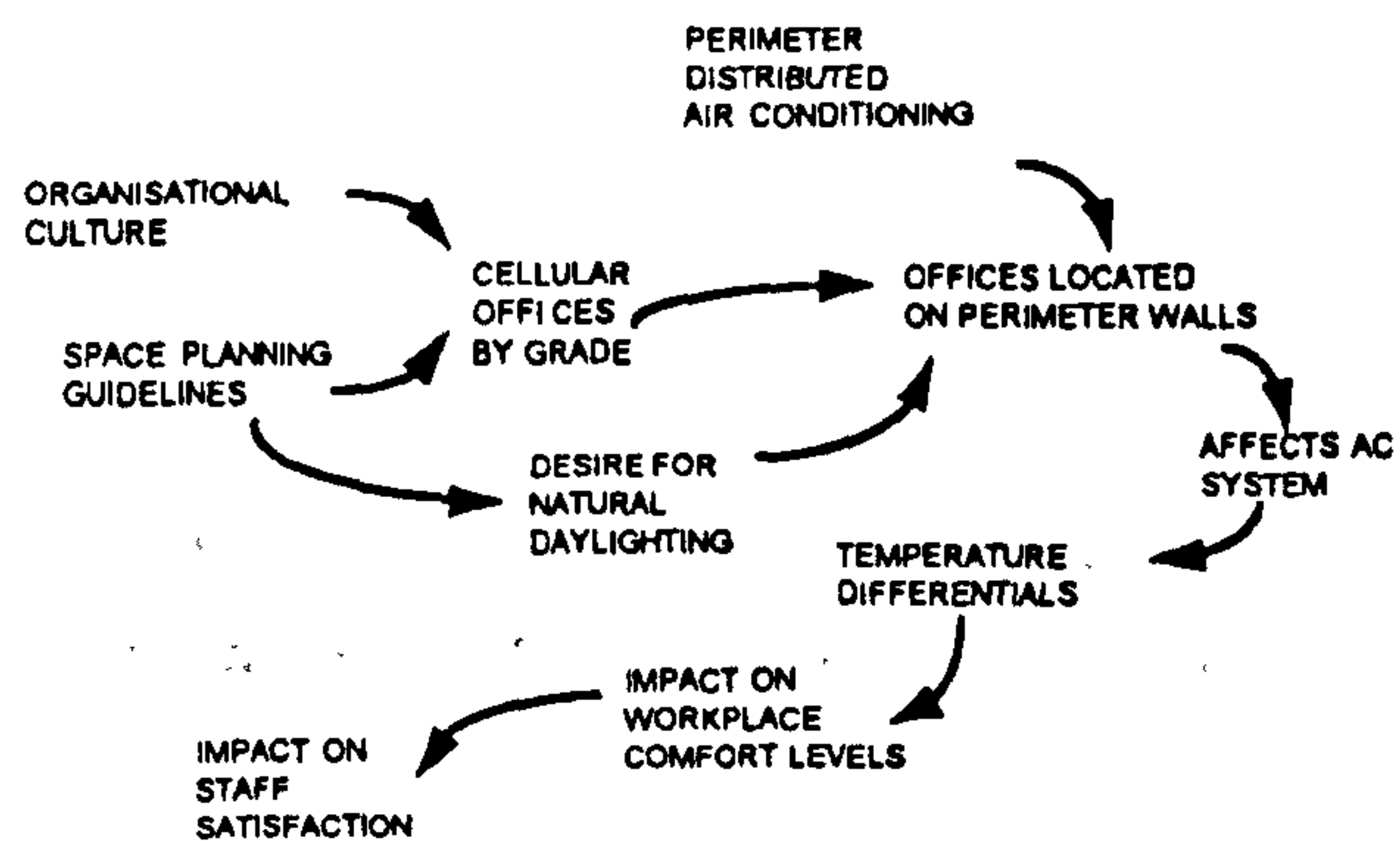
This issue has been explored above

Recommendation g18

Environment - control

HVAC Designers should seek to increase the level of individual environment control.

Pattern model g18



Interpretation and Context

This issue has been explored above.

7.58 Group H - Contracted service provider managers

This group consisted of contract managers from the various service provider groups contracted to DTI. This included building fabric and mechanical and electrical maintenance and catering services, and portering. This grouping were keen to use the session to 'market' their particular organisation and it's attributes, and to demonstrate their willingness to improve the service to the client. It was evident however that their was an underlying concern over the future of contracts, particularly those due for renewal, as they were aware that the organisation was currently reappraising it's resourcing options. No consultations had been undertaken with any contractor group, and the concern was that the service was about to be tested agiants the market.

This group session was actually conducted after group i, which consisted of service contractor personnel. many of the issues that were raised related to outcomes from the group i dialogue, which suggested that a degree of briefing had taken place prior to the session.

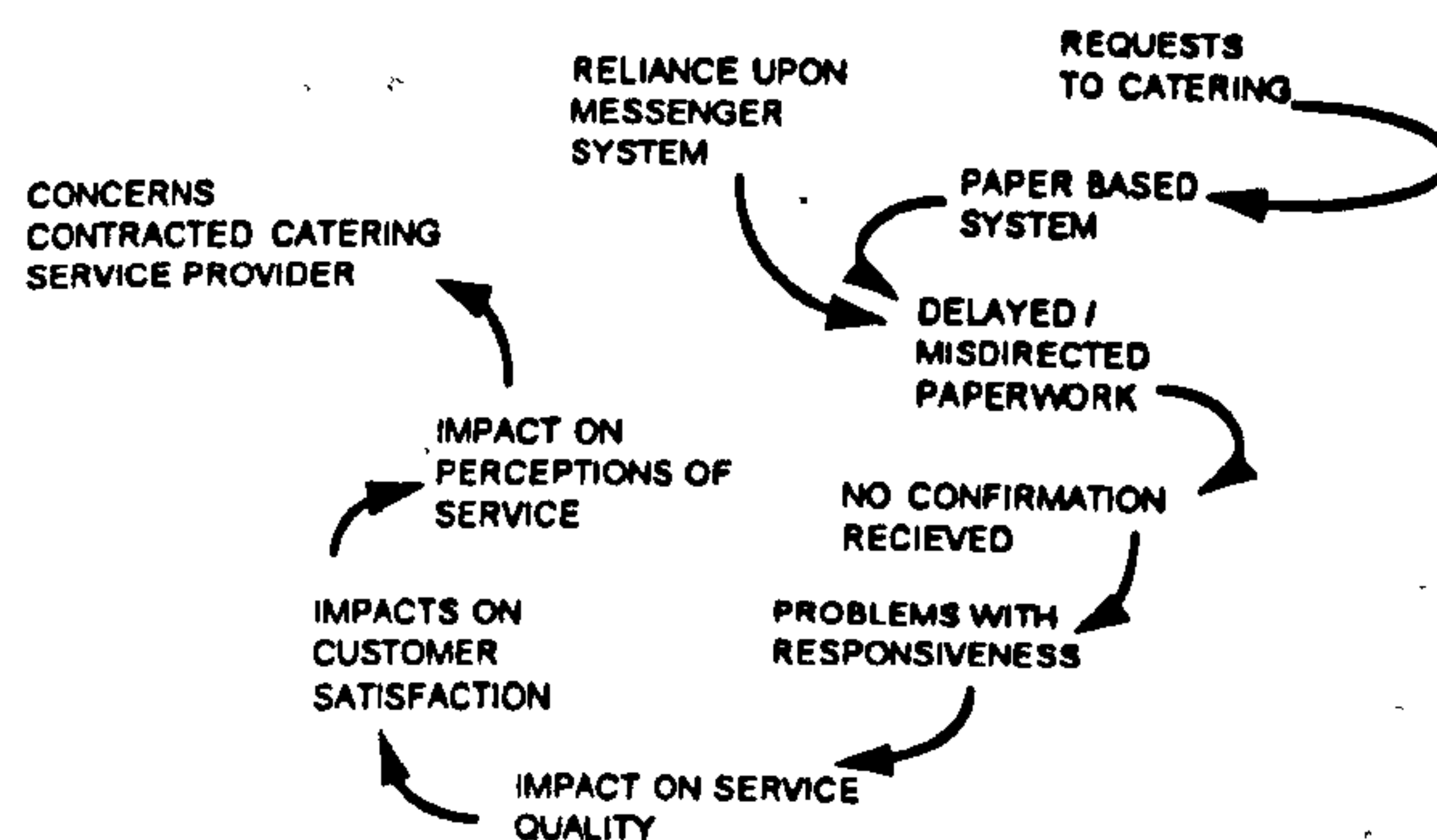
Recommendation h1

Communications - catering booking

Consideration should be given to the installation of a catering booking system to improve service. System could be automated possibly on E-mail to improve shorter term responsiveness.

Customers should be advised to forward fax confirmation of bookings (of less than 24 hours) rather than rely on confirmations by internal mail.

Pattern model hi



Interpretation and Context

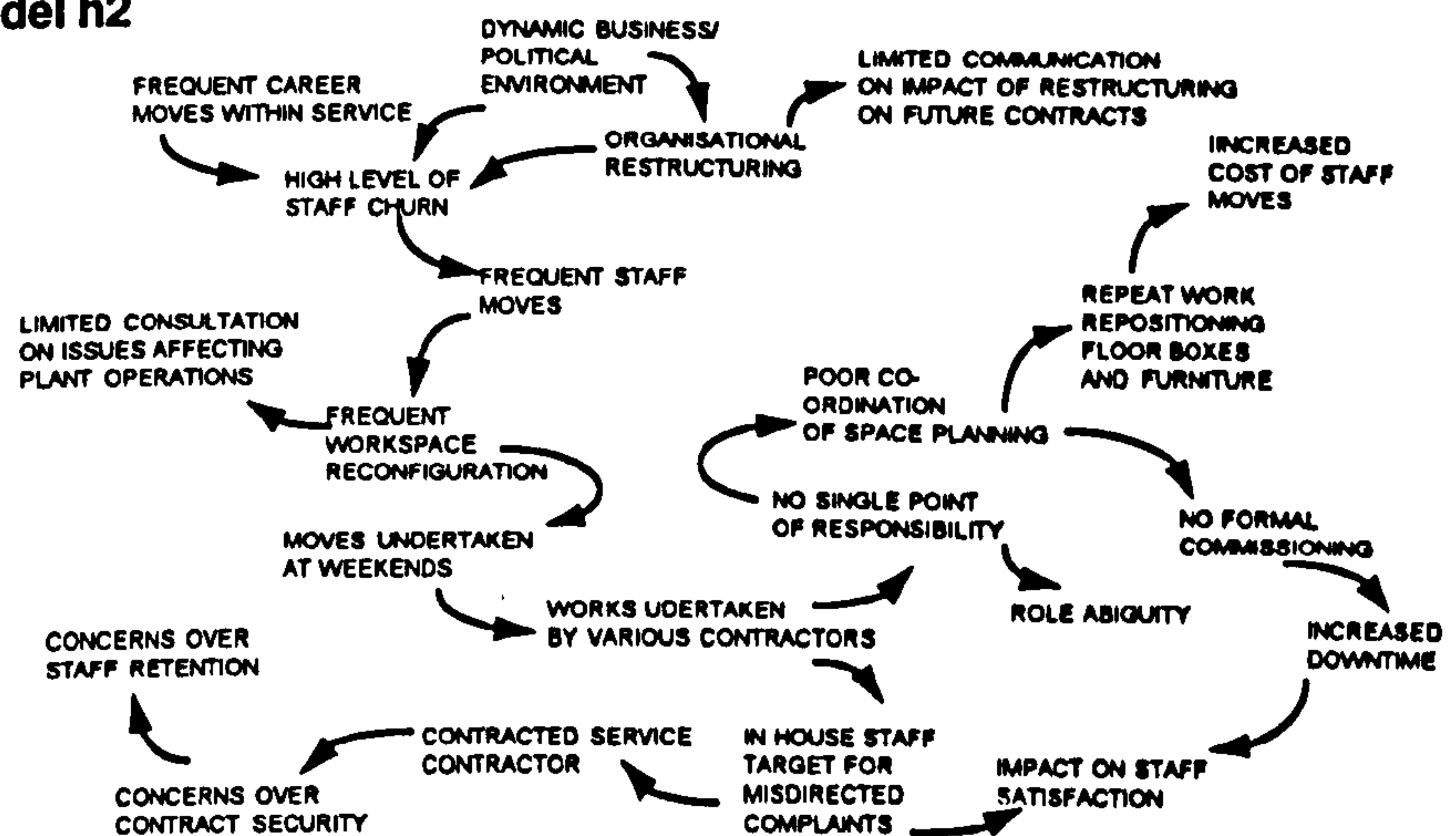
All catering requests currently go through on paper copy through internal mail. Problems have been noted in failing to receive confirmations in time to respond to catering requests. The automation of such a service would ensure that confirmations are both made and acknowledged. The second recommendation followed from the problems inherent in the first. In recognition that the introduction of a fully automated system may be some time in the future:-

Recommendation h2

Communications - Consultation with Maintenance contractors

Greater consultation should be undertaken with internal service providers over any future building re-organisations i.e. partition moves, furniture moves and small power moves.

Pattern model h2



Interpretation and Context

As explored in some detail above, maintenance staff managers feel that there is inadequate consultation with themselves over proposed changes affecting the facilities, which results in the inability of maintenance staff managers to effectively deploy resources to scheduled tasks. (see also below, service personnel.). Managers felt communications could be improved and, at the very least, suggested that, even if not consulted, they should be made aware of changes which would affect their service. The second recommendation generated in this respect was:-

New consultation forms should be extended to include all works affecting operations or maintenance.

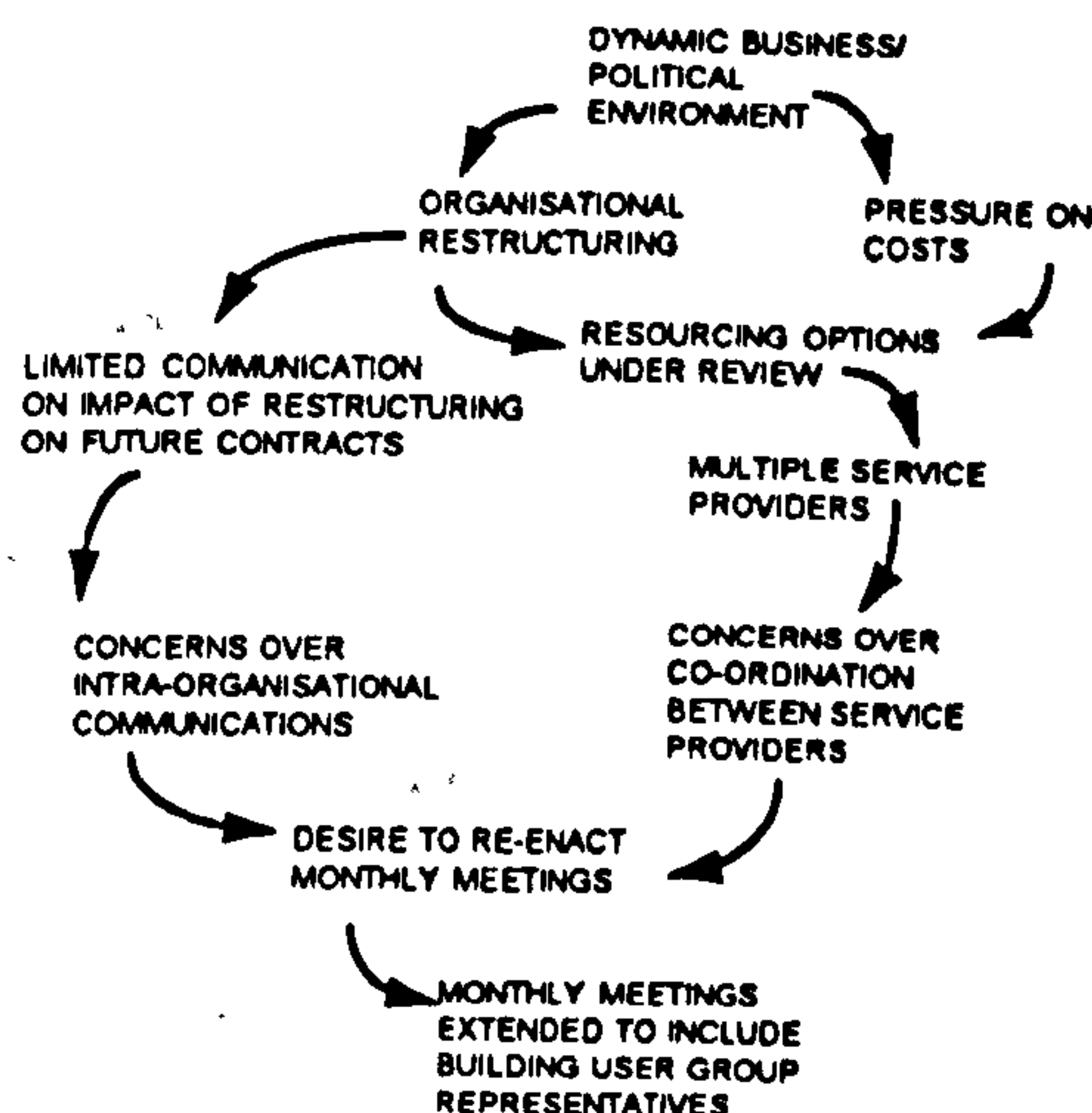
Of greater concern, however, was the existing 5 year contracts have only 6 months left to run. Contractors have had no form of communications as to the position in respect of negotiating extensions or re-tendering the contract in competition. Contractors are naturally concerned that the lack of communications from FMG regarding the future of the contracts both impacts on the companies' own long term plans and reduces staff morale as future employment security is uncertain. managers are unable to communicate the position to their own staff and are concerned that staff may seek to gain more secure employment elsewhere, resulting in new staff coming into service and climbing a learning curve at the very time when service continuity and customer satisfaction is of paramount importance in retaining the contract.

Recommendation h3

Communications - Service providers

Consideration should be given to re-enacting the monthly meeting between service providers personnel and management representatives. This should be extended to include representatives from building user groups.

Pattern model h3



Interpretation and Context

At the early stages of the facilities and catering contracts, regular monthly meetings were held between all parties. Such meetings are now infrequent

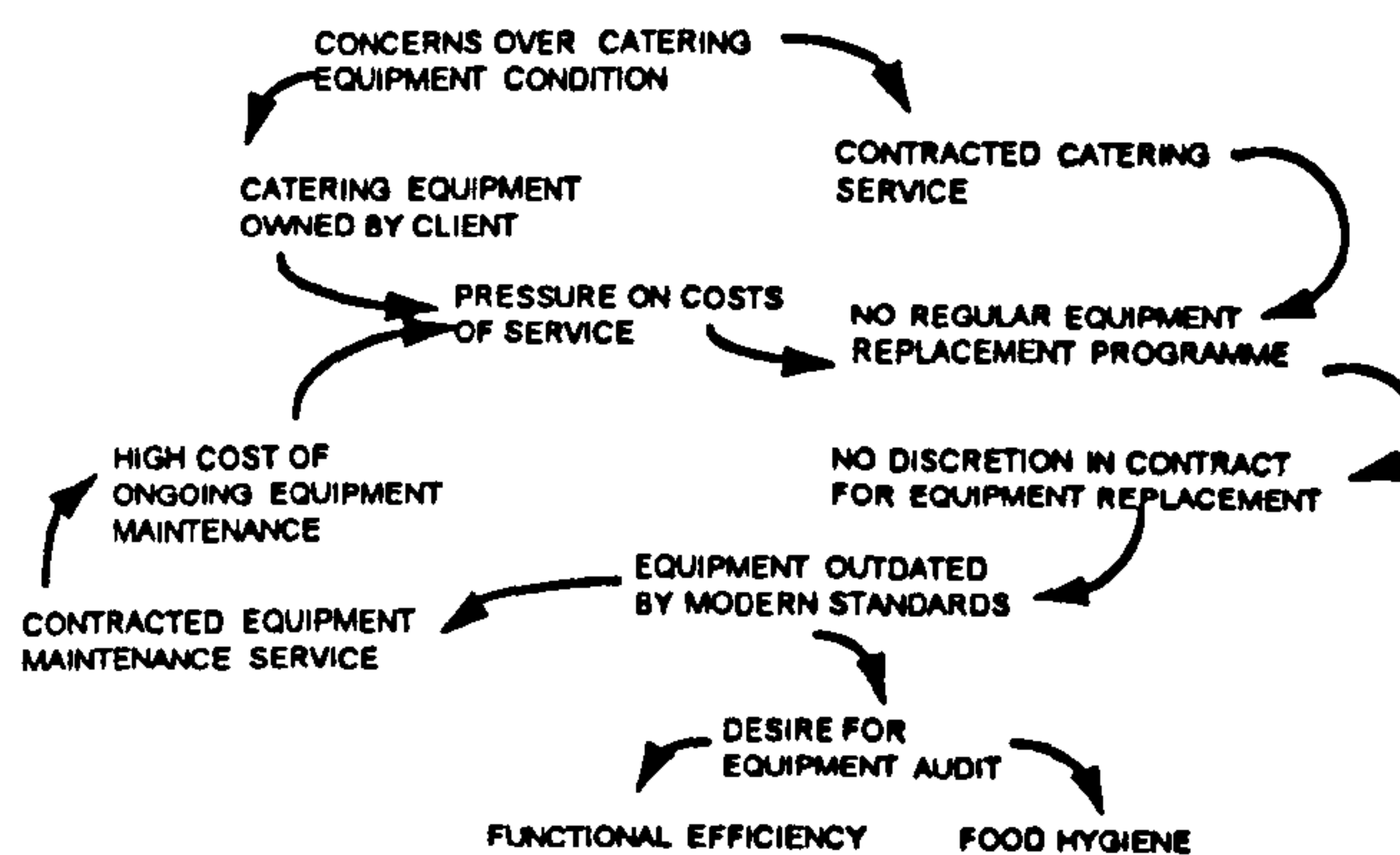
and possibly only once per quarter. Service contract managers felt that the loss of such meetings was detrimental to organisational communications and should accordingly be re-enacted. The suggestion extended to include building user group representative who were not present at the original or current meetings in order to evaluate evolving customer service needs and how these are being met.

Recommendation h4

Catering equipment - Health and Safety/functionality

A regular audit should be conducted on catering equipment with a view to the implementation of a regular replacement programme.

Pattern model h4



Interpretation and Context

Both the manager responsible for provision of the catering service and those for maintenance of equipment (which belongs to the DTI) feel that the existing equipment is antiquated by modern catering standards. The catering service had previously been provided in-house and is now contracted. However, the equipment provision is the legacy from the original organization and no requirement exists under the terms of the existing contract for equipment replacement other than that authorised directly by FMG.

Catering staff have identified the need for replacement equipment and communicated this to FMG. However this has not been acted upon.

Maintenance staff under their contract are required to maintain electrical equipment etc. in a serviceable condition which is increasingly difficult with

older equipment. The suggestion was that a regular audit should be carried out with all parties concerned and, if necessary, with independent advisors to the DTI. This could serve as the basis for a regular replacement programme.

7.59 Group I - Contracted Service Provider staff

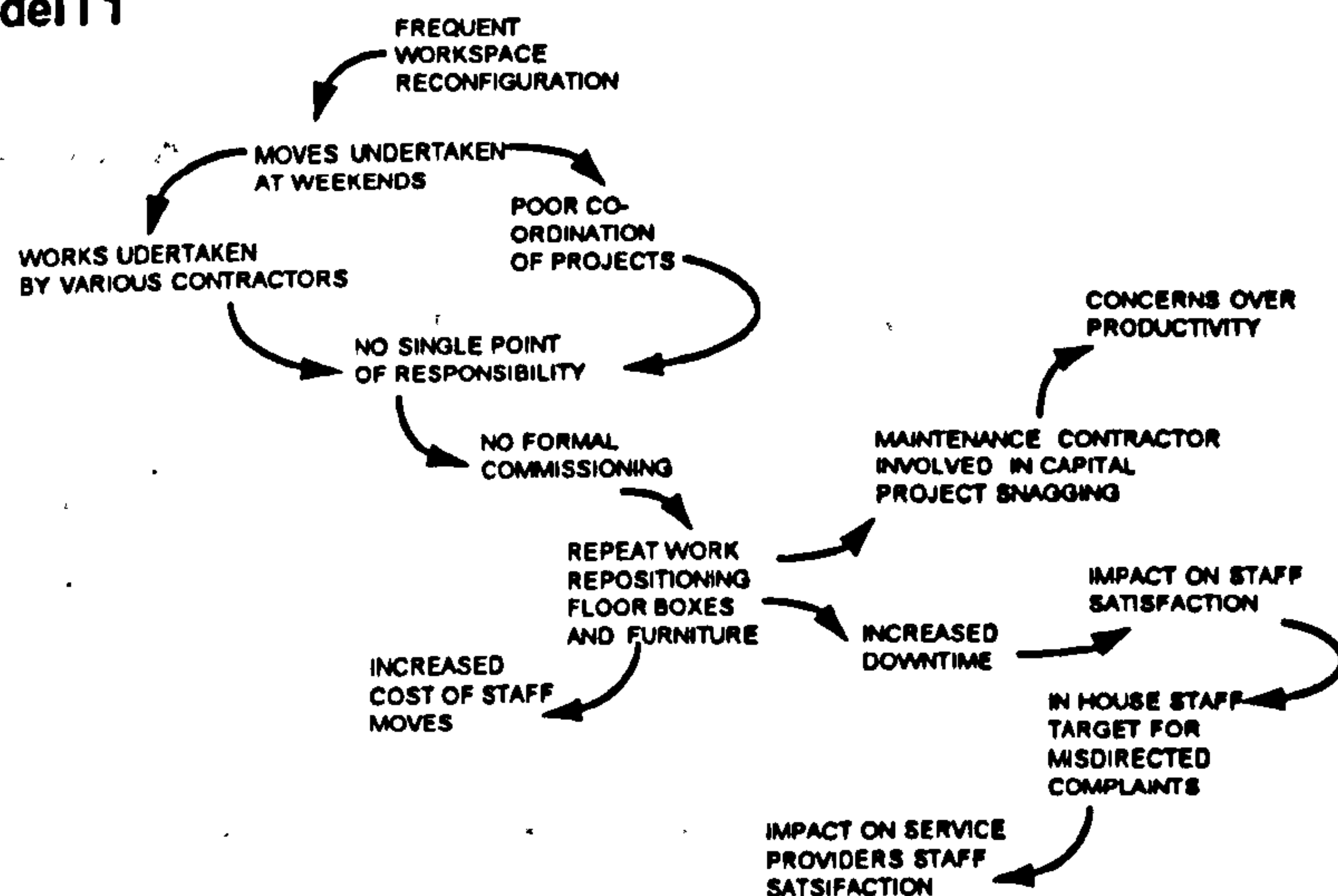
This group represented a broad cross-section of staff from the various service provider organisations including, maintenance, catering, portering and security. There was clear evidence of a 'them and us' attitude between the service provider staff and that of general civil servants. This group felt that despite their best efforts they were not highly regarded or respected in the organisation. Moreover they often felt that they were not consulted over areas in which they had specialist knowledge. This group felt that they were often the target for misdirected complaints, mainly due to a lack of understanding of the roles that they were required to and actually fulfilled.

Recommendation i1

Communications - move management

During move management activities, there should be a dedicated co-ordinator or team on -site with overall responsibility for co-ordination of contractors.

Pattern model i 1



Interpretation and Context

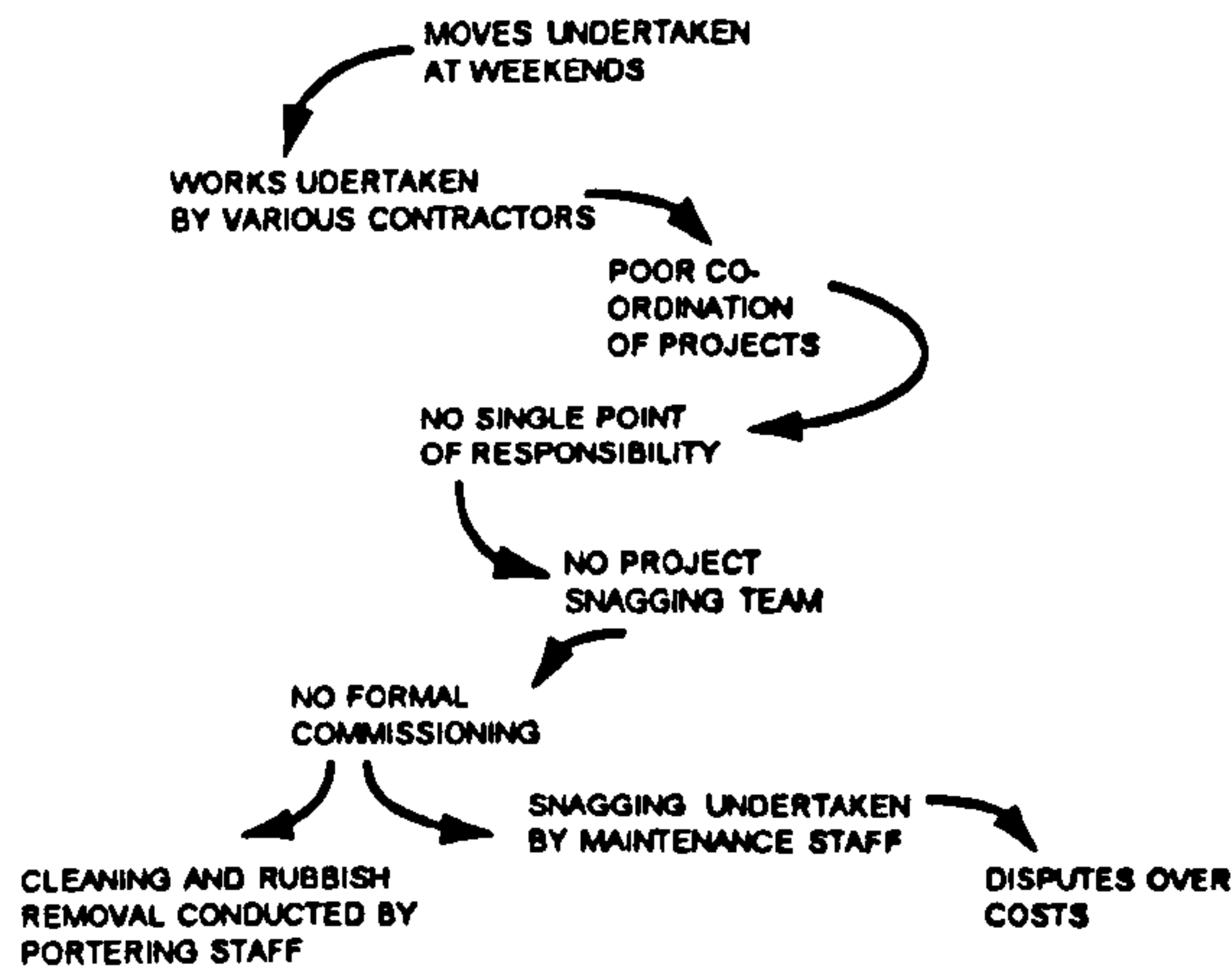
This recommendation relates to previous discussions on misdirected complaints and contractor loss of productivity. The lack of effective co-ordination of weekend contractors results in increased re-work and snagging by maintenance teams post move. At the moment, it is not clear where overall responsibility for such actions lie. When work is identified post move which is non-maintenance, i.e. pertaining to capital works, it should be clearly identified and communicated to whom responsibility for works lies.

Recommendation i2

Move management snagging and commissioning

In-house staff are often required to conduct snagging/clean up following weekend office moves by external contractors. Weekend contractors should be available for corrective work, commissioning with staff groups on first work day.

Pattern model i 2



Interpretation and Context

Following on from the previous item, rather than simply identify responsibilities for work undertaken, it was considered that it would be more appropriate for weekend contractors to have a snagging team on hand following moves to rectify defects and commission works. At present responsibility for this often falls to the maintenance contractor with subsequent disputes over costs.

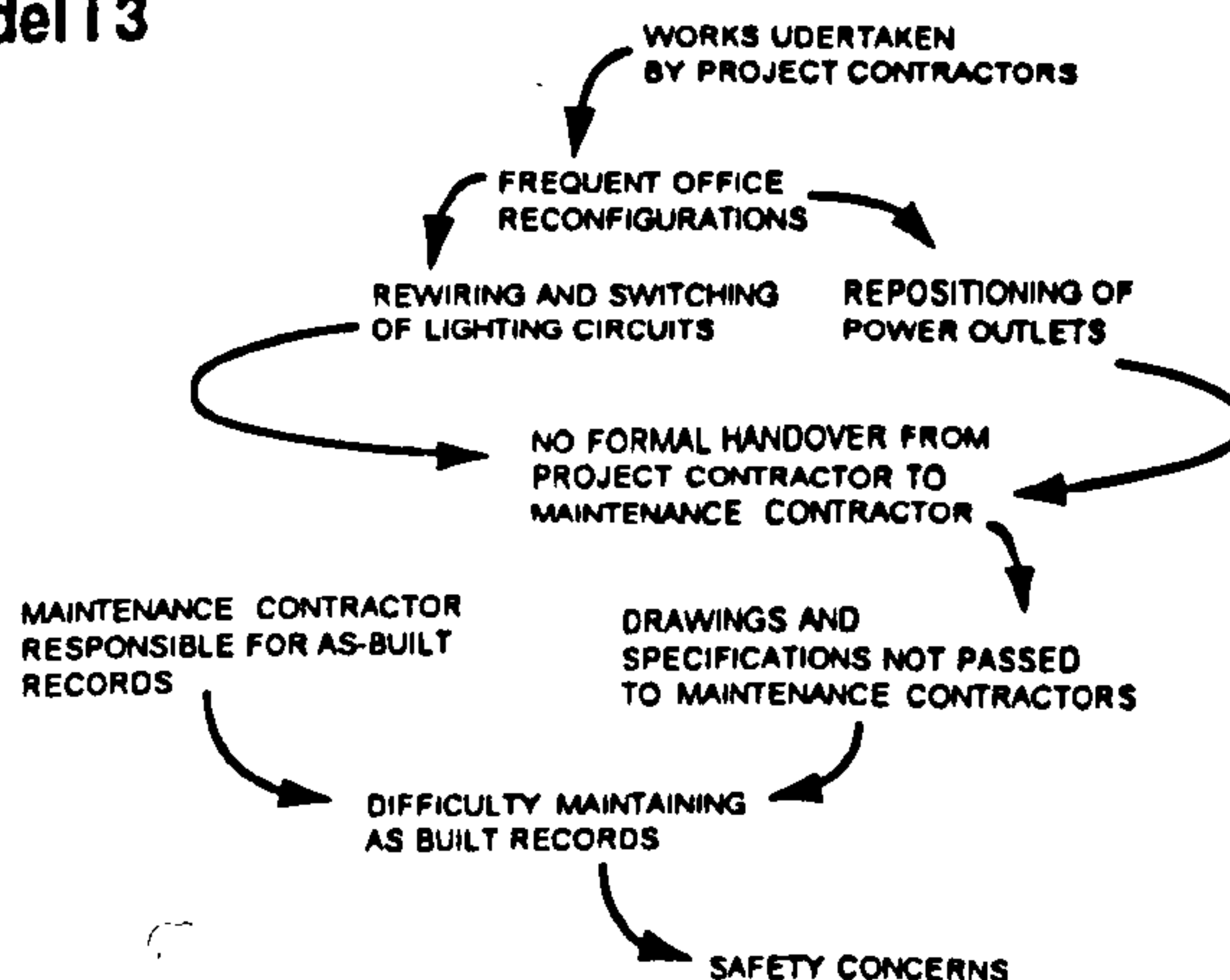
Recommendation i 3

Communications - move management - records

- Electrical safety

scope of works should be passed to maintenance staff/supervisor so that as-built drawings and technical data can be updated.

Pattern model i 3



Interpretation and Context

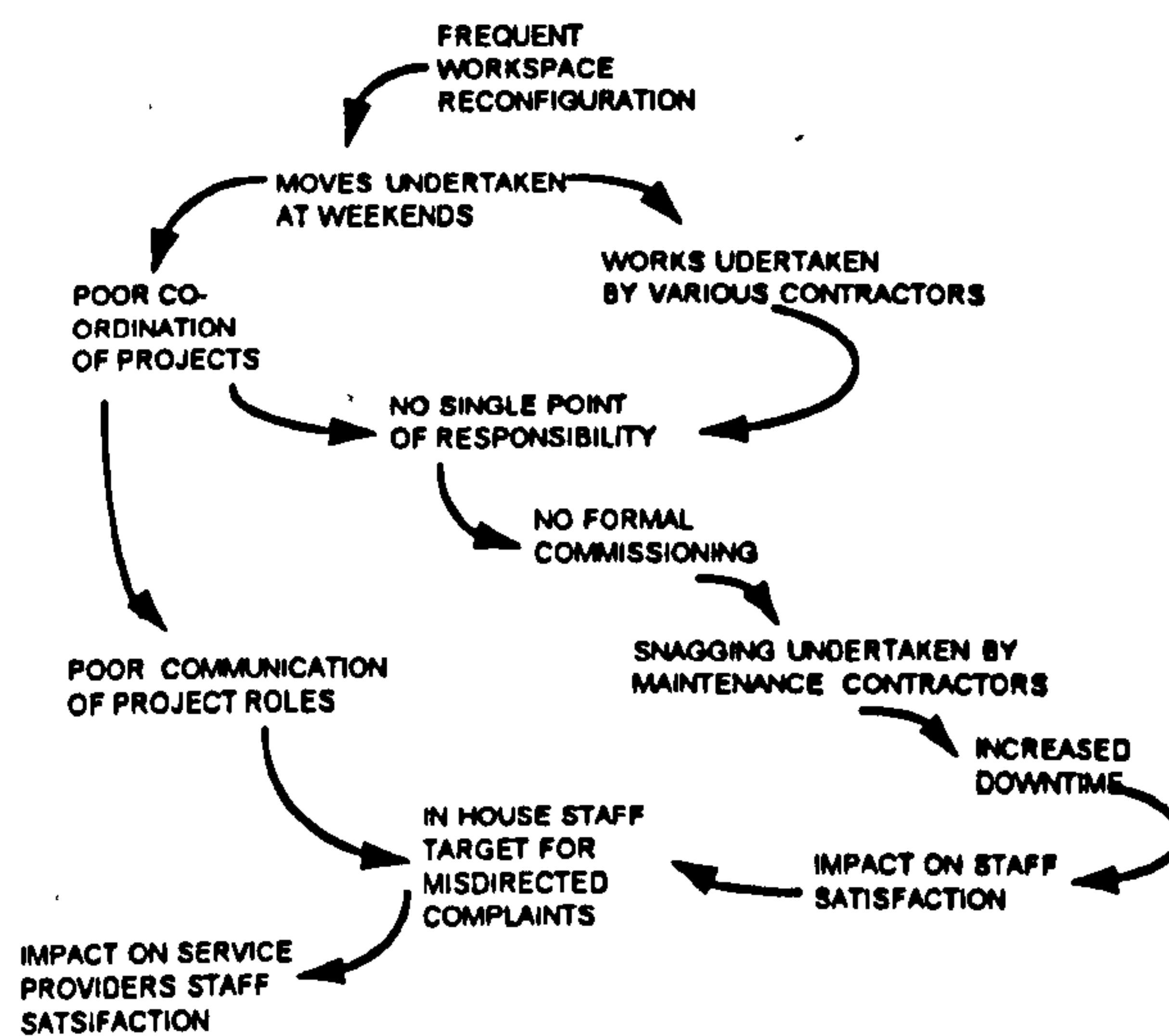
Following office moves which invariably involve repositioning of floor power boxes and lighting switches to individual cellular offices, communication of changes to electrical systems is not being effectively passed to ongoing maintenance contractor who has a responsibility to maintain as-built' drawings and specifications. This recommendation suggests that more effective communication requires to be given to maintain an as-built' record. At the minimum, provision of a copy of scopes of works would allow the maintenance contractor to ascertain any amendments necessary to the records and conduct subsequent survey and updating works.

Recommendation I 4

Communications- Misdirected user complaints

Maintenance staff are frequently the target for user complaints following move management exercises. Improved communication to users as to responsibilities following moves should reduce this. Prior to all moves a memorandum highlighting such responsibilities should be sent to all staff.

Pattern model I 4



Interpretation and Context

This item has been explored above. This particular recommendation pertains to making users aware that works were not conducted by in-house teams to avoid misdirected complaints.

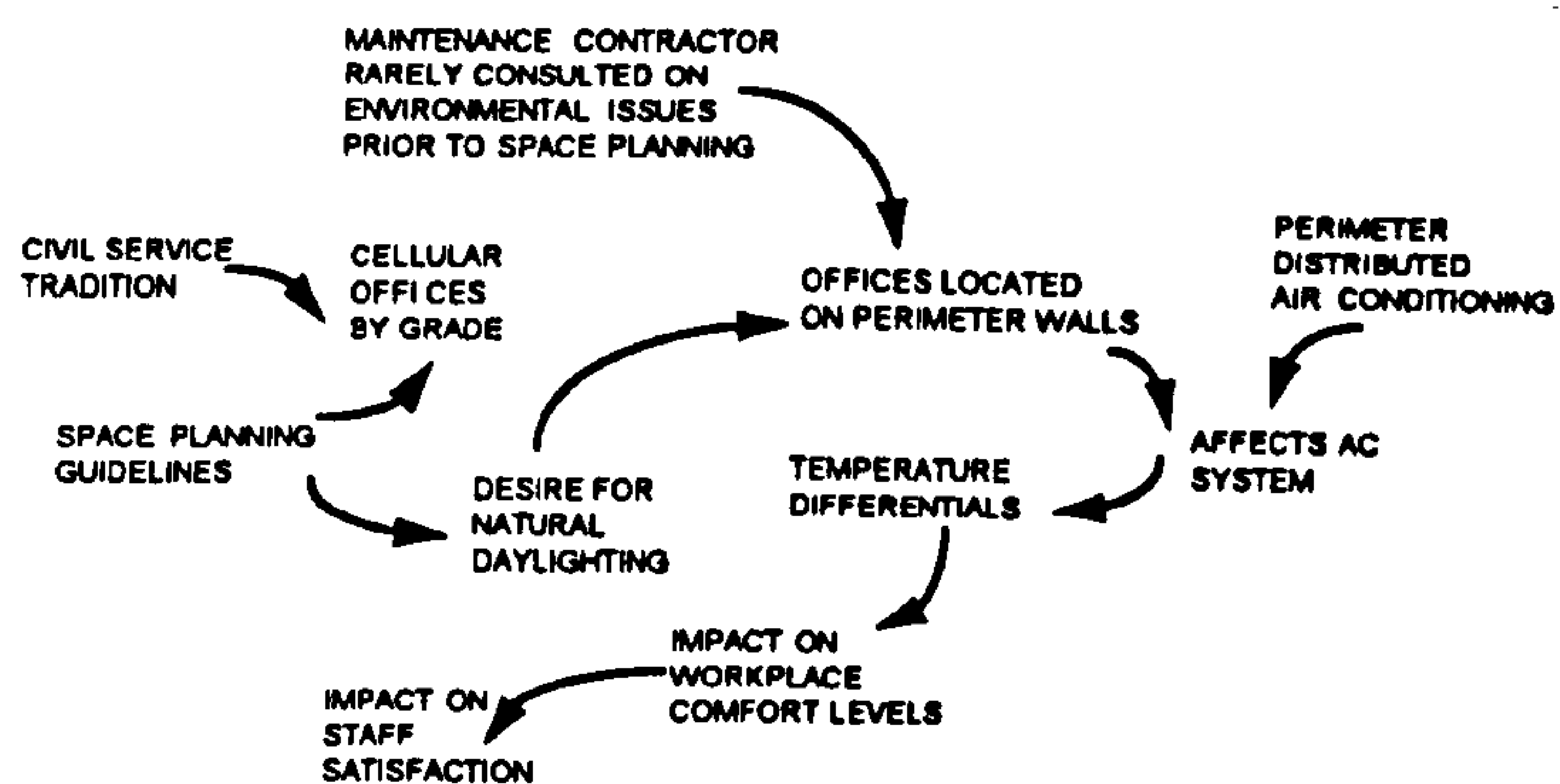
Recommendation I 5

Environmental conditions

The resident facilities maintenance contractor should be consulted on the configuration of air conditioning plant during space planning exercises.

- cellular offices on perimeter walls affect the environmental conditions throughout because of the perimeter air flow, resulting in temperature differentials.

Pattern model I 5



Interpretation and Context

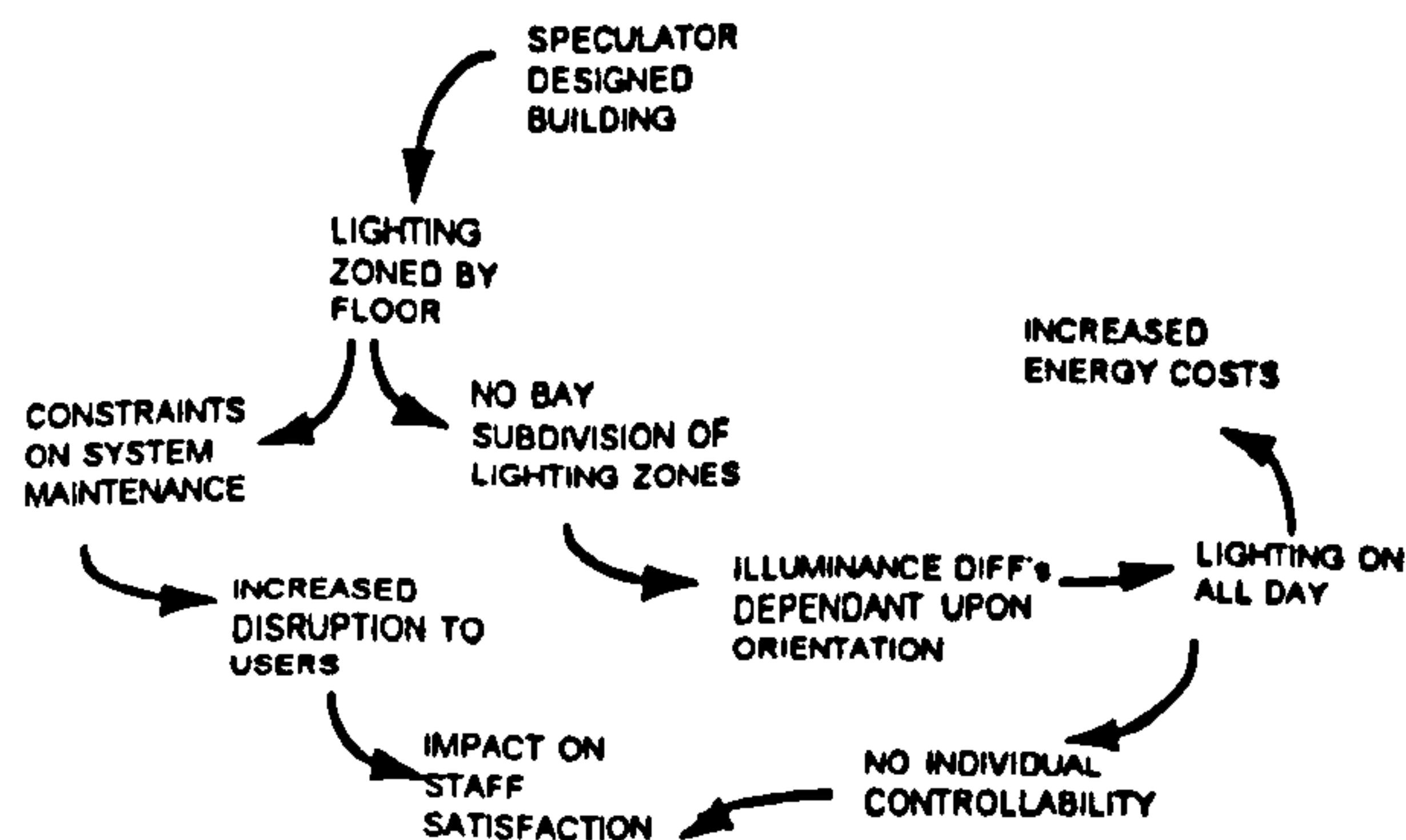
This issue has been explored fully above. The maintenance staff suggested that they have technical expertise which would be of value to space planners prior to office configurations but are not consulted.

Recommendation I 6

Lighting

Re-zoning of the lighting configuration would result in increased maintenance flexibility with resultant energy savings.

Pattern model I 6



Interpretation and Context

This issue has been explored above. This particular perspective comes from a maintenance consideration in that the existing zoning makes maintenance inflexible through the need to shut down large areas of lighting at a time.

Recommendation i 7

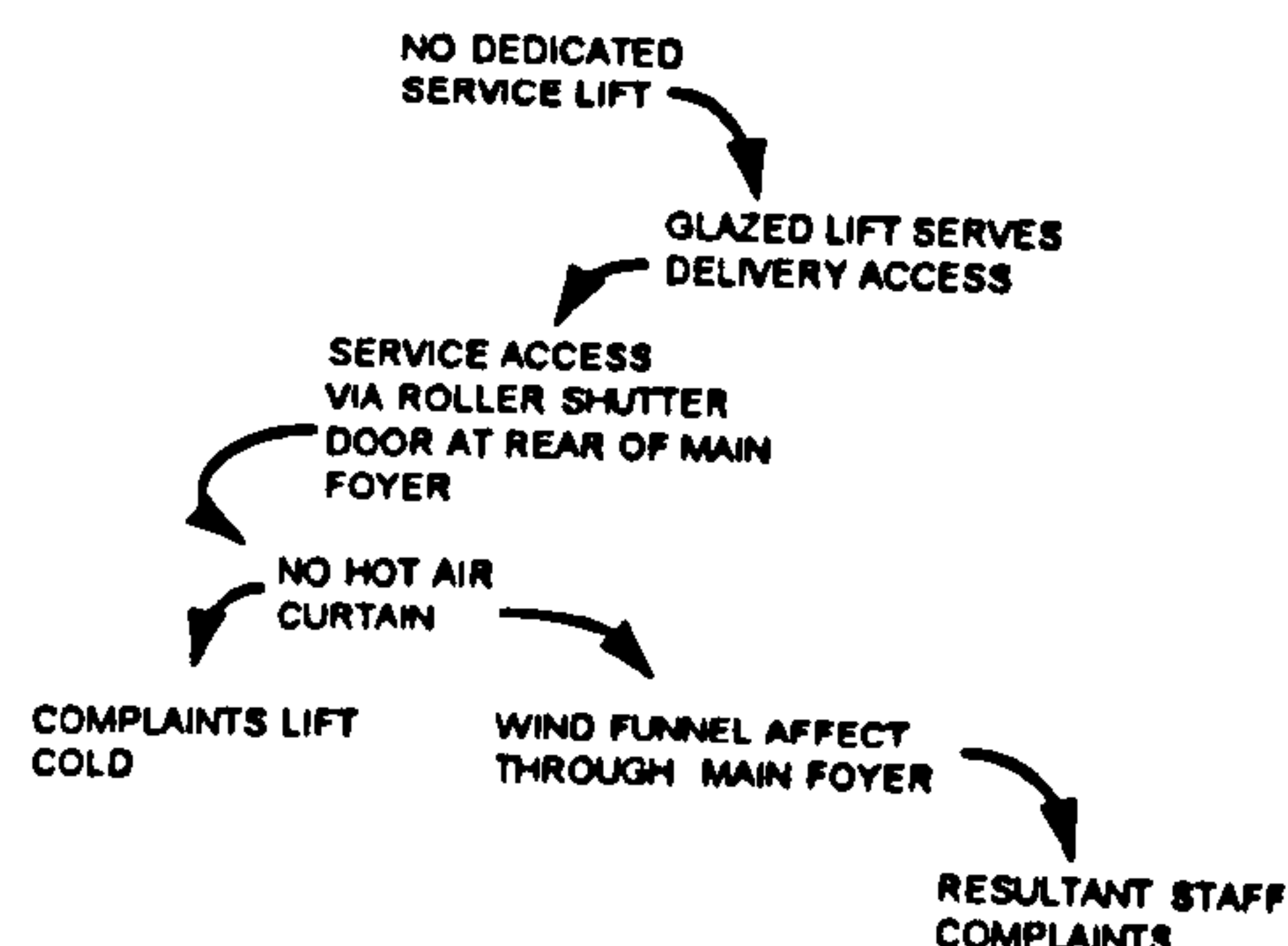
Service Deliveries

All deliveries currently go through the rear of the building. The lift that services the 10th floor is used for delivery access which is accessed by a roller shutter door. During deliveries this results in a cold air through draft into the building, affecting the main foyer area.

(a) the installation of a hot air curtain

(b) providing an air lock with double doors.

Pattern model i 7



Intepretation and Context

Frequent complaints are levelled at a through draft in the main reception foyer and the temperature of the lift which services the 10th floor. The existing delivery access requires to use this rear entrance and service lift. When the roller shutter door is open, the through draft goes through the main lift bank foyer and entrance foyer. The technical solutions suggested may alleviate this problem.

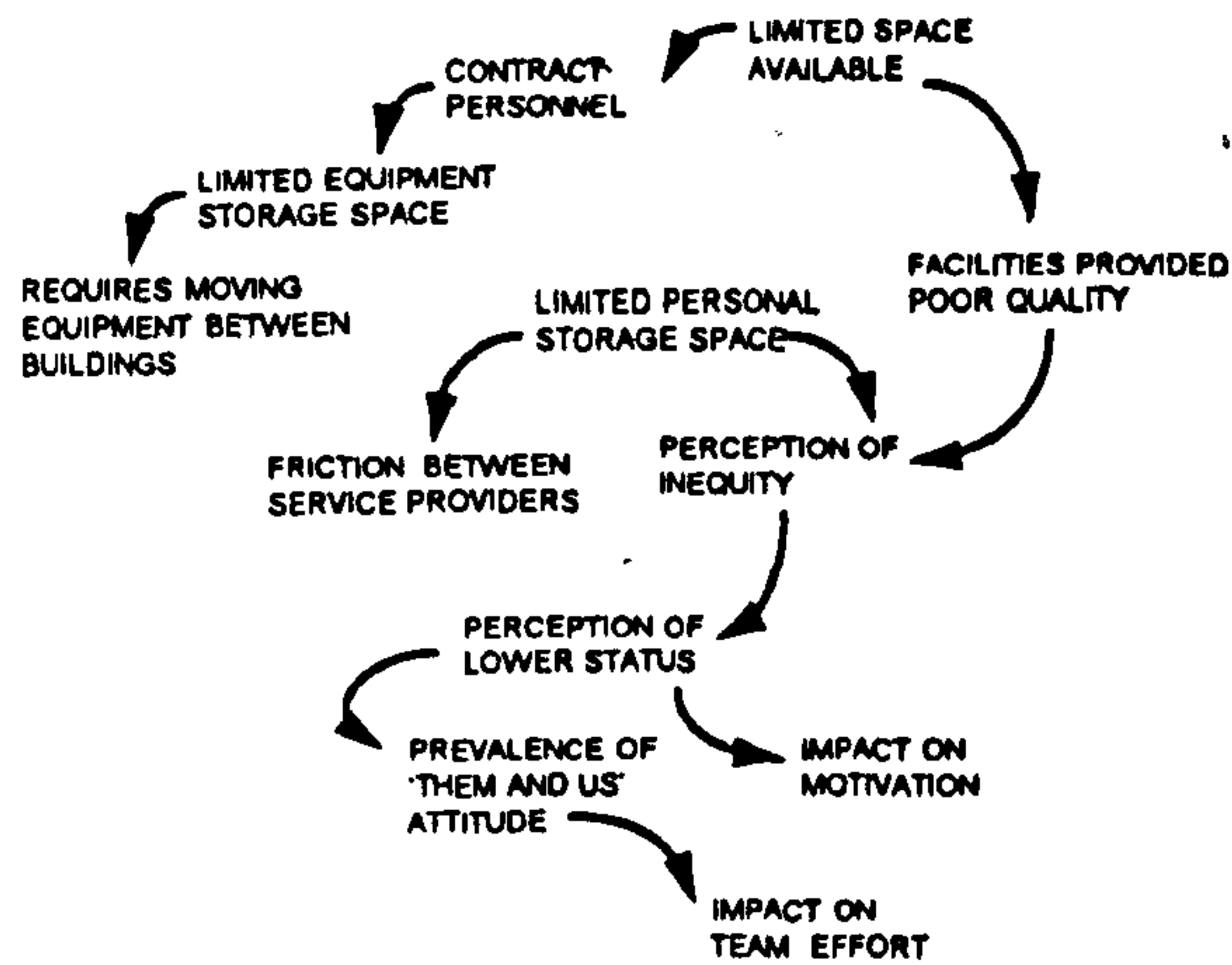
Recommendation i 8

Contract personnel facilities

Porters should have a dedicated storage space for equipment within Kingsgate House.

Resident contract personnel are not, as a matter of course, provided with personal storage facilities/lockers for tools and personal belongings. This should be provided as a matter of course when letting contracts.

Pattern model I 8



Interpretation and Context

The major concern with this point and the issue regarding misdirected complaints, is that contract personnel felt devalued in organisational terms. Contract staff feel that, as they are not civil servants, have lower status in the organization. Whilst some within the group suggested that civil servants thought that they were above them and did not acknowledge their presence, others were more philosophical and suggested that their status within the organization manifest itself in the quality of facilities they were provided. Most of this is in basement or cramped accommodation.

Areas for personal storage of uniforms, tools and equipment was not provided as a matter of course and staff usually had to use equipment thrown out by others.

Of the several contractor groups represented, none considered themselves to be part of a team. The level of respect they received was described as particularly low. Service personnel were seen to be an inconvenience for conducting the tasks allocated to them, which in some cases they had no discretion over, such as having to security clear staff with missing identification cards.

7.6 Calculating The SERVQUAL Gap scores

The SERVQUAL statements for both the expectations and perceptions sections of the questionnaires are grouped into the five consolidated dimensions as follows:-

Relationship between SERVQUAL Dimensions and Statement numbers

Dimension	Statements Pertaining to the Dimension
Tangibles	Statements 1 - 4
Reliability	Statements 5 - 9
Responsiveness	Statements 10 -13
Assurance	Statements 14 - 17
Empathy	Statements 18 - 22

7.61 Calculating an overall unweighted SERVQUAL score

The assessment of quality of service using SERVQUAL involves computing the difference between the ratings customers (hereafter referred to as respondents) assign to the paired expectation perception statements. A Gap 5 or SERVQUAL score is calculated for each statement pair for each customer as:-

$$\text{SERVQUAL Score} = \text{Perception Score} - \text{Expectation Score}$$

An organisations quality of service along each of the five dimensions can then be assessed by averaging their SERVQUAL scores on the statements making up each dimension through a two step process of:-

1. For each respondent, adding the SERVQUAL scores on the statements pertaining to the dimension and dividing the sum by the number of statements making up the dimension
2. Adding the quantity obtained in step 1. across all respondents and dividing by the total number of respondents

The overall SERVQUAL scores obtained for each of the five dimensions can themselves be averaged by summing and dividing by five to obtain an overall

measure of service quality. This overall measure is an unweighted SERVQUAL score however as it does not take into account the relative importance assigned to the five dimensions by respondents.

7.62 Calculation of overall Weighted SERVQUAL score

Of more value is an overall weighted SERVQUAL score, as by taking into account those factors of relative importance to respondents, a more meaningful appreciation is given to base any subsequent decisions on closing gaps between perceptions and expectations. In other words by focusing on those areas of value to respondents. This involves a four step process of:-

1. For each respondent computing the average SERVQUAL score for each of the five dimensions
2. For each respondent multiplying the SERVQUAL score for each dimension obtained by the importance weight assigned by the respondent to that dimension
3. For each respondent adding the weighted SERVQUAL scores across all five dimensions to obtain a combined weighted SERVQUAL score
4. Adding the combined weighted SERVQUAL score across all respondents and dividing by the total number of respondents.

7.63 SERVQUAL Applications

Data obtained through the SERVQUAL instrument can be used to calculate service-quality gap scores at different levels of detail: for each statement pair, for each dimension, or combined across all dimensions. Zeithaml et al. (1990:177) argue that by examination of these various gap scores, companies can both assess their overall service quality as perceived by customers, and also identify the key dimensions and facets within those dimensions, upon which it should focus quality improvement efforts.

7.64 Analysis of SERVQUAL findings

Reliability of SERVQUAL Instrument

As stated above the SERVQUAL instrument was used only to provide convergent validity of findings generated by the main dialogue praxis.

The instrument itself has been found to be dimensionally robust and applicable across a wide number of service settings. Despite this as Drummond [1994] reported it is not entirely generic, requiring modification for each instance of use. This requires statistical analysis of the dimensional stability of the data. Drummond also reported that in common with all empirical instruments the framework for analysis is set in advance which does not allow other pertinent data to be added and subsequently analysed.

Nonetheless he concluded on the basis of his case studies of three office service organisations in comparison to the findings from the original five Parasuraman et al., case studies, which were conducted across a diverse range of organisations; a credit card company, two insurance companies, a retail banking service, a long distance telephone company and an electricity supply company. That the SERVQUAL is a suitably advanced tool in which the methodology appears to be stable and reasonably generic in application.

The analysis of findings from the SERVQUAL instrument administered to DTI held within a few percentage points from the original studies conducted by Parasuraman et al. [1985] in all dimensions of Tangibles, Reliability, Responsiveness, Assurance and Empathy. As shown in Table 7.6 below.

Table 7.6 Comparison of rated importance of SERVQUAL dimensions

SERVQUAL Dimension	Rated Importance of SERVQUAL dimensions Parasuraman et al. [1985]	Rated Importance of SERVQUAL dimensions Dept. Trade and Industry
Empathy	18.45 %	12.40%
Assurance	18.45%	17.30%
Responsiveness	21.36%	23.00%
Reliability	31.07%	29.00%
Tangibles	10.66%	18.30%

Perhaps the largest shortcoming in the dimensions in terms of its general applicability has been highlighted by Parasuraman et al, [1985] in refining and reassessing the SERVQUAL scales. That is that of the physical aspects of the service offering or Tangibles. Similarly in this case it may be concluded that the tangibles dimension is wrongly loaded in that staff very rarely visit the

premises of service providers but rate the premises that they occupy. Given that Kingsgate House is a marketing HQ it may be that the general quality of the facilities influenced the weighting towards the tangibles dimension. Other factors which related to tangibles such as personnel, equipment and advertising materials appear to be unaffected. This is somewhat surprising in that a large number of focus groups were keen to encourage FMG to raise their profile., Drummond [1994]concluded however that it is appropriate for use in evaluating how individuals holistically perceive of service quality.

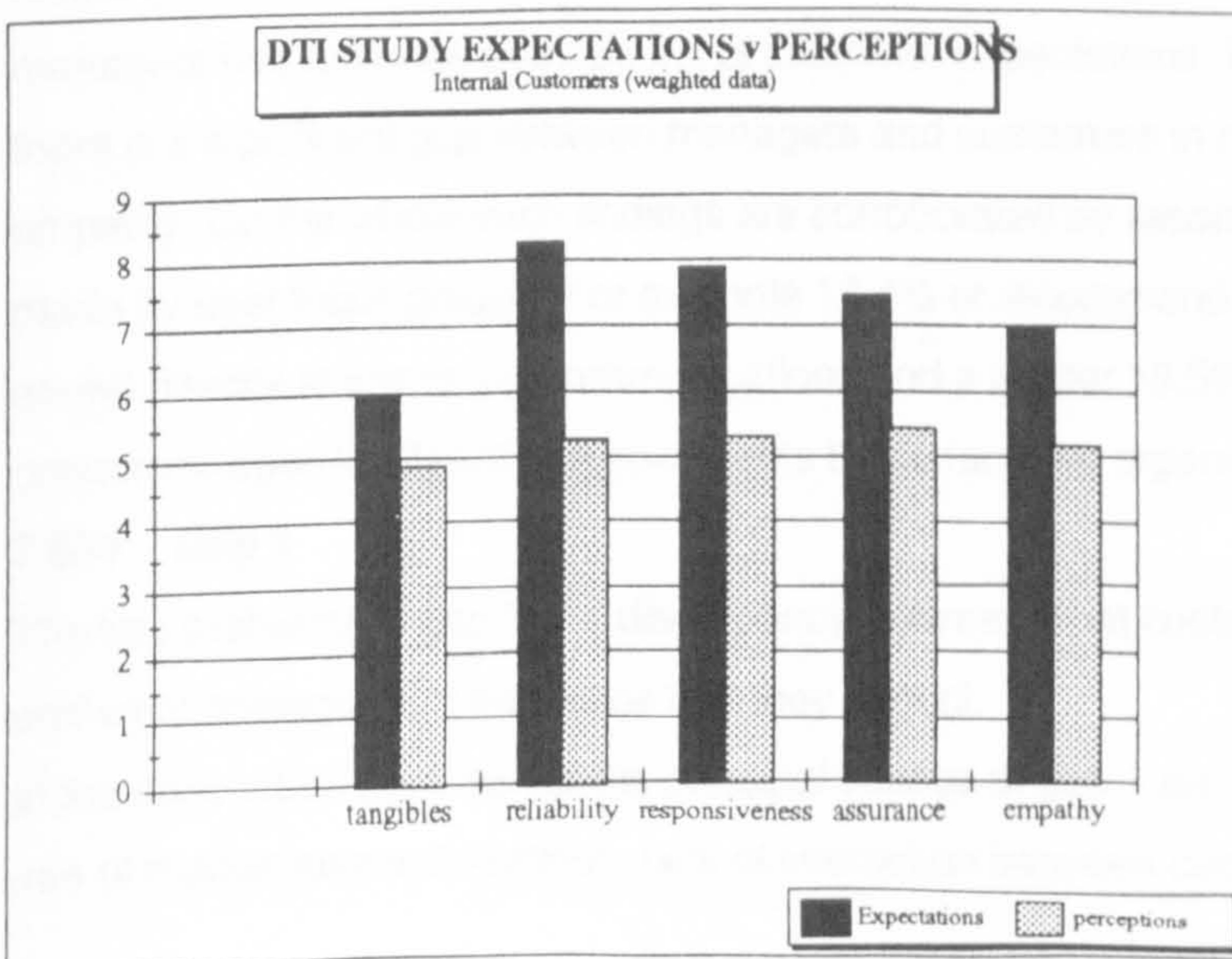
7.65 Convergent validity with SERVQUAL Findings

The SERVQUAL questionnaires were analysed by Drummond [1994]. The gap diagrams between customer expectations of an excellent service provider and the facilities support services provided to them within Kingsgate House are shown in diagrams 7.61 to 7.66. The calculated and weighted scores forming the basis for these are shown in the appendix.

It is clear from diagram 7.61, comparison of expectations to perceptions, that sizeable gaps exist across all dimensions. The largest of these relates to dimensions of reliability and responsiveness. These are the dimensions which all customers base the majority of their perceptions around.

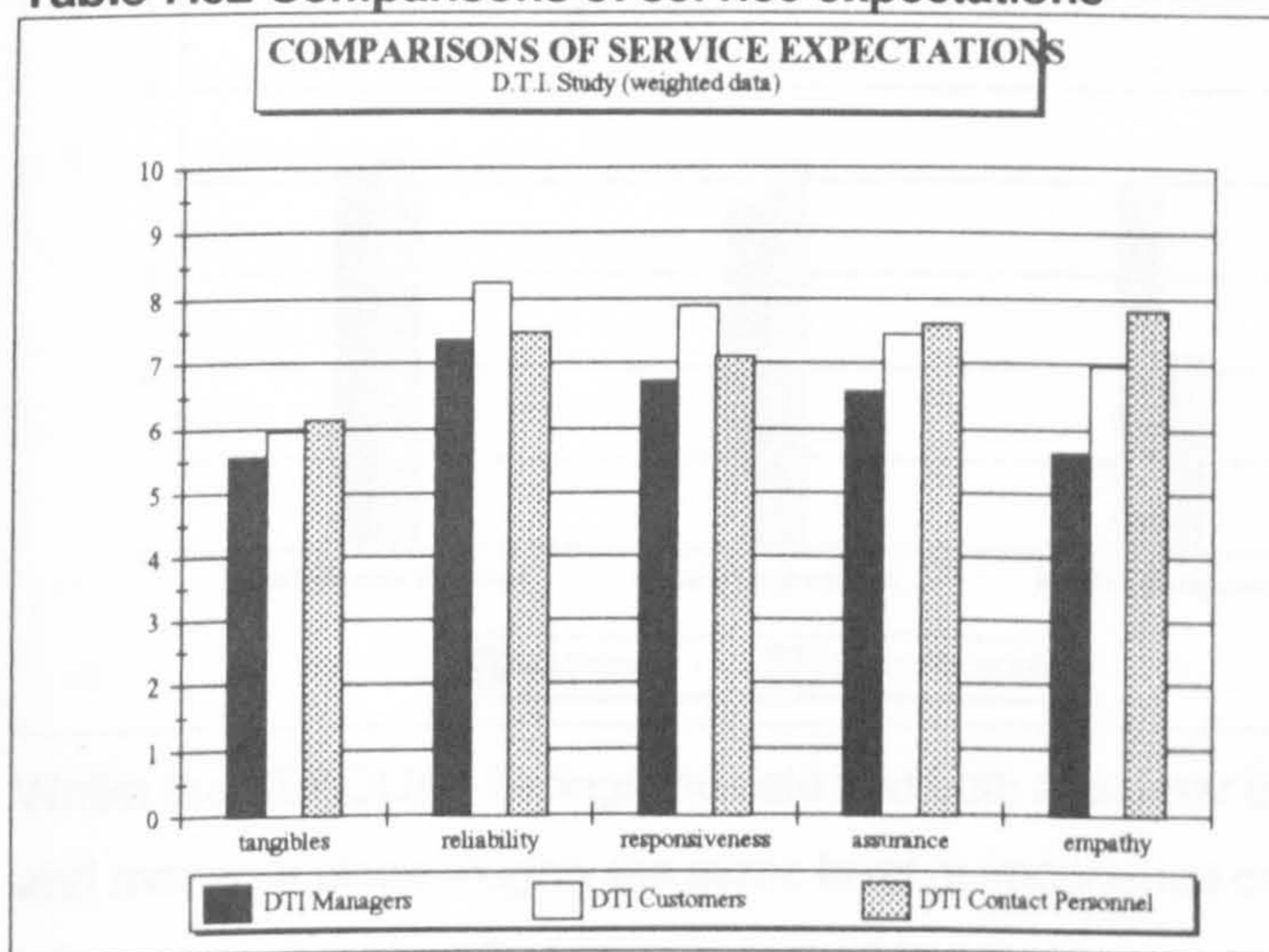
One of the principal advantages of the gaps model is that it provides a true reflection of customer opinions since the customer decides which weighting to attribute to each dimension.

Table 7.61 Comparison of expectations versus perceptions



The aim of the gaps model is to explain the causes of gaps across the five dimensions, by identification of the antecedents, and to provide guidance to management in closing gaps. The analysis of such antecedents and subsequent gap closure guidance provides a means of demonstrating convergent validity with the recommendation developed by the focus groups. The findings across all dimensions (shown in figure 7.62 below) demonstrates that contact personnel have a greater understanding of customer requirements than managers.

Table 7.62 Comparisons of service expectations



The findings demonstrate a not insignificant gap in management perceptions across the most important dimensions to customers, reliability and responsiveness. In these areas, neither customer contact personnel nor managers had accurate perceptions of customer expectations. In addition there is a significant gap between managers and customers in respect of empathy. On the whole such findings are corroborated by recommendations made by user focus groups. For example 13.4% of recommendations were aimed directly at improving communications and a further 19.5% were concerned specifically with improvements to the facilities organisation.

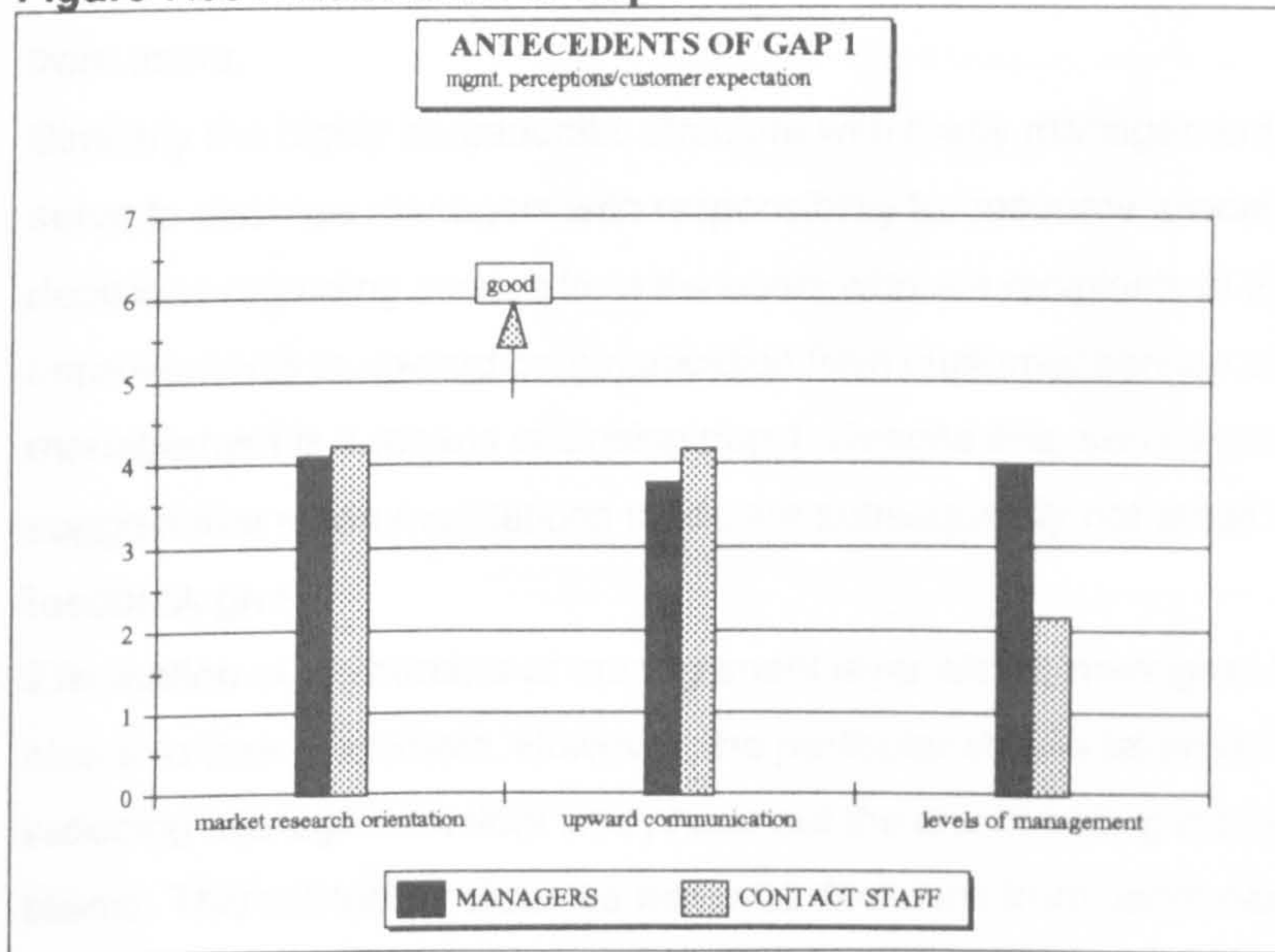
7.651 Gap 1

The key problems in gap 1 is a discrepancy between what customers expect and what management perceives that they expect.

In the conceptual gaps model the principal causes of gap 1 are inadequate use of market research findings, lack of interaction between customers and

managers, insufficient upward communication from contact personnel to management, and too many levels of management between contact personnel and management. The comparisons of both managers and contact staff perceptions of customer expectations are shown in figure 7.63.

Figure 7.63 Antecedents of Gap 1



Whilst the SERQUAL findings indicate that both customer contact personnel and manager place roughly the same level of importance on market research information, it is clear that there is a need to get closer to customers if gap 1 is to be closed. Despite having conducted a customer survey on another building which resulted in a service improvement programme with task leaders, many of the intentions generated have yet to find their way into practice. Similarly a service level agreement has been prepared in draft and circulated to the building user group but has not yet been implemented.

Many of the recommendations generated during the focus groups were specifically requesting reviews of current policy or practice - suggesting that management were unaware of user needs - or indeed requesting increased user participation in issues which affected them such as space planning. Despite the existence of a Building User group which represents users interests, the infrequency of meetings may be insufficient in providing the customer with a voice. The call for improvements in communications frequently came through in recommendations suggesting a lack of interaction

between managers and users. Again closing gap 1 could be established by both increased user participation in issues affecting them and by the introduction of service level agreements which are based upon an understanding of user requirements.

Whilst the introduction of the new help desk may rationalise the administrative functions of service delivery, it may also serve to further distance management from users.

Similarly the highly bureaucratic structure with many management layers serve to distance managers with responsibility for resource allocation decisions regarding service from the users who are recipients of that service. Improvements in upward communication from customer service staff to management is a means of closing gap 1. Despite this, service provider staff suggest that recommendations made are subsequently not acted upon nor feedback given.

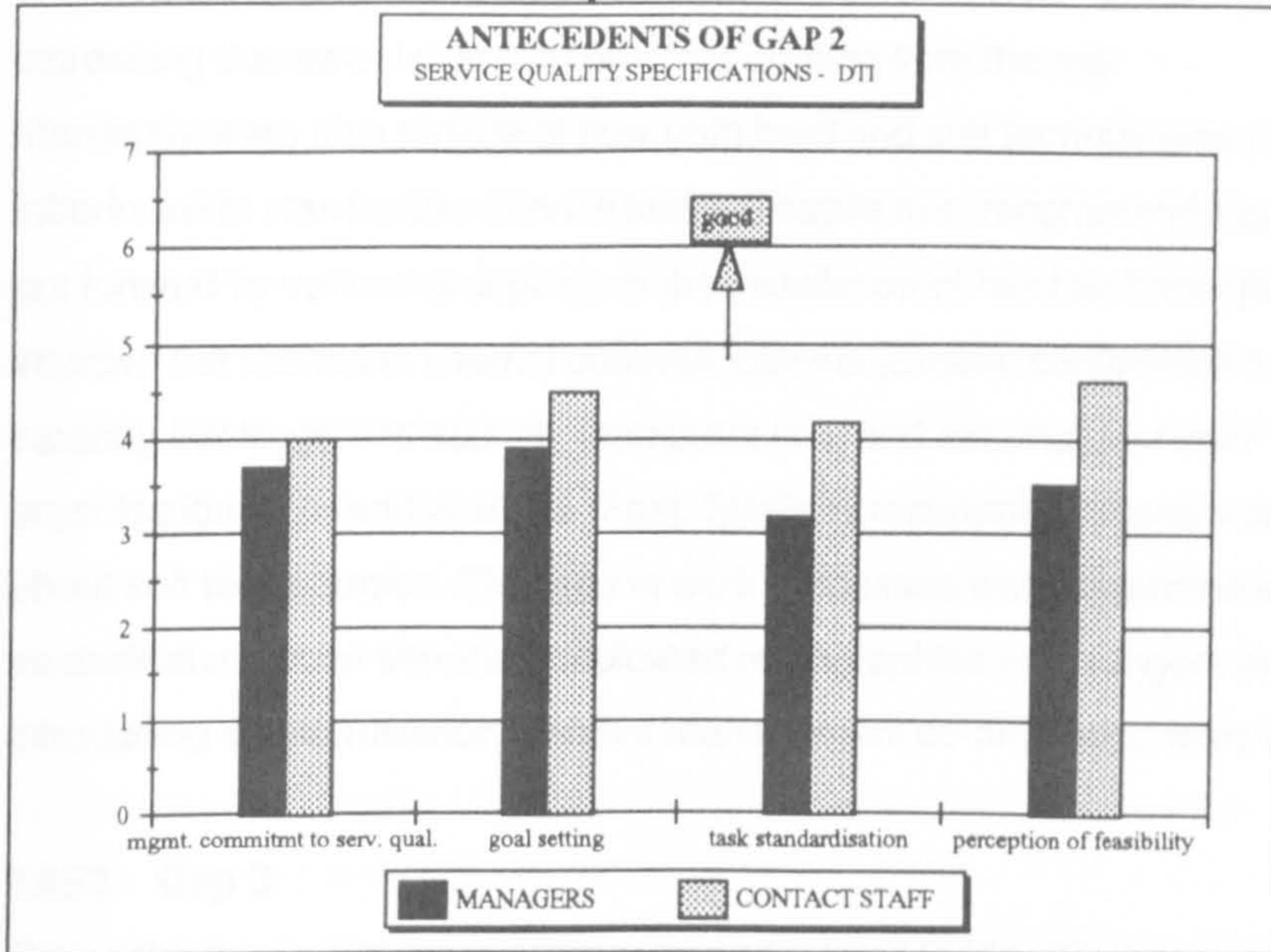
Elimination of the number of management layer allows managers to become closer to their customers. However, the particular stance taken by the DTI in reducing management tiers is to phase out the local building management teams. This will further distance resource decisions from users needs, as evidence from the service provider recommendations suggests that little autonomy exists within current contracting arrangements.

7.652 Gap 2

Gap 2 exists between management's perceptions of customer expectations and the quality standards they establish in order to translate those perceptions into specifications for the delivery of services.

The major reasons for Gap 2 are inadequate commitment to service quality, perception of unfeasibility, inadequate task standardisation and absence of goal setting. Diagram 7.64 shows the antecedents of Gap 2 for both managers and contract staff.

Table 7.64 Antecedents of Gap 2



The study shows that managers did not view Gap 2 as a particular problem relative to contact staff. Managers, in addition, appeared content that the staff had the ability to deliver the levels of service quality appropriate to the standards which have been set. In terms of commitment to service quality, DTI have committed resources to service quality initiatives, and internal programmes exist for improving service quality such as the SIP. Within the DTI organisation, however, there is likely to be no rewards for improving customers service in the sense of goal setting. This is despite a mission statement which, first time round, suggested that a reasonable standard of accommodation and service was the departments intent.

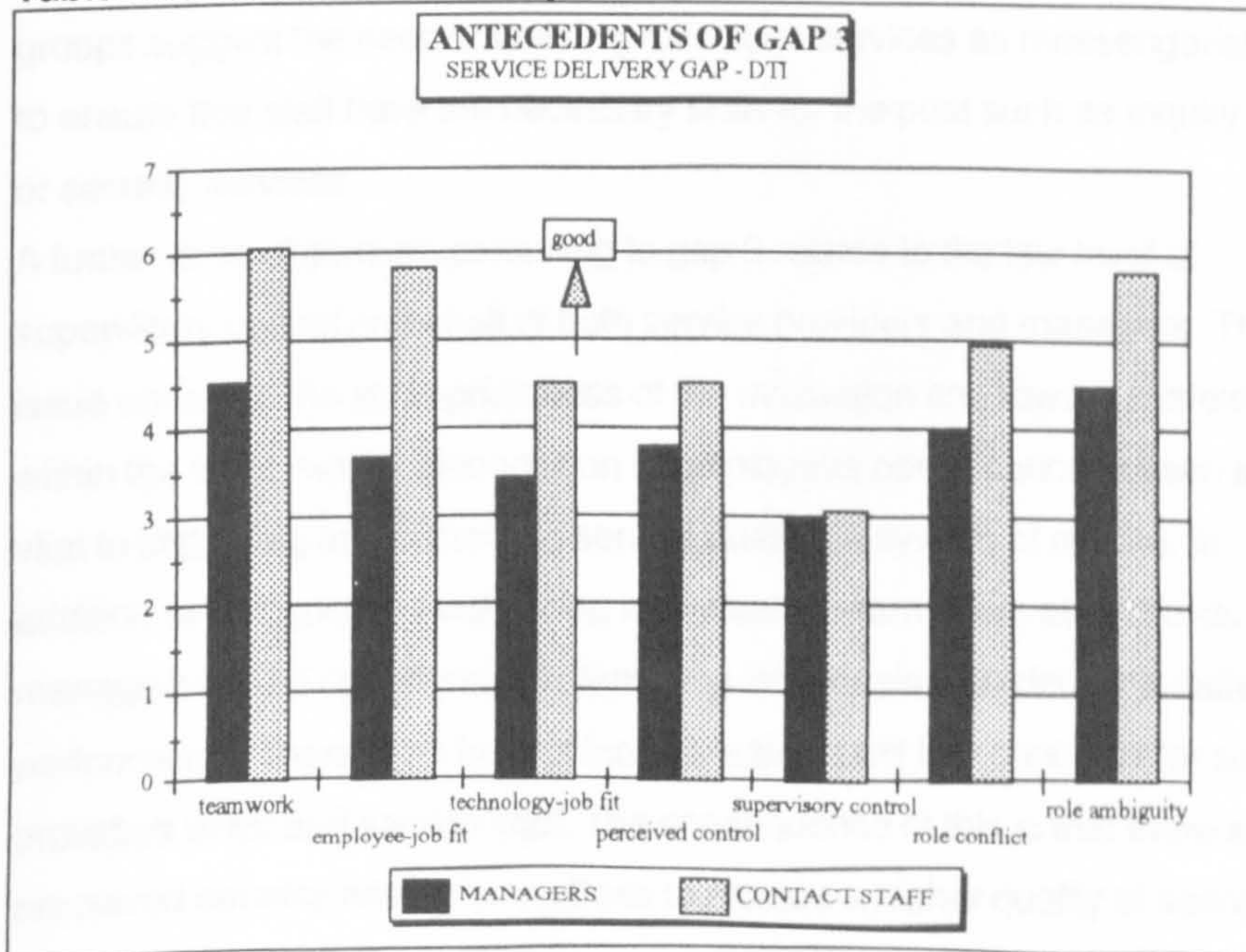
In all four of the antecedents to Gap 2, DTI scored badly. Managers are not convinced that contact staff are able to achieve the standards set for them which may be related in some way to the fact that the service is outsourced. In terms of perception of feasibility, specific illustrative issues relating to the lack of available resources and personnel necessary to deliver the level of service demanded by customers. Recommendations frequently cited however the need for increased human resources for move management and messengerial services. Again managers felt that the availability of resources was a major obstacle in preventing them from delivering the level of service required by customers. Initial (undocumented) individual interviews with senior managers, together with the focus group from FMG. suggested however that lack of

available resources was a major constraint within the organisation with increasing downward pressure on costs coming from the top. Managers were also unsure of how both hard and soft technologies could be introduced to standardise service tasks. Despite this, recommendations were put forward by various groupings in the installation of hard technologies to improve the service in internal communications (Email), conference and catering bookings and security (computer link) and external and inter organisational communications (Fax). Similarly recommendations were made about soft technologies. Changes in work processes were recommended such as dedicated escort services, dedicated reprographics messengers and introducing standardisation to move management co-ordination were cited.

7.653 Gap 3

This is the gap in service performance and relates to the difference between service quality specifications that are established and the actual service that is delivered to the end user. The size of the gap is dependent upon the willingness and ability of service provider staff to perform at the desired level. The antecedents to gap 3 are role ambiguity, role conflict, poor employee-job fit, poor technology - job fit, inappropriate supervisory control systems, Lack of perceived control and lack of teamwork. The antecedents of gap 3 are shown below in table 7.65.

Table 7.65 Antecedents of Gap 3



As regards teamwork contact, staff were much more confident than managers that they are contributing to a team effort. There may be a number of factors for this such. Managers are career civil servants and may be less committed to ensuring service quality than contact staff who are dedicated to task delivery and take greater responsibility in helping fellow employees displaying increased co-operation. In any event the fact that there exists a discrepancy between contact staff and managers suggests that they do not necessarily consider themselves to be part of the same team. This came out in dialogue sessions. Customer service personnel felt that they were regarded as of lower status than civil servants resulting in lower levels of esteem. There is no form of staff induction course for either civil service personnel or contracted personnel upon entering the organisation. The introduction of such a programme may contribute to improving teamwork.

A significant gap exists in employee job fit between contact personnel and managers. Whilst employees believe that they are able to perform the jobs well, managers do not share the strength of such a view. Two aspects of this are whether the company employs people who are qualified to do their jobs and whether the management devotes sufficient time and resources to the hiring and selection of employees.

The current exercise in market testing of support services has resulted in the use of agency staff for a number of services, with consequently higher levels of staff turnover. Again recommendation statements generated by focus groups suggest the need to both improve such services as messengerial and to ensure that staff have the necessary skills for the post such as inquiry point or security services.

A further area of concern pertaining to gap 3 relates to the low level of supervisory control on behalf of both service providers and managers. This issue concerns the appropriateness of the evaluation and reward systems within the organisation. Recognition of employees performance is seen as a vital to improving and sustaining service quality. A system of reward, in addition to recognising outstanding individual or team effort, also affords management the opportunity of identifying individuals who deliver substandard performance. There is no form of incentivisation built into contracts for service providers or for civil service staff. The consequence of this is that there are no perceived benefits arising from efforts to provide a higher quality of service.

Examples might include move management exercises which, whilst planned by staff, are not supervised and co-ordinated at weekends to ensure the service is conducted as intended.

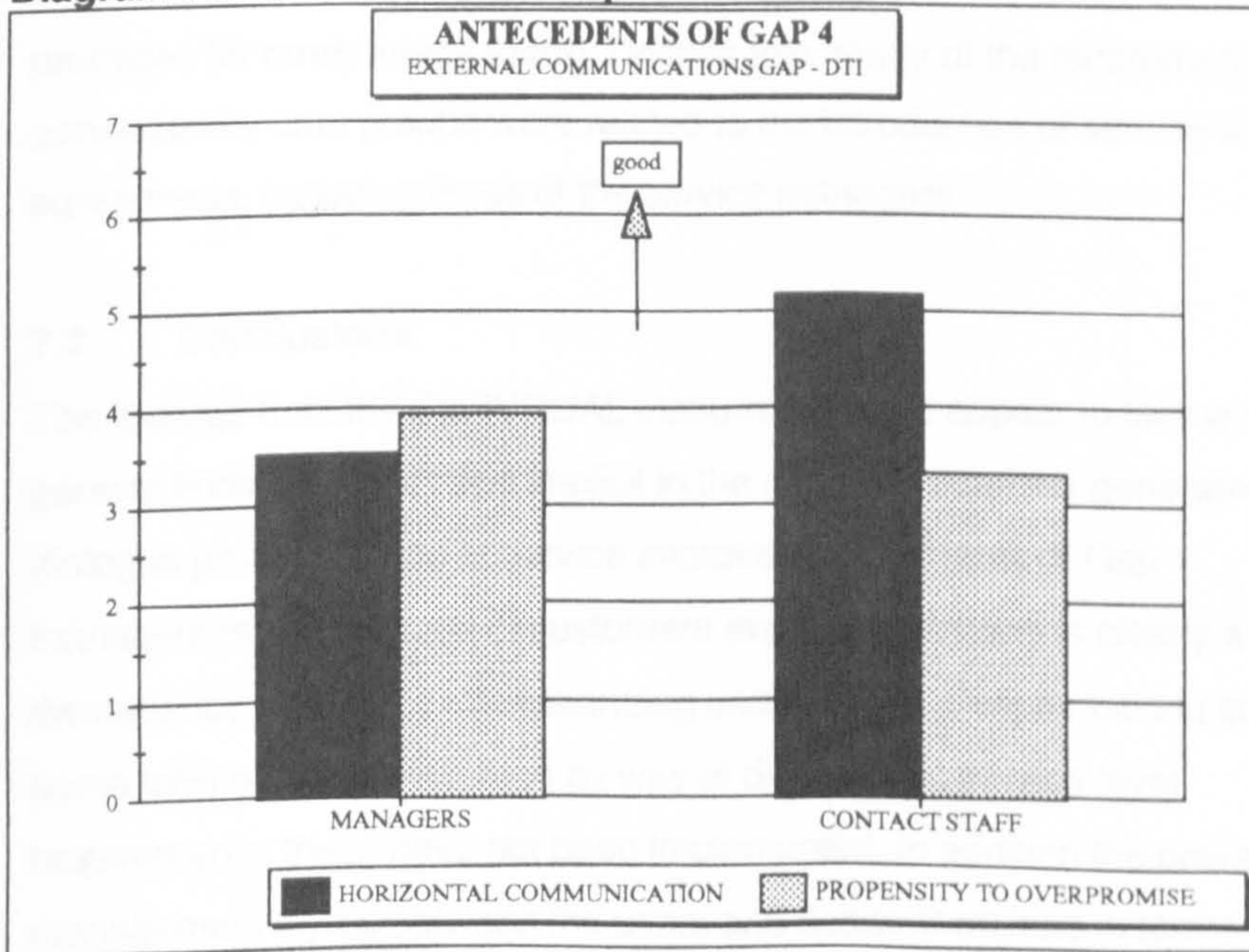
7.654 Gap 4

The principal causes of gap 4 is a propensity to overpromise what an organisation actually delivers. This results from both inadequate horizontal communications within the organisation about promises that are made, and a propensity to make promises that the organisation knows that it cannot deliver to. Failure to live up to a widely communicated standard or expectation level adversely affects the quality perceptions of customers.

The key contributing factors to gap 4 are, inadequate communications between those responsible for marketing services and those responsible for operations and inadequacies in communications across functional operating units of the organisation.

Horizontal communication is the extent to which communications occurs both within and between different departments of the company. The external communications Gap shown below in diagram 7.66.

Diagram 7.66 antecedents to Gap 4.



The gaps model shows that contact staff are less concerned with horizontal communications than are management. One suggestion might be that service

provider staff feel that they are part of their *own* organisation and within which horizontal communications are good. As stated above, contract staff do not feel that they are part of the FMG generally, suggesting a 'them and us' culture exists. Contract staff also felt that they had limited opportunity to contribute to service planning aspects and in effect had inadequate communications with management responsible for resource allocation, despite being aware of users needs.

The managers, by contrast, felt that they had a problem with horizontal communications both within other departments of SMD and with contractor organisations. SMD represents a large department with many functional specialities. Managers, as well as users, were unaware of exactly how specific services operated and consequently impacted upon their own services. Managers' recommendations, for example, included the integration of various service offerings under a single service level agreement such that services might be co-ordinated more effectively.

FMG have undermined their own credibility. They have not introduced the service level agreements negotiated with customers. Staff comments both during the dialogue sessions and documented on the SERVQUAL survey sheets (shown in appendix) indicate that the organisation rarely makes promises (or rarely keeps them). Despite this, many of the recommendations generated by user groups were related to the introduction of service level agreements, including those of the service managers.

7.7 Conclusions

The findings from the SERVQUAL instrument would appear to tally with the general findings explicit and implicit in the recommendations generated by the dialogue process aimed at service improvement. In terms of Gap 1 management perceptions of customers expectations there is clearly a discrepancy in terms of understanding users needs. Despite having conducted some form of market research by way of determining service level requirements, these have not been implemented. In addition the prevalence of management layers between the users and decision makers in terms of resource allocation and management decisions would appear to be a significant bridge to cross. Similarly the pressure on resource, i.e. the desire to reduce costs through redefining service levels, and outsourcing has made a

Table 7.8 Comparison of SERVQUAL Gap closure recommendations with focus group recommendations

SERVQUAL gap	SERVQUAL gap closure recommendations	Comparative group recommendations
Gap 1 Not <u>Knowing</u> what customers expect	<p>Using Marketing research findings effectively</p> <p>Improving Upward communication from contact personnel to management</p> <p>Increasing interaction between management and customers</p> <p>Reduce the number of levels between contact personnel and management</p>	<p>a1 a2 a3 a4 a5 a6</p> <p>b1 b2 b5 b6 b7 b10 b11</p> <p>c1 c4 c6 c7 c8</p> <p>d1 d3 d7 d8 d9 d10 d11 d12 d13 d14</p> <p>e1 e2 e4</p> <p>f1 f2 f3 f4</p> <p>g1 g2 g11 g14 g17</p> <p>h1 h2 h3 h4</p> <p>i1 i2 i3 i4 i5 i7 i8</p>
Gap 2 The Wrong Service Quality Standards	<p>Committing to Service Quality</p> <p>Gaining commitment of middle management</p> <p>Creating possibilities - innovation</p> <p>Standardizing tasks - with hard technologies - changing the work process</p> <p>Setting Service Quality Goals</p>	<p>a1 a2 a4 a5 a7</p> <p>b1 b2 b5 b8 b9 b11</p> <p>c1 c2 c3 c4 c5 c6 c7 c8</p> <p>d1 d2 d4 d6 d7 d8 d9 d10 d11 d12 d13 d14</p> <p>e2 e3 e4 e5 e6</p> <p>f1 f2 f3 f4</p> <p>g1 g2 g4 g5 g6 g7 g8 g9 g10 g12 g13 g14 g15 g17</p> <p>h1 h2 h3 h4</p> <p>i1 i2 i3 i4 i5 i6 i8</p>
Gap 3 The Service <u>Performance</u> gap	<p>Providing role clarity</p> <p>Eliminating role conflict</p> <p>Improving employee -technology -job fit</p> <p>Measuring and rearing service performance</p> <p>Empowering service employees</p> <p>Building teamwork</p> <p>Managing external customers</p>	<p>a1 a3 a4 a5 a7</p> <p>b1 b2 b3 b5 b8 b9 b10 b11</p> <p>c1 c2 c3 c6</p> <p>d1 d5 d6 d7 d8 d9 d10 d12 d13 d14</p> <p>e3 e5</p> <p>f2 f3 f4</p> <p>g2 g3 g4 g6 g7 g8 g9 g10 g11 g12 g13 g15</p> <p>h3 h4</p> <p>i1 i2 i3 i4 i5 i6 i7 i8</p>
Gap 4 The Service Delivery - <u>Communications</u> gap	<p>Opening channels of communications between advertising and operations</p> <p>Opening channels of communications between sales and operations</p> <p>Opening channels of communications between advertising and operations human resources, marketing and operations</p> <p>Providing consistent service across all branches</p> <p>Developing appropriate and effective communications about service quality</p>	<p>a7</p> <p>b1 b2 b4 b5</p> <p>c6</p> <p>d1 d5 d7 d13</p> <p>e4</p> <p>f2 f3 f4</p> <p>g15</p> <p>h1 h2 h3</p> <p>i1 i2 i3 i4 i5</p>

significant contribution to Gap 2. This indicates both a lack of commitment to service quality, and lack of awareness on how performance standards could be improved. By contrast the focus groups were able to articulate ways in which service quality could be improved through the introduction of both hard and soft technologies.

Gap 3 suggests that the existing researching structure is unbalanced in terms of commitment to co-ordination and team working and ensuring that there is effective understanding of the customer needs from service providers.

Inappropriate supervisory control is was also a key point of concern in issues such as move co-ordination.

Gap 4 highlighted significant failing in the organisational communications systems. This incited not only poor communications practices with customers, but also amongst in-house service providers, contracts staff and project based contracts staff.

One of the difficulties with all survey instruments is, in addition to being pre-structured, they fail to provide the level of rich data which is generated through collaborative inquiry and dialogue. Whilst it produces generic guidance upon means of closing gaps, it is not context specific for a given organisational setting. It is however a useful tool in providing convergent validity with other means of data collection namely the process of dialogue in this case, which demonstrated that recommendations for service improvement generated by focus groups were evidenced by the symptomatic antecedents for each of the principle gaps in the gaps model by Parasuraman et al. [1990].

The recommendation statements generated could equally be cross related to the customers consolidated dimensions of service quality, of Tangibles, Reliability, Responsiveness, Competence and Courtesy. Whilst this process was considered it was concluded that such a process demands interpretation as to the most appropriate dimension or dimensions to relate issues to, in may cases falling across several dimensions. I would not consider this however to devalue the practical utility of the tool for research purposes. This, I would, conclude is an area which could be considered for further research.

Given the loading which may be given to certain dimensions by customers in areas such as tangibles, it is more appropriate therefore to cross reference to antecedents given that they are based upon empirically established evidence.

The SERVQUAL instrument has been found to produce data which is on the whole convergent with that generated through the focus group evaluations. However stronger evidence of convergent validity is the synergy between recommendation statements of different focus groups, indicating that most groups have a common appreciation of not only the inherent problems with the existing facilities and their management but are well able to articulate such needs.

In addition to focusing on those tangible aspects of the built environment which gave cause for concern, the focus groups, tended to engage participants in the process of storytelling as they sought to share similar or conflicting experiences of an encounter the facilities or an output of the facilities management process. Through the process of storytelling and sharing of experiences participants arrived at a consensus on the area which demanded further investigation and generated recommendations accordingly.

Where candidates had no views on a particular subject or now experiences to encounter, they sought greater understanding themselves through inquiry of other's experiences. As a context for learning therefore the sessions could be conceptualised in terms of Palmer's [1985], type A event which he describes as a restricted learning context. Whereas the role of the facilitator was not to be the 'expert' intent on imparting new skills, it could be argued that the process improved individuals knowledge of the situation.

It could also be argued that the sessions could be construed in terms of type R and type P contexts. In the type R context individuals examine their role within the organisational culture. In this situation the participant is expert and shares knowledge including experiential knowledge with others.

It has been argued through this thesis that reality is a personal construct. There is no single notion of truth not objectivity. The evidence above highlights however that through dialogue and introspection, groups can come to share a common meaning of the realities in which they share, In so doing they may objectify the subjective by making explicit contextual 'truths'.

In the same way that each group defines its own history, each group enters into a dialectic in search of truth which is aimed at capturing those aspects of common reality. This is the nearest approximation to 'facts' within the social realm. Truth is therefore local, emergent in each situation, and experientially based. The qualities of such truths however will in part be influenced by the

processes of dialectic and construction by which they were formed. The role of the facilitator in arriving at such truths must therefore be one in which he seeks knowledge *of* rather than knowledge *about* a situation through the process of dialogue and yet remaining sufficiently detached so that the experiential knowledge of users is brought out. By engaging in collaborative inquiry the researcher can place the experiences of users which are recounted through dialogue into the context in which it had meaning for them. In so doing he can come to a deeper appreciation of why an individual perceived of a position as they did, and the meaning of that experience. As such the researcher seek knowledge of the situation in the language of the subjects, rather than knowledge about the situation from a position of detached objectivity. Interpretations have been found to hold across user groups and are further validated by the convergence of findings from the SERVQUAL instrument.

The process of collaborative dialogue places knowledge back into the context in which it has a specific meaning for participants, rather than some notion of abstract and objective truth. Contextual validity, it has been argued, becomes a measure of how well a piece of data fits in with the whole picture. The interpretation and context following each recommendation statement generated by groups provides for contextually validating the data. The pattern models show how the various interactions relate to one another and can be infinitely extended as additional knowledge is generated.

Whilst a fuller explanation could be provided for each of the findings generated by groups, the articulation of such statements generally requires little in the way of further clarification other than to be placed in appropriate context.

In order to conclude the analysis therefore rather than a comprehensive explanation of the system as a whole, I leave the recommendation statements and interpretation to serve as self explanatory. In this sense I would refer to a well used legal maxim used in Scots law - *Res ipsa loquitur* ("the thing itself speaks"), or let the facts speak for themselves, which means that an occurrence may tell its own story.

7.71 Epilogue

Following initial data analysis and interpretation, I called a meeting with the managers within the case organisation responsible for commissioning the

research. Initial findings were discussed together with the political sensitivity surrounding a number of issues, particularly those that pertained to decisions to outsource or contract out services. It was considered by the managers that, at that time, proceeding with the large heterogeneous group session to present findings and explore further some of the issues was inappropriate. Managers were concerned with the degree of sensitivity which surrounded a number of recommendations, and were uncomfortable that the findings be reported to the participants, until such time as they had an understanding of the resource implications involved in the recommendations. To a certain extent there concern was valid. It would be more appropriate to present findings and also to indicate the subsequent action which would be forthcoming.

Prior to such a session findings to date should be presented to senior management by way of a full report. The report was subsequently forwarded and I was invited to present findings to senior management. Rather than be offered the opportunity to present the rationale behind the methodology and subsequent findings, the senior management challenged the representiveness of the sample and asserted that many of the findings were based upon misconceptions. Whilst the political sensitivities are recognised and appreciated, to a certain extent the situation echoes the comments of Boje [1994] on modernist bureaucracies aims to defend against changes to its praxis, who stated that "Bringing non-official stories and storytellers to the round table of dialogue is a political and rebellious invasion, and will be viewed by some enterprises as an act of terrorism."

The request was that the report be rewritten to remove 'emotive language', recommendations which are based on user misconceptions, and in addition any recommendations generated by service providers on the basis they were not civil servants.

Clearly this denies the essence of what the whole research project was about.

- To evaluate the performance and management of facilities from the perspectives of multiple stakeholders.

Moreover, the recommendation statements generated are groups interpretation of reality, even if based upon misconceptions on antecedents. As such they offer the opportunity to change peoples perceptions by more effective communication.

As of writing the final report requested by senior management has not be undertaken. It challenges in point of fact my own integrity.

Sadly however the participant groups have not yet therefore had the opportunity to see the findings.

It was considered that the heterogeneous group session, by bringing together managers, users and other stakeholders would have provided a basis by which double loop learning might occur through a re-alignment of goals and values following a fuller understanding of system needs and the availability of resources to meet same. Nonetheless it is considered that the praxis did afford the opportunity for focus group participants to learn by challenging their own basic beliefs about a situation during the dialogue process.

Chapter 8

Conclusions

8.1 Summary

This chapter revisits the research objective and sub objectives set out. The principle objective was that of demonstrating the value of focus group methodologies in facilities performance evaluation. I conclude that the methodology and approach demonstrated in this thesis can gain access to knowledge which would not be readily accessible by other forms of research approach.

The contentions set out for the nature of facilities management research are revisited and justified on the basis of both the literature review and substantiated through the case study research. Such contentions however are considered to be the guiding framework for the conduct of this research as distinct to prescriptive criteria for the evaluation of other research projects in the field of facilities management. I argue however that such contentions serve as a useful starting point for the conduct of future similar projects.

The principal contributions of the research are the demonstration of an evaluation methodology which can gain access to distributed often experiential organisational knowledge. It has also been demonstrated that organisations can go through a process of stress adaptation following the transfer of practice to new agents, and from organisational decision making which is made on the basis of an incomplete appreciation of users' facilities related needs. The basis for which is that much knowledge within organisations is tacit, experiential and often incommunicable.

The consequence of decision making in the absence of a systemic understanding of organisational processes and individual needs, can result in the emergence of non-canonical practices, as users attempt to circumvent the systems of formal rules to achieve their goals.

Chapter 8

Conclusions

8.2 Conclusions

Through this thesis I set out to consider a number of research objectives. The principal one however was to demonstrate the value of focus group methodology in evaluating the performance of facilities and their management. My central argument was, and is, that facilities managers and others charged with decisions affecting people and their environments should gain access to often tacit dispersed knowledge within organisations through focus group evaluation methodologies. In so doing I argued that it is possible to both develop improved understanding of the needs and desires of a users and that this in turn can improve communications between users of facilities and those responsible for its design or operational management.

Both the research project on the Regional Secure Units and that on the Department of Trade and industry have demonstrated that multi-method Facilities Evaluation methodologies can gain access to information which would not be readily accessible by survey research on its own.

I set out to explore and investigate the potential of multi-user focus group evaluation of the built office environment. The pilot study, using an hypothetically ideal facility as a proforma, I found, was a useful framework for structuring questions but was something of an expert based evaluation, concerned principally with physical facilities. Whilst we were concerned with operational issues, the self reporting of the telephone survey tended to address canonical issues. Whereas the touring interview conducted with various staff groups using the facility as prompts I found useful in appreciating the way in which the facilities were used. The use of focus groups of patients, I found, provided a different perspective on the way in which the facilities were utilised, highlighting the often conflicting needs or desires of users and those of the provider organisation. They also highlighted the importance of aligning operational staffing needs and operational policy with designed facilities. The consequence of failure to do so can result in under-utilised facilities with consequent cost implications.

In the RSU exercise focus groups were particularly useful given high levels of patients with mental health problems or with learning difficulties making data collection by survey research particularly difficult. Whilst this study was by no means ethnographic it did allow insight to the issues of concern to the groups which I could not have preconceived.

In the evaluation conducted on the government office I sought to capitalise on focus groups as a means of eliciting dispersed and experiential knowledge. I had a number of considerations which served as sub objectives of the research however. I wanted to develop a methodology for the involvement of users in the evaluation of facilities and articulation of needs. The process undertaken certainly achieved this by using focus groups representative of the different interest groups in the building to evaluate facilities and their management. In addition to evaluating their perceptions of the facilities organisation and engaging in a dialogue an discussion on their experiences with the organisation and facilities or with other experiences, focus groups generated a series of recommendations by which facilities or their management might be improved. In so doing however, I more than likely set up an expectation level in the minds of users. Whilst I had made it clear to the commissioning organisation from the outset that funds would be needed allocated for the conduct of appropriate remedial works, together with an undertaking that issues raised would be considered, I had no notion that the focus group sessions would raise such a range of issues, often those with sensitive political dimensions. In hindsight it is a dangerous practice to raise users expectations by allowing them to generate recommendations. Consequent failure or inability to act upon them may limit the degree of participation that can be expected for the conduct of future exercises involving users.

I also wanted to identify patterns of relationship between the attribution of dissatisfaction with the built environment and that with the facilities management organisation. I found that the dialogue process, by engaging the participants in an exploration as to why they possessed a particular perception, I sought to ensure that the physical environment did not serve as a target for manifest dissatisfaction with the facilities organisation. Moreover I wanted to identify ways in which the facilities organisation could improve its service to users. Using the SERVQUAL instrument I found significant gaps across all stages of the service management

process. The recommendations generated by the focus groups often related closely to gap closure recommendations. Where there were indications of poor quality relating to the physical environment as distinct from the service organisation, I considered this to be an indication of poor communications i.e. not knowing what users expect, or of inadequate commitment to service quality. It may be however that the use of SERVQUAL, by asking respondents to rate an hypothetically ideal facilities organisation, may have sensitised users by raising their expectations of service. For this I make no excuse, however would consider that service excellence may not be the goals of all organisations. The issues raised however can often be addresses by improving communications between providers of service and recipients or users, namely by changing individual expectation levels. The introduction of service level agreements would be a good mechanism for doing so.

I also wanted to explore the extent to which homogeneous and heterogeneous groups differed in content in their evaluation criteria of facilities and their management, and also to identify attributes of the built environment or facilities organisation in which there is a significant divergence between groups' perceptions of quality.

Whilst all groups are to a degree heterogeneous, I was only able to use mainly homogeneous focus groups in the evaluation. i.e. groups with a common interest in the use or management of the facilities such as users, managers, service providers. I found a fairly consistent appreciation of the general issues of emerged during the dialogues of all group sessions. In the managers groups however I found that despite being aware of many of the issues of concern to users, they were often unable to articulate potential solutions. User groups by contrast were often capable of articulation their concerns and ways in which they might be alleviated. I also found that the managers group had participants with a wider range of interests than other groups, ranging from policy issues and resourcing to operational concerns. This group was much more heterogeneous than others and led to considerable friction over a number of issues which presents difficulties in facilitation.

I set out from the outset a number of contentions on the nature of facilities management research. The basis for establishing such criteria however was as a means of setting some ground rules by which a contribution might be made to the field of facilities management as distinct from other research fields.

It is necessary now to return to these contentions in order to explain the justification in terms of both the literature review and my argument throughout the thesis and the case study research.

Facilities Management research should concerned with strategic decision making. I should qualify this statement from the outset, with my interpretation of *strategic*. *Strategic* has a range of synonyms including, important, critical, essential, integral and necessary. My use of the term, therefore, does not imply that facilities management research should not concern itself with issues which are more often termed of tactical or of operational importance. It does however attempt to embrace decision issues which have consequences on the ability of individuals or the organisation to achieve goals.

All management involves decision making. The society in which we now live however, and the conditions, which managers as decision makers within organisations face, are characterised by ambiguity, complexity, and uncertainty. The case study research demonstrates that organisations *are* distributed knowledge systems. They consist of both canonical and non-canonical practices, formal and informal channels of communication, and a complex interplay of dynamic relationships between parts, as the social system strives towards dynamic equilibrium with its environment.

Facilities managers, as all managers, are custodians of corporate purpose. Their principal aim is to facilitate achievement of corporate goals through decisions of resource allocation, organisational design and control. Knowledge it has also been argued is the key to effective decision making. Communication is central to the acquisition and transfer of knowledge, be it scientific, social, local or tacit self knowledge.

Scientific knowledge, it has been argued, is based upon abstraction of a given situation and is decontextualised from both time and place, conversely social and local knowledge are embedded in the organisational environment which is

dynamic. Such knowledge is therefore incomplete and demands a continuous involvement in practice to appreciate the interconnectedness of events. Tacit knowledge may be ineffable but allows the development of objective knowledge through reflection on experience and extracting the subjective content. The process of dialogue, engaging in storytelling can be used to make explicit experiential knowledge.

The case study has demonstrated that often the outcomes of management decision-making can have unforeseen and negative consequences for the organisation with hidden costs, resulting from reduced productivity, inefficiencies, low morale, and employee dissatisfaction. This may in turn impact the organisation's customers, through inefficiencies, higher costs and detriment to the image portrayed. Decision making can result in the emergence of non canonical practices as individuals circumvent formal systems in order to achieve their goals. The outcomes of managerial decision cannot, however, necessarily be predicted, particularly in the conditions of a dynamic social system. Making sense of such complexity, it has been argued, is possible using the discipline of systems thinking recognising the interconnectedness of components and the way in which they interact.

Organisations have been described as complex adaptive systems consisting of a network of 'agents' which act independently of one another, yet are capable of forming communities in order to achieve behaviour that cannot be achieved by individuals operating independently. Such 'agents' might also be described as holons in that they are both independent and dependent upon the larger environment in which they both influence and are influenced by the unique context of the organisation.

Self-management of the system is dependent upon feedback by which the system learns through interaction with agents and with its external environment or context which is in itself embedded.

The case study has shown that the lack of effective feedback on the systemic outcome of management decisions results in system adaptation or perhaps mutation away from intended goals of system design.

Such feedback, it has been demonstrated, can be provided through dialogue with the wide variety of agents which constitute the organisation. As a consequence, corrective action or adaptation might occur. This form of praxis provides the opportunity for both single and double loop learning, with both individuals involved in the praxis and the organisation as a whole. Resultant changes in cognitive attitudes or practices of individuals, or of organisational values or practices, would constitute the individual and organisation having learned respectfully.

Facilities management research should be concerned with the systemic relationship between people and their environments in an holistic sense.

Whilst this point has been made above in respect of the systemic nature of self-organising systems, it is appropriate to conclude on the concept of holism.

Holism is concerned with understanding the overall behaviour of the system that generates the issues. I have argued that context was the appropriate focus for study in understanding the systemic nature of person environment relationships. Organisations, it was argued, are open systems in that the personalities of the members are elements of the context of the group or organisation. Context is the whole, not the study of the parts. Yet the parts also express the configuration of the wider context with which they interrelate.

Research evidence has demonstrated that people perceive of their environments holistically and attribute satisfaction to their environments dependent upon their relationships to other social, psychological, and organisational factors. Traditional positivist approaches to inquiry, it has been argued, fail to encapsulate the multiplicity of variables that would be necessary to identify objectively the extent to which individual variables influence satisfaction.

The case study has demonstrated that individuals, engaged in a dialectic and exploratory dialogue, are able to identify specifically those factors which contribute or otherwise to their satisfaction. Moreover they are able to articulate such issues in a way in which their meaning is both shared and unambiguous.

Specific cause-effect issues can be developed in a series of pattern maps which demonstrate the infinitely expandable interactions which occur in the system. Such pattern models however whilst never complete can serve to demonstrate the system interactions and in so doing demonstrate a more holistic understanding.

Facilities Management research should be rooted in practice.

The basic premise for this contention is that facilities management research should in essence be applied research, in that it will be unique for any given organisational context. Research which is not grounded in a practice context is removed from reality and makes abstract findings which are of limited utility without a particular practice context. Research which is rooted in practice provides the opportunity for learning to occur both at an individual and organisational level by placing knowledge generated into a context which is meaningful. As a result it is more likely to result in action aimed at realigning goals or practices. However realignment of goals will depend upon the willingness of individuals or organisations to challenge their conventional praxis and to be receptive to new input. Whilst an organisation, or individual can be exposed to new information, that need not imply that learning will consequently occur. Learning requires both a modification of cognitive attitudes and consequent change in behaviour. Failure to change behaviour as the result of new inputs of information is what Bateson would describe as zero learning. Equally as Garvin has argued of learning organisations, without subsequent behavioural change, only the potential for improvement remains.

I would maintain however that whilst the intervention presented in the main case study did not demonstrate that the organisation had learned, it did demonstrate its potential for change whereby future practice might be modified. I would argue that the process of engaging in dialogue, and organisational storytelling affords access to distributed and experiential knowledge which can help organisations and individuals to modify their attitudes as a prerequisite to future behaviour.

Facilities Management research should be action-oriented.

Action research, it has been argued is aimed at the involvement of the researcher with members of an organisation over a matter which is of genuine concern to them. The intent of this should be action on the part of the organisation as a consequence. Action research as a means of organisational intervention, in addition to solving specific problems, can explore and develop new theories about problem solving which can be used for more general theory development. The basis for selection of action research as opposed to pure research is guided by a personal belief in the value of the utility of knowledge.

Knowledge is at its most valuable when it is utilised. Whilst this is perhaps a contentious statement, the current state of knowledge about facilities and their management (in a holistic sense) is limited. Whilst there is a rich source of research evidence pertaining to the individual and the physical and organisational environment, there is little information on the relationships between organisations and their environments. A priority for research it is considered should thus be the development of a body of knowledge whilst recognising the temporal and contextual dependency of organisational settings.

The praxis I adopted in this thesis and demonstrated through the case study is essentially action oriented. It seems appropriate therefore to judge such a praxis against the fourteen characteristics laid down by Eden and Huxham (forthcoming) by which action research should be judged. The standards by their own admission are undoubtedly hard to achieve but nevertheless serves as a check list or dialectic for other types of research.

i) action research demands an integral involvement with the researcher in an attempt to change the organisation. This intent may not succeed - no change may take place as a result of the intervention - and the change may not be as intended. The research demonstrated in the case study praxis complies with this characteristic as the researcher intervened with a view to changing the organisation through facilitation of the dialogue sessions in which the generation of recommendation statements were aimed at subsequent action. As of the time of writing no such actions had ensued, nonetheless change from an existing to a desired state was the primary aim.

ii) action research must have some general implications beyond those required for action or generation of knowledge in the domain of the project. There must be a clear implication that the results could inform other contexts, at least in the sense of suggesting areas for consideration.

I have argued throughout the thesis that knowledge generated in a specific context is primarily of local utility. It is considered however that more generalisable knowledge or implications can be grounded through a more complete understanding of the complexities of organisational systems. In terms of general implications for other organisational contexts. The praxis offered affords the opportunity for gaining access to users' experiential knowledge of the use of facilities.

In this case it has been shown that organisations as entities striving for dynamic equilibrium can undergo a process of stress adaptation when subject to the consequences of unanticipated and unexpected changes in the system environment. The general implications for other contexts are that decisions with the intent of altering the status quo of a complex system can often have undesirable side effects and impact on the overall performance of the enterprise. Such negative consequences may be sustained as a result of decisions to redefine or re-engineer service provision without a full understanding of the dynamic interplay between system components which constitute the holistic environment perceived by users. The case study demonstrates, for example, the impact of the loss of dedicated messenger escorts on other areas such as perceptions of foyer crowding, user productivity and reprographics services, all of which have cost consequences. The true cost of service provision therefore is likely to be significantly higher than the exchange cost for the service provision.

iii) as well as being usable in everyday life, action research demands an explicit concern with theory. This theory will be formed from the characterisation or conceptualisation of the particular experience in ways which are meaningful to others.

As noted above in point ii), the case study example produced a rich source of data by which theory might be grounded in itself. I also maintained, however, that traditional grounded theory is based upon reductionism by reducing the human

aspects of inquiry to categories for coding, analysis and interpretation. The praxis adopted in the case research demonstrates that users are more than capable of interpreting and making explicit a common reality with which the group share and which constitutes the objective truth within their contextual domain. Whilst the shared perceptions of reality may be based upon misconceptions about situation, by making such a perspective explicit, the perceptions can be altered by communications.

More general theory generated from the research data suggests that organisations are particularly vulnerable to stress adaptation when outsourcing services. The basis for this lies in the fact that, given organisations have both canonical and non-canonical practices and that much knowledge of a situation is tacit, ineffable, experiential and generally incommunicable. Transfer of practice to new 'agents' within an organisational system can result in a loss of knowledge and a poorer understanding of the previous context of praxis, through poor communications. The service which is subsequently provided is therefore different in both content and knowledge *of* rather than knowledge *about* a system. By knowledge *of* I mean experiential knowledge of the use and management of facilities and of the organisation and its members.

This process can lead to stress adaptation as users change their own practices or modify expectations in response to imposed change. Whilst this may not be negative in every case, ensuring a positive outcome will require more effective ways of making explicit the implicit. The consequence of negative stress adaptation may result in unanticipated, even unquantifiable costs, in both financial and human terms, which are currently not included in the overall balance sheet.

iv) if the generality drawn out of action research is to be expressed through the design of tools, techniques, models and methods, then this alone is not enough - the basis for the design must be explicit and shown to be related to the theories which inform the design and which, in turn, are supported or developed through action research. This particular case has used SERVQUAL as a tool for measuring service quality. It was found that there was a strong convergence between findings interpreted from the dialogue session with that of the SERVQUAL survey instrument.

The action research demonstrated subsequently demonstrates the appropriateness of the research praxis design and demonstrates that the methodology is valid in generating knowledge within a facilities management context.

v) action research will generate emergent theory in which the theory develops from a synthesis of that which emerges from the data and that which emerges from the use in practice of the body of theory which informed the intervention and research intent.

The theory generated can be described to be emergent in this case as it was synthesised from the data which constituted the users' interpretations. The basis for the approach was that organisations are distributed knowledge systems and that users' experiential knowledge of facilities can generate new insight into the systemic nature of the relationship between people and their environments.

vi) theory building as a result of action research, will be incremental, moving through a cycle of theory-to-action-to-theory from the particular to the general in small steps.

Once again this point was highlighted in characteristic vi) above in that the guiding theory was that individuals both have experiential knowledge of the use of facilities and that environments are perceived holistically. The praxis of dialogue demonstrates that theories-in-use can be generated through interventionist action. Whilst in this case I have not followed a theory to action to theory cycle, this could have been demonstrated had the research been directed specifically at changing the organisations practices as distinct to evaluation its performance and looking for areas for improvement.

vii) what is important in action research is not a (false) dichotomy between prescription and description, but a prescriptive, even if implicit, form and style for the presentation of the research outcomes.

To a certain extent the research outcomes have been descriptive in terms of the unique context which constitutes reality. However the recommendation statements

which have been generated have an implicit connotation as to the particular area of concern.

The recommendation statements themselves provide a route map for the case organisation to follow in order to improve workplace practices. The use of SERVQUAL allows them to focus on those areas which are highly valued by others. As previously stated, my role in the case study was to act as a facilitator for the evaluation process, not to act as an expert evaluator. Whereas Senge [1992] argued that dialogue facilitation requires skills of both inquiry and advocacy, I would maintain that dialogue aimed at facilities evaluation also demands a degree of understanding with the subject matter under consideration. This demands moving from roles of maieutician, mediator and expert. The role of expert is often required in order to undertake both the roles of maieutician and of mediator, by helping people to explore issues of concern and arrive at a consensus on an appropriate solution or course of action.

However there are a number of actions which I would suggest be considered by the case organisation. First and foremost, having harnessed the commitment of staff to participate in the evaluation, findings should be presented to users. These findings should be in a language that the user understands. If participation is to be enjoyed in future evaluations or similar exercise, then management must demonstrate to users that they are listening to what they say. Accordingly I would suggest the recommendations be costed and reviewed as appropriate. Those ones that the organisation is prepared to resource be undertaken, and the reason for not undertaking the remainder should be communicated.

viii) a high degree of systematic method and orderliness is required in reflecting about, and holding on to, the emerging research content of each episode of involvement in the organisation.

Whilst data was not recorded and formally transcribed, the recommendations generated by the focus groups provide analysis synthesis and interpretation of the situation under study. The reflection undertaken by the researcher to place recommendations in their context was based upon the researchers experience of the dialogue process and exploration and supplemented by data sources from individual interviews, document analysis, and observation.

ix) for action research, the process of exploration (rather than collection) of the data, detecting of emergent theories and development of existing theories, must be either, replaceable, or demonstrable through argument or analysis.

This is clearly a hard characteristic to achieve. Given that exploration is generated through the process of dialogue which will be unique to the context of the group, as such it cannot be replicated. The general process of exploration is however considered to be present in the analysis and contextualisation of user recommendation which is in turn supplemented by archive and other sources including observation. However the general process is documented within the research design and can be used as a framework for others.

x) adhering to the nine characteristic above is a necessary but not sufficient condition for the validity of action research.

Research validity has been described in some detail as being a measure of the contextual validity and adequacy of the case study descriptions. Instrumentation has been used to assist in Convergent validity. It is argue that traditional notions of validity are inappropriate for use in new paradigms of human inquiry

xi) in order to justify the use of action research rather than other approaches, the reflection and data collection process - and hence the emergent theories - should be focused on aspects that cannot be captured by other approaches. This in turn, suggests that having the knowledge about, and skills to apply, method and analysis procedures for collecting and exploring rich data is essential.

I have argued throughout, that the action research praxis put forward affords opportunities to access knowledge which may not be accessible by single methods such as survey data or participant observation.. Engaging in dialogue aimed at generating positive oriented statements for action provides the opportunity of data generation and reflection concurrently by all participants to the process. Such a praxis aimed at subsequent action may serve to harness increased commitment of members in participating in the process. An area for further consideration however would be the extent to which participants belief in

their recommendation being subsequently enacted, modified the recommendations generated.

xii) in action research, the opportunities for triangulation that do not offer themselves with other methods should be exploited fully and reported, and used as a dialectical device which powerfully facilitates the incremental development of theory.

I would argue that whilst Triangulation in this case was not attempted. Rather validity was provided both contextually and convergently by means of the service quality perception questionnaire which rates the service environment in an holistic sense. The validity and reliability of the instrument has been discussed in chapter 7. On the whole there was a good degree of convergence between the antecedents for closure of gaps in perception of the service quality process and the recommendation statements recommended by the participant groupings.

xiii) the history and context for the intervention must be taken as critical to the interpretation of the likely range of validity and applicability of results.

The specific context of the case organisation has been described at some length through the case study. The evaluation itself was a long promised occurrence and, in point of fact, it's timing was influenced by the researcher rather than the case organisation. The researcher was advised that it was not an appropriate time for the evaluation conduct given recent decisions which had been made in respect of further market testing of services and the recent loss of in-house bids. Given that the findings have as yet not been acted upon there would appear to be some legitimacy for the suggestions that the timing of the evaluation was not appropriate.

xiv) action research requires that each theory development which is of general value is disseminated to an audience wider than those integrally involved with the action and/or with the research.

As the action research in this case forms the basis of a higher degree, this final characteristic is met, in the first instance. However the experience and findings of the evaluation are used in my own teaching to students of facilities management.

It is hope that permission will be given by the case organisation to publish a number of paper on the basis of the findings. The first one will be published in February 1995, in *Facilities Management* 1995.

Facilities Management research should be aimed at collaborative inquiry.

Facilities management involves balancing the conflicting needs of a wide variety of stockholders within the organisations. Decisions which are taken at a strategic level in respect of either facilities or their management have a consequent effect on outcomes to satisfaction for users and can impact on the efficiency of work processes if a less than full understanding of the nature and variety of stakeholder's needs are recognised, identified and met.

In the context of this case study in which there is asymmetrical distribution of power between the managers who allocate resources and the end user. Certainly in this case the apparent readiness of the organisation to commit resources diminished fairly quickly. However there are also key issues in balancing conflicting demands for space. In addition the ethic dimensions associated with the provision of space for and communications with service providers requires to be considered. Collaborative inquiry involves the full participation of both subjects and researcher such that the subject's themselves become co-researcher in the endeavour. However this does require a degree of willingness to engage in a discussion on values and equity and the distribution of power.

Unlike the traditional scientific research model of unilateral control, collaborative inquiry begins with the assumption that research and action, despite between analytically distinguishable are inextricably intertwined in practice. As knowledge is always gained from action, substantiating validity is concerned with the conduct of well- informed action science rather than with how to develop a reflective science about action which is undertaken. In other words how to conduct action science. In other words it is the experience of the process itself which can be as beneficial particularly as the knowledge generated may be primarily if not exclusively of local utility. However I would maintain that praxis research allows the seperation of the action undertaken and the reflection on such action by the

researcher. this again can be a valuable approach as there may be conflict between researcher and organisational goals.

Through the process of action the researcher becomes practitioner and the practitioner researcher aimed at a continuous inquiry -in-action aimed at functioning increasingly effectively. In order to do so, individuals and organisations acquire valid knowledge about both the outside world and about the acting system's own purposes. Such knowledge may be generated from within focus groups making explicit experiences and needs through engaging in a dialogue. or knowledge can come from other sources such as the evaluation facilitator in adopting a maieutic role.

Both Torbert [1972] and Argyris and Schon [1974] suggested that individuals and organisations in contemporary society rarely develop the quality of attention necessary to test whether their purposes, strategies and behaviours are congruent with one another. The consequent lack of goal congruency results in both espoused (what each believes in doing) and patterns of actual behaviour (what each actually does). I would argue that facilities evaluation using focus groups can provide a platform for making explicit often conflicting goals. Through dialogue and discussion focused on particular issues an understanding of the systemic nature of organisational process can be generated.

There are also, in addition to the formal systems of canonical rules within organisations, non-canonical systems of rules which people follow to circumvent the system as their requirements demand. Examples demonstrated in the case study include delaying visitor collection and escorting until several visitors have arrived. Similarly marking reprographic services as urgent to improve turnaround time as a result of changes to messengerial services. Such non-canonical practices can have a detrimental effect on the organisations efficiency, effectiveness and resources.

There is a general ambiguity in organisational life such that if one seeks an understanding of how a system actually works, new forms of interventions such as collaborative, perhaps almost ethnographic, inquiry becomes necessary as a means of ensuring the findings constitute the reality as determined by individuals

in practice. The research praxis demonstrated in this case study demonstrated one means of system intervention.

Increasing knowledge of social situations can be gained as other actors collaborate in inquiry to make explicit the assumptions, theories, goals and purposes underlying individual behaviour and the how such theories in action impact on and are impacted by others.

As such the opportunity to effectively communicate such underlying assumptions and experiential knowledge of practice, provides a mechanism for individuals and the system as a whole to modify behaviour through such feedback loops and adapt in response to required changes. Individuals, and the system as a whole, might be said to learn in that behaviour is modified in response to stimulus.

I have argued and demonstrated that focus groups engaged in an evaluation of facilities performance can access knowledge which would otherwise remain inaccessible. The use of praxis research as distinct to action research can be defined as an attempt to separate the role of organisational change agent and that of action researcher, as the roles can be in conflict. The process can be used as a means of knowledge generation and for facilitating organisational learning. This demands a commitment however on the part of all stakeholders in the process to be prepared to accept challenges to traditional practice. Any form of organisational intervention can be threatening and often uncomfortable for those seeking new knowledge, I would argue however that the insight gained to organisational life is worthy of such a challenge.

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Appendix 1

RSU Evaluation Study Building Questionnaire

RSU for Mental Illness

<u>Optimum for 15 beds</u>	<u>Actual reality</u>	<u>Comment</u> (better or worse than optimum)
LIVING AREA		
1. Wards of 14/15		
2. All doors open outward from rooms		
3. <u>Bedrooms</u>		
- single		
- lockable by patient (overridden by nurse)		
- bed, desk and 2 chairs		
- under bed storage		
- wardrobes, drawers		
- sink (isolator outside)		
- double plug for light/TV (isolator outside)		
- size 14' x 12' well lit and ventilated		
- nursing observation (window in door)		
- no integral sanitation		
- unlocked at night		
4. <u>Day rooms</u>		
1 TV room for 7+ patients,		
1 quiet room/group 8-10		
- chairs(arm)		
1 TV/multipurpose/dining & sitting		
1 open lobby area - 6 seats		
5. <u>Secure rooms</u> 1-2/14 patients		
- steel faced door/steel frame		
- multi bolted lock		
- window with blind		
- observation		
- intercom system		
- unbreakable, unreachable electrical fittings		
- recessed smoke detectors		
- high or strengthened ceiling		
- no hanging points		

Optimum

Actual reality

Comment etc

- no sharp corners
- visible clock
- en suite WC/shower & sink with 2 entrances for alternative use
- warm
- impermeable floor

- pleasant - good regime
- centrally placed
- good seclusion policy
hardly used (<x1/mth)

6. Kitchen

- cooker (gas/electric)
- dishwasher
- 2 sinks
- store cupboard for dry goods

and pans

- pans/crockery/cutlery
- work/serving table
- hotplate
- fly catcher
- hand sink
- fridge
- deep freeze
- industrial microwave ie 1000W

7. 24 Hour Tea Bar

8. Laundry room

- industrial quality automatic washing machine
- industrial quality tumble dryer
- drying racks
- iron, ironing boards
- sink

9. Cleaners room

Half bedroom size. Storage of cleaning equipment, materials

Sluice

Optimum

Actual reality

Comment etc

10: Corridors

More than 6' wide if rooms on one side only

More than 8' wide, if rooms on both sides

Height minimum 10ft

11. Linen room

Linen room $\frac{1}{2}$ bedroom size

12. Storage room for patients' things

Room 2 x bedroom size

13. Store room for hospital things

Room 2 x bedroom size

14. Toilets

Male: 3 WC/handbasins

2 Baths and showers inc

disabled bath

Female: 1 WC/handbasin

1 bath/shower

Staff male - WC/handbasin

female - WC/handbasin

Disabled: 1 WC and handbasin

15. Women's wing within 14 beds

- 3 bedrooms en suite with own WC/bath or 3 bedrooms as in hotel giving privacy

- rooms lockable by patient

- bed

- wardrobe, drawers, desk & 2

chairs

- sink

- double plug for TV/lamp

- size 14 x 18

- nursing observation

- female day room

Optimum

Actual reality

Comment etc

16. Sick room

1 bedroom to double as sick room if necessary with WC/sink en suite or next door

17. Large Social Room for unit functions + table tennis.

WORK AND RECREATION

18. Working/Education area

6 bedroom size per 15 patient

Areas for:-

OT groups) need
cooking) a. room for noisy work
woodwork) b. room for computers
art) c. art room
pottery) d. classroom
music) e. general purpose

industrial work)

[+ urinals/WC/washbasin]

19. Recreational/Exercise Area

Gymnasium

Swimming pool

All weather pitch

Shop, banking services,

hairdressing

Library for patients

20. Medical Area (around living area)

Doctors' office and examination room

Interview room

Treatment room/dispensary

RELIGION

21. Religious area

1 ecumenical room on unit

OFFICE

22. Offices on the ward (around

living area)

General nursing office

Ward/unit manager office

Room for patients' Advocate

23. Psychologist's rooms

2 rooms separated by 2 way screen

24. Offices for professionals (mostly away from living area)

1 Consultant office

1 Senior Registrar office

1 SW office

1 SW student office

1 Psychologist office

1 Nurse manager office

1 General manager office

Offices for other admin staff

(finance, catering, housekeeping etc)

1 Clerical/secretarial general office

(max 3 per room)

1 OT office

1 Art therapy office

1 Community nurse office

1 Behavioural nurse office

1 PE/physiotherapist office

1 Patients' teachers office

1 Nurse tutor office

1 Personnel officer's office

1 Union Rep office (if 100 members+)

1 office for computer programmer

1 Room for photocopier, file server and information technology equipment

1 Room for storage of materials

1 cleaners room

1 WC suite

25. Medical Records Office

1 Office and 1 Records store and

1 archive store

Optimum

Reality

Comment

26. OUTER SECURITY

Outer fence, welded mesh 17'

Airlock entrance with receptionist

External wall of building security - good solid brick

Window security - metal frames, laminated glass, small panes <5" at widest)

Pitched roof with overhang

Alarm bell system

personal alarms

electronic operated doors

tannoy warning system

TV camera watch

TV camera observation room

Perimeter pressure sensors

Security varied by structure or by parole system

GROUNDS

27. Grounds and gardens

Garden area for sitting

barbecue

outdoor meals

Garden for gardening

But for tools

Greenhouse

28. Arrangements for living units

Area for violent/dangerous 2-4 beds

Area for psychotic 14 beds

Area for recovering 14 beds

Area for trial in community (flat 3) (max 6)

29. Community Care Arrangements

Community nurse (1/30 pt) + car

Unit car/minibus/van

Unit "group home"

"Cluster flats"

Links with hostels/landladies

(Outpatient department

on/off (Drop-in centre
unit (Day hospital facilities
(24hr "link" with unit

Social Worker

30. Staff facilities

Dining Room

Staff sitting room off the ward (coffee, snacks)
with kitchenette and WC

Male changing room with lockers, showers, and WC

Female changing room with lockers, showers, and WC

31. Academic rooms local

Seminar room(s) with equipment (2/30 bed) 10 people rooms

Access to library

Access to lecture theatre or conference room circa 50 people
(Nurse Tutor - office)

Control and restraint course practice room

32. Services (How these are provided)

Kitchen services - kitchen/stores

offices

changing room/WC showers

Central heating system

Sewage system

Pharmacy Services - pharmacy

Portering Services - office

stores

Garaging Services - garage

Engineering Services - workshop

store

office

Decorating Services - stores

workshop

office

Building Services - stores

workshop

office

Occupational Health Services - surgery/office

Gardening/estate Services - store
workshop
office

Cleaning Services) - office

Housekeeping) - office

Communication/receptionist office

- Telephonist/receptionist

33. Other

Room for visitors (quiet room)

Room for tribunals/renewals

Overnight accommodation for visitors

Parking for total number of staff

Access for fire fighting

34. Staffing levels (Total number for unit & bed allocation)
Establishment

Doctors Consultants (F/T)

Senior Registrars

Registrars

Nurse managers H + 9 -

Nurses (G) Sister ChN or
above

(F

(C Trained

(B

(A N (Assist)

Nurse tutor H or higher

Psychologist

Social Worker

Specialist (Community nurse - F/G

Nurse (Behav. Therapy Nurse I/G

OT -

- Sen

- Bas

IT

Music Therapist

Instructors

Art Therapist

Physio

Teachers

Physical Education

Secretaria/Typist
General Managers
Other Admin staff
Cleaners
Porters
Pharmacists
Other

35. Architectural Features

2 storeys

Walls of strong brick construction

Doors of solid wood, open outwards

Rooms airy and roomy

Minimum ceiling height 10ft

Area meets maximum allowed

Roof has overhang

Ceiling strengthened

Fences 17' mesh steel

Good quality plumbing

Ceramic WC/bowls

Good quality showers

Good effective easily regulated
heating

Good effective ventilation system

- kitchen

- laundry

Good observation sight lines

Day rooms and bedrooms separated

Secure link between living and
occupational/industry areas

Corridor width 6'+

Floors - carpet - hardwearing

- easily cleaned

- pleasant

- non staining

Windows - securely fitted to wall

- unbreakable

- Pane size <5"

Social Rooms of pleasant proportions

Sensible, reliable manual locking

systems for security.

Trip switch system for electricians

36. Location

Easily reached

Staff live nearby

Pleasant surroundings

37. Size

Maximum size 100 beds

Smallest size 30 beds

Total area minimum 10 acres

38. Waiting list and relation to building

Waiting list

Number of beds in Region as fraction of Butler norm

Appendix 2

RSU Evaluation Study Patient Questionnaire

We would like to know how you feel about this building.
 Please complete the questionnaire by ticking the appropriate box and adding any comments you feel necessary.
 Your answers will help improve the design of future buildings.
 Thank you.

Please rate the overall quality of the following.

	Very Good	Good	Fair	Poor	State Why?
Your room; is it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Too small
Games Rooms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	got none
Sitting areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	should be more
Television Room 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	should be more
Television Room 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	it will be more
Common Rooms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	got none
Furniture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not adequate
Decoration generally	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	it is adequate
Overall Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not enough freedom

	Too Big	Too Small	About Right	
Do you think your room is...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	because it is too small
Do you think Sitting rooms are...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	because it is too small

Do you think there are enough...

	Yes	No		Yes	No
Toilets and bathrooms	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do you have a toilet in your room?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dayrooms	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is that a good thing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is there enough to do during work time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are there separate facilities for women (sleeping areas, common rooms etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there enough to do during leisure time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Should there be separate facilities for men and women?	<input type="checkbox"/>	<input type="checkbox"/>
Is there somewhere you can go when you want to be alone?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are there separate rooms for people who smoke and those who do not?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please turn to page 2

Should there be separate rooms for people who smoke and those who do not? Yes No

Compared to other facilities you have stayed in, is this place....? Better Worse About the Same
 State Why? because its new

Are you male or female? Male Female

Do you smoke? Yes No

How old are you? under 25 25 - 35 35-50 over 50

How long have you been here? Under 2 months 2 - 6 months 6 months to 2 years 2 years or more

In which room do you spend most time during waken hours? all of them Why? because I like to

Which room do you like the most? All Why? because its better

Which room do you like the least? None Why? because they are all the same

If you could change one thing about this facility, what would that be?
I would like more privacy
like a private kitchen
and more room
and

Thank you for completing this questionnaire.
 Please return it to the person who gave you it or any member of staff.

Appendix 3

Department of Trade and Industry Organisational Chart

**TEXT BOUND INTO
THE SPINE**

Appendix 4

Facilities Performance Evaluation Memorandum

To:
All Staff in Kingsgate House

From:
John Meadway
Chairman
Kingsgate House Building User Group

August 1994

KINGSGATE HOUSE FACILITIES PERFORMANCE EVALUATION

As you may be aware, FMG the group responsible for the facilities management of our buildings, have undertaken to conduct a post occupancy evaluation of Kingsgate House, to understand how well the building works for you as a user. To that end FMG have invited the Centre for Facilities Management from the University of Strathclyde to help them conduct the evaluation.

I believe this is an opportunity for us as users to improve our understanding of the way in which the Kingsgate House facilities are managed and also to understand the needs and roles of different individuals and divisions within the organisation.

I attach a brief note about the evaluation from the University. The evaluation exercise will be conducted over the next few weeks and will involve representative groups from divisions within the building touring the building followed by an evaluation session and the completion of a questionnaire. The process should take no more than two hours per group.

Although the primary role of the evaluation will be to achieve the principle objectives set out in the attachment to this minute we have a second goal. This is to consider our working environment together as colleagues, irrespective of grade. In this dialogue we should all consider ourselves as equals who have substantive knowledge of the facilities we are considering.

This is your building and FMG need your participation to improve the quality of this and future buildings and services.

Each Management Unit within Kingsgate House is asked therefore to put forward a group of between four and seven people who can represent the views of their division at all levels. If you are interested in participating in this worthwhile project then please notify your MU Building User Group Representative no later than Friday 19 August. You will then be contacted with further details.

JOHN MEADWAY
XNP

KINGSGATE HOUSE; FACILITIES PERFORMANCE EVALUATION (FPE)

The traditional province of Post Occupancy Evaluation (POE), is, in addition to fine tuning existing environments, to provide information for feedforward to future building design and use. It is considered, however, that the POE fails adequately to take account of users views of building and service quality and other aspects of their environment (organisational) which impinge upon their judgement. Accordingly it is suggested that the principal aim of the evaluation should be to achieve the following objectives.

Principal Objectives

- a. To develop an understanding of the extent to which the building (and its management) facilitates operational efficiency for its users.
- b. To identify those factors in the 'serviced environment' which are rated of significant importance by users.
- c. To involve users in the evaluation process in a fully participative manner such that lines of communication are improved between users and FMG.
- d. To identify aspects of service quality currently provided or managed by FMG which fail to meet or exceed users expectations.
- e. To provide FMG with a resource guide and methodology for the future conduct of POE including self administered

The FPE will take the form of a "touring interview", essentially a walk around the building with a variety of users who work within the building. The process is intended to be highly participative and involves a de-briefing session after the walk around in which pertinent issues are raised and discussed by users rather than being deduced from the outset by 'experts'.

The sessions are intended to help us clarify the assumptions, programs and responsibilities underlying the implementation of facilities management strategies. We have the view that only through the input from a larger group that represents all stakeholders in the building can we understand the way in which the building and the way in which it is managed meets our needs. The purpose of the evaluation sessions is to gain understanding of each others view by thinking through our facility-related needs and how they are met. The sessions are not an attempt to make decisions as much as a setting to examine directions and the assumptions underlying them.

Appendix 5

SERVQUAL Questionnaires

SERVICE QUALITY QUESTIONNAIRE

Internal Customers

The Centre for Facilities Management, at the University of Strathclyde are currently undertaking a study of Facilities Management within the DTI. In order to assist us we would be grateful if you could complete the following questionnaire.

Thank you for agreeing to take part in this service quality questionnaire.

Please follow the instructions overleaf and complete each question.

Once you have completed the questionnaire, for reasons of confidentiality, please return it directly to the person who administered it to you or send it directly back in the envelope provided to:-

Mr Craig Anderson
Centre for Facilities Management
University of Strathclyde
George Street
Glasgow, UK

The questionnaire is completely anonymous, but it would be useful if you could provide the following information.

Sex Male / Female

Age 16-25 26-35 36-50 over 50

Job Title/Description _____

(This should reflect the role you play in the organisation rather than just grade. e.g. Administrative Assistant - order processing)

Length of Involvement with the DTI (years)

Length of Involvement with the Civil service (years)

BLANK IN ORIGINAL

SERVICE QUALITY QUESTIONNAIRE (Part A)

Internal Customers

The following questionnaire has been set to measure the levels of service quality delivered to you by the support services that are provided by the facilities organization and administered by the Facilities Management Group within the D.T.I.'s premises at Kingsgate House. The Facilities Organization can be described as the team responsible for the provision of all business support services at Kingsgate House. The Facilities Organization consists of the DTI's Facilities Management Group (FMG), service personnel directly employed by the DTI, and the employees and managers of companies that provide contracted - out services at Kingsgate House. The services that fall within the remit of the questionnaire are as follows:-

help desk, reprographics, cleaning, catering, meeting room management, office moves, electrical etc. repairs, waste disposal, vending, heating and ventilation, mail services, and security guarding.

The Facilities Management Group co-ordinates services from all staff and personnel, who are involved in supplying support services to the D.T.I.'s premises at Kingsgate House, including customer contact personnel, supervisors and management regardless of who actually provides the services. Based on your experiences as a consumer of the services provided by a facilities organization, please think about a hypothetical facilities organization that would deliver an excellent quality of service to you as its customer. Please show the extent to which you think such an organization would possess the features described by each of the following 22 statements. If you feel that a feature is *not at all essential* for an excellent Facilities Management Group, then circle the number 1. If you feel that a feature is absolutely essential for excellent Facilities Management Groups, circle 7. There are no right or wrong answers. I am only interested in a number that truly reflects your feelings regarding the property and office support services provided by a facilities organization that would, in your opinion, deliver excellent quality of service.

If you wish to make additional comments in relation to any of the questions and statements, then please use the page at the back of the questionnaire, referencing, where appropriate, the relevant question and section.

Part A 1 - Questions Regarding Hypothetical "excellent" Facilities Organizations.

	strongly disagree						strongly agree
1. Excellent facilities organizations will make use of modern looking equipment.	1	2	3	4	5	6	7
2. The premises occupied by excellent facilities organizations will be visually appealing.	1	2	3	4	5	6	7
3. Employees of excellent facilities organizations will dress neatly.	1	2	3	4	5	6	7
4. Materials associated with the services provided (such as pamphlets or statements) will be visually appealing in excellent facilities organizations.	1	2	3	4	5	6	7
5. When excellent facilities organizations promise to something by a certain time, they will do so.	1	2	3	4	5	6	7
6. When a customer has a problem, excellent facilities organizations will show a sincere interest in solving it.	1	2	3	4	5	6	7
7. Excellent facilities organizations will perform the services they offer correctly the first time.	1	2	3	4	5	6	7
8. Excellent facilities organizations will provide their services at the time they promise to do so.	1	2	3	4	5	6	7
9. Excellent facilities organizations will insist on maintaining accurate records in connection with the services they provide.	1	2	3	4	5	6	7
10. Staff of excellent facilities organizations will tell their customers exactly what services will be performed.	1	2	3	4	5	6	7
11. Staff of excellent facilities organizations will give prompt service to their customers.	1	2	3	4	5	6	7

	strongly disagree						strongly agree
12. Staff of excellent facilities organizations will always be willing to help their customers.	1	2	3	4	5	6	7
13. Staff of excellent facilities organizations will never be too busy to respond to their customers' requests.	1	2	3	4	5	6	7
14. The behaviour of staff of excellent facilities organizations will instil confidence in their customers.	1	2	3	4	5	6	7
15. Customers of excellent facilities organizations will feel safe in their dealings with the organization	1	2	3	4	5	6	7
16. Staff of excellent facilities organizations will be consistently courteous to their customers.	1	2	3	4	5	6	7
17. Staff of excellent facilities organizations will have the knowledge to answer customers' questions in connection with the services that they provide.	1	2	3	4	5	6	7
18. Excellent facilities organizations will give customers individual attention where necessary.	1	2	3	4	5	6	7
19. Excellent facilities organizations will have operating hours convenient to all their customers.	1	2	3	4	5	6	7
20. Excellent facilities organizations will have staff who give customers personal attention where required.	1	2	3	4	5	6	7
21. Excellent facilities organizations will have their customers' best interests at heart.	1	2	3	4	5	6	7
22. The staff at excellent facilities organizations will understand the specific needs of their customers.	1	2	3	4	5	6	7

Part A 2 - Major Features Of Hypothetical "Excellent" Facilities Organizations.

Listed below are five features pertaining to facilities organizations and the services they offer. I would like to know how important each of these features is to *you* when you evaluate the quality of service delivered by a facilities organization and its staff. Please allocate a total of 100 points among the five features according to how important each is to you - the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features add up to 100.

Again, if you wish to add additional comments in connection with any of the points, then use the page at the rear of the questionnaire, referencing the statement and section of the questionnaire to which you are referring.

- | | | |
|-------------------------------|---|-------------------|
| 1 | The appearance of the facilities organizations premises, equipment, personnel, and communication materials. | _____points |
| 2 | The facilities organization's ability to perform the promised service dependably and accurately. | _____points |
| 3 | The facilities organization's willingness to help customers and provide prompt attention. | _____points |
| 4 | The knowledge and courtesy of the facilities organization's staff and their ability to convey trust and confidence. | _____points |
| 5 | The caring individual attention that the facilities organization provides to its customers. | _____points |
| TOTAL POINTS ALLOCATED | | 100 points |

SERVICE QUALITY QUESTIONNAIRE

Part B - The facilities organization Provided By the D.T.I. at it's Kingsgate House Premises.

The following set of statements relate to your feelings about the facilities organization provided within the D.T.I.'s Kingsgate House Premises and co-ordinated by the Facilities Management Group. For each statement, please show the extent to which you believe the facilities organization has the features described by the 22 statements. Once again, circling a 1 means that you strongly disagree that the facilities organization has that feature, and circling a 7 means that you strongly agree. You may circle any of the numbers in the middle to show how strong your feelings are. There are no right or wrong answers - all I am interested in is a number that best shows your perceptions about the facilities organisation and the services it provides.

Again, if you wish to comment or provide additional information in relation to a statement, please use the page at the rear of the questionnaire, referencing the appropriate statement and section of the questionnaire.

		strongly disagree					strongly agree	
1	The facilities organization makes use of modern looking equipment.	1	2	3	4	5	6	7
2	The premises occupied by the facilities organization are visually appealing.	1	2	3	4	5	6	7
3	The staff employed by the facilities organization dress neatly.	1	2	3	4	5	6	7
4	Documents associated with the services provided by the facilities organization (such as pamphlets or information leaflets) are visually appealing.	1	2	3	4	5	6	7
5	When the facilities organization promises to do something by a given time it does so.	1	2	3	4	5	6	7
6	When you have a problem the facilities organization shows a sincere interest in solving it.	1	2	3	4	5	6	7
7	The facilities organization performs the services it provides correctly the first time.	1	2	3	4	5	6	7

		strongly disagree						strongly agree
8	The facilities organization provides its' services at the time it promises to do so.	1	2	3	4	5	6	7
9	The facilities organization insists on maintaining error free records in connection with the services it provides.	1	2	3	4	5	6	7
10	Staff of the facilities organization tell you exactly when services will be performed.	1	2	3	4	5	6	7
11	facilities organization staff give you prompt service.	1	2	3	4	5	6	7
12	facilities organization staff are always willing to help you.	1	2	3	4	5	6	7
13	facilities organization staff are never too busy to respond to your requests.	1	2	3	4	5	6	7
14	The behaviour of facilities organization staff instils confidence in you.	1	2	3	4	5	6	7
15	You feel safe in your dealings with the facilities organization.	1	2	3	4	5	6	7
16	facilities organization staff are consistently courteous to you.	1	2	3	4	5	6	7
17	facilities organization staff have the knowledge to answer your questions.	1	2	3	4	5	6	7
18	The facilities organization provides you with individual attention where required.	1	2	3	4	5	6	7
19	The facilities organization has operating hours convenient to all its' customers.	1	2	3	4	5	6	7
20	The facilities organization has employees who give you individual attention where required.	1	2	3	4	5	6	7
21	The facilities organization has your best interests at heart.	1	2	3	4	5	6	7
22	The facilities organization's staff understand your specific needs.	1	2	3	4	5	6	7

MISSING

PRINT

SERVICE QUALITY QUESTIONNAIRE

Managers

The Centre for Facilities Management, at the University of Strathclyde are currently undertaking a study of Facilities Management within the DTI. In order to assist us we would be grateful if you could complete the following questionnaire.

Thank you for agreeing to take part in this service quality questionnaire.

Please follow the instructions overleaf and complete each question.

Once you have completed the questionnaire, for reasons of confidentiality, please return it directly to the person who administered to you or send it directly back in the envelope provided to:-

Mr Craig Anderson
Centre for Facilities Management
University of Strathclyde
George Street
Glasgow, UK

The questionnaire is completely anonymous, but it would be useful if you could provide the following information.

Sex Male / Female

Age 16-25 26-35 36-50 over 50

Job Title/Description _____
(This should reflect the role you play in the organisation rather than just grade. e.g. Administrative Assistant - order processing)

Length of Involvement with the DTI (years)

Length of Involvement with the Civilservice (years)

SERVICE QUALITY QUESTIONNAIRE

Part A - Managers

This portion of the survey deals with how you, as a member of the team responsible for the provision and administration of the services provided by the Facilities Organization at the D.T.I.'s Kingsgate House Premises and administered by the Facilities Management Group (FMG) think your customers feel about a hypothetical facilities organization that, in their view, would deliver an excellent quality of service. The facilities organization can be described as the team responsible for the provision of all business support services at Kingsgate House. The Facilities Organization consists of the DTI's Facilities Management Group (FMG), service personnel employed directly by the DTI, and the employees and managers of companies that provide contracted - out services at Kingsgate House.

The support services that fall within the remit of the questionnaire are as follows :-

Reprographics, help-desk, cleaning, catering, meeting room management, office moves, electrical etc. repairs, waste disposal, vending services, heating and ventilation, mail services, and security guarding.

The Facilities Management Group (FMG) coordinates the services of all staff and personnel, who are involved in supplying support services to the DTI's premises at Kingsgate House, including customer contact personnel, supervisors, and managers, regardless of who actually provides the actual services. Please indicate the extent to which you think the staff within the D.T.I.'s Kingsgate House Premises feel that a hypothetical excellent facilities organization would possess the features described by each of the following 22 statements. If the customers of the facilities organization are likely to feel a feature is *not at all essential* for excellent facilities organizations, circle 1. If the D.T.I.'s staff are likely to feel a feature is *absolutely essential*, circle 7. If the staff's views are likely to be less strong, circle one of the numbers in between. Remember, there are no right and wrong answers - I am only interested in what you think the views of the D.T.I.'s staff are regarding a facilities organization that would deliver an excellent quality of service.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

Part A 1 - Questions Regarding Hypothetical "excellent" facilities organizations.

	strongly disagree						strongly agree
1. Excellent facilities organizations will make use of modern looking equipment.	1	2	3	4	5	6	7
2. The premises occupied by excellent facilities organizations will be visually appealing.	1	2	3	4	5	6	7
3. Employees of excellent facilities organizations will dress neatly.	1	2	3	4	5	6	7
4. Materials associated with the services provided (such as pamphlets or statements) will be visually appealing in excellent facilities organizations.	1	2	3	4	5	6	7
5. When excellent facilities organizations promise to something by a certain time, they will do so.	1	2	3	4	5	6	7
6. When a customer has a problem, excellent facilities organizations will show a sincere interest in solving it.	1	2	3	4	5	6	7
7. Excellent facilities organizations will perform the services they offer correctly the first time.	1	2	3	4	5	6	7
8. Excellent facilities organizations will provide their services at the time they promise to do so.	1	2	3	4	5	6	7
9. Excellent facilities organizations will insist on maintaining accurate records in connection with the services they provide.	1	2	3	4	5	6	7
10. Staff of excellent facilities organizations will tell their customers exactly what services will be performed.	1	2	3	4	5	6	7
11. Staff of excellent facilities organizations will give prompt service to their customers.	1	2	3	4	5	6	7

	strongly disagree							strongly agree
12. Staff of excellent facilities organizations will always be willing to help their customers.	1	2	3	4	5	6	7	
13. Staff of excellent facilities organizations will never be too busy to respond to their customers' requests.	1	2	3	4	5	6	7	
14. The behaviour of staff of excellent facilities organizations will instil confidence in their customers.	1	2	3	4	5	6	7	
15. Customers of excellent facilities organizations will feel safe in their dealings with the organization	1	2	3	4	5	6	7	
16. Staff of excellent facilities organizations will be consistently courteous to their customers.	1	2	3	4	5	6	7	
17. Staff of excellent facilities organizations will have the knowledge to answer customers' questions in connection with the services that they provide.	1	2	3	4	5	6	7	
18. Excellent facilities organizations will give customers individual attention where necessary.	1	2	3	4	5	6	7	
19. Excellent facilities organizations will have operating hours convenient to all their customers.	1	2	3	4	5	6	7	
20. Excellent facilities organizations will have staff who give customers personal attention where required.	1	2	3	4	5	6	7	
21. Excellent facilities organizations will have their customers' best interests at heart.	1	2	3	4	5	6	7	
22. The staff at excellent facilities organizations will understand the specific needs of their customers.	1	2	3	4	5	6	7	

Part A 2 - Major Features Of Hypothetical " Excellent " facilities organizations.

Listed below are five features pertaining to facilities organizations and the facilities related services they offer. I would like to know how important you think each of these features is to *the staff at the D.T.I.'s Kingsgate House Premises* when they evaluate the quality of service provided by a facilities organization. Please allocate a total of 100 points among the five features *according to how important each feature is to the customers of the facilities organization. i.e. the staff at the D.T.I.* - the more important a feature is likely to be to customers, the more points you should allocate to it. Please ensure that the total number of points you allocate to the five features adds up to 100.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

- | | | | |
|-------------------------------|---|------------|---------------|
| 1. | The appearance of the facilities organization's premises, equipment, personnel, and communication materials. | _____ | points |
| 2. | The facilities organization's ability to perform the promised services dependably and accurately. | _____ | points |
| 3. | The facilities organization's willingness to help customers and provide prompt service. | _____ | points |
| 4. | The knowledge and courtesy of the staff employed by the facilities organization and their ability to convey trust and confidence. | _____ | points |
| 5. | The caring, individual attention the facilities organization provides to it's customers. | _____ | points |
| TOTAL POINTS ALLOCATED | | 100 | points |

Performance Standards - Part A 3

Performance standards in organizations can be formal - written, explicit, and communicated to staff. They can also be informal - verbal, implied, and assumed to be understood by staff. For each of the following features, circle the number that best describes the extent to which performance standards are formalised with regards the staff employed to carry out and manage the services (as listed in part A1) provided by the facilities organization at the D.T.I.'s Kingsgate House Premises. If there are no standards for the facilities organization staff, supervisors and managers then tick the appropriate box.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

	informal standards							formal standards							no standards							
1. The appearance of the facilities organization's premises, equipment, personnel, and communication materials.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	[]
2. The ability of the facilities organization to perform the promised services dependably and accurately.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	[]
3. The willingness of the facilities organization to help customers and provide prompt service.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	[]
4. The knowledge and courtesy of the staff of the facilities organization and their ability to convey trust and confidence.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	[]
5. The caring individual attention that the facilities organization provides to it's customers.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	[]

Performance Standards - Part A 4

Listed below are the same five features. Staff sometimes experience difficulty in achieving the standards established for them. For each feature listed below, circle the number that best represents the degree to which the facilities organization and its staff are able to meet the performance standards which have been established. Remember, there are no right and wrong answers - it is your candid and unbiased assessment which is required.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

	unable to meet standards consistently							able to meet standard consistently	no standards exist
1. The appearance of the facilities organization's premises, equipment, personnel, and communication materials.	1	2	3	4	5	6	7		[]
2. The ability of the facilities organization to perform the promised services dependably and accurately.	1	2	3	4	5	6	7		[]
3. The willingness of the facilities organization to help customers and provide prompt service.	1	2	3	4	5	6	7		[]
4. The knowledge and courtesy of the facilities organization's staff and their ability to convey trust and confidence.	1	2	3	4	5	6	7		[]
5. The caring, individual attention the facilities organization provides to its customers.	1	2	3	4	5	6	7		[]

Levels Of Service Provided - Part A 5

Marketing, and other communication materials issued by facilities organizations often make promises about the level of service that they will deliver. Some facilities organizations are not always able to fulfil these promises and deliver the promised level of service. For each of the features listed below please indicate the extent to which you believe that the facilities organization and it's staff are able to deliver the level of service promised to it's customers. Please circle the number that best describes your perception.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

	Unable to meet promises consistently						Able to meet promises consistently
1. The appearance of the facilities organization's premises, equipment, personnel, and communication materials.	1	2	3	4	5	6	7
2. The ability of the facilities organization to perform the promised services dependably and accurately.	1	2	3	4	5	6	7
3. The willingness of the facilities organization to help customers and provide prompt service.	1	2	3	4	5	6	7
4. The knowledge and courtesy of the facilities organization's staff and their ability to convey trust and confidence.	1	2	3	4	5	6	7
5. The caring, individual attention that the facilities organization provides to it's customers.	1	2	3	4	5	6	7

SERVICE QUALITY QUESTIONNAIRE Managers - Part B

Listed below are a number of statements intended to measure your perceptions about the facilities organization within the D.T.I.'s Kingsgate House Premises and its operations. The facilities organization can be described as the team responsible for the provision of all business support services at Kingsgate House. The facilities organization consists of the DTI's Facilities Management Group (FMG), service personnel directly employed by the DTI, and the employees and managers of companies that provide contracted - out services at Kingsgate House. The services which fall within the remit of the questionnaire are as follows :-

help desk, reprographics, cleaning, catering, meeting room management, office moves, electrical, etc. repairs, waste disposal, vending, heating and ventilation, mail services, and security guarding.

Please indicate the extent to which you disagree or agree with each statement, in relation to the services provided by the facilities organization (and regardless of who the actual provider of the individual services) by circling one of the seven numbers next to each statement. If you strongly agree with a statement, circle 7. If you strongly disagree, then circle 1. If your feelings about an item are less strong, then circle one of the numbers in between. There are no right or wrong answers. Please express honestly how you view each statement.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

	strongly disagree						strongly agree
1. We regularly collect information about the needs of our customers.	1	2	3	4	5	6	7
2. We rarely use market research information that is collected about our customers.	1	2	3	4	5	6	7
3. We regularly collect information about the service quality expectations of our customers.	1	2	3	4	5	6	7
4. The managers in the facilities organization rarely interact with customers.	1	2	3	4	5	6	7
5. The customer-contact personnel in the facilities organization frequently interact with management.	1	2	3	4	5	6	7

	strongly disagree						strongly agree
6. Managers in the facilities organization rarely seek suggestions about serving customers from the customer-contact personnel.	1	2	3	4	5	6	7
7. The managers in the facilities organization frequently have face-to-face interactions with the customer contact personnel.	1	2	3	4	5	6	7
8. The primary means of communication in the facilities organization between customer contact personnel and managers is through memos.	1	2	3	4	5	6	7
9. The facilities organization has too many layers of management between customer contact personnel and management.	1	2	3	4	5	6	7
10. The facilities organization does not commit the resources necessary to achieve high levels of customer service.	1	2	3	4	5	6	7
11. The facilities organization has internal programmes for improving the quality of service to customers.	1	2	3	4	5	6	7
12. In the facilities organization, managers who improve service quality are more likely to be rewarded than other managers.	1	2	3	4	5	6	7
13. The facilities organization has a formal process for setting service quality goals for facilities staff.	1	2	3	4	5	6	7
14. The facilities organization sets specific service quality goals	1	2	3	4	5	6	7
15. The facilities organization effectively uses I.T. and automation to achieve consistency in serving customers.	1	2	3	4	5	6	7
16. Programmes are in place within the facilities organization to improve operating procedures so as to provide consistent service levels.	1	2	3	4	5	6	7

	strongly disagree						strongly agree
17. The facilities organization has the necessary capabilities to meet customers' service requirements.	1	2	3	4	5	6	7
18. If the facilities organization gave it's customers the levels of service that they really wanted, it would drastically overspend it's budget.	1	2	3	4	5	6	7
19. The facilities organization has the necessary systems in place to deliver the level of service demanded by customers.	1	2	3	4	5	6	7

SERVICE QUALITY QUESTIONNAIRE Managers Part C

Listed below are a number of statements intended to measure your perceptions about the organization you work for and its operations. Where a question refers to your "customers" this means the person or group of people within the D.T.I.'s Kingsgate House Premises that are the recipients of the services provided by you and your employer. Please indicate the extent to which you disagree or agree with each of the following 29 statements by circling one of the seven numbers next to each statement. If you strongly disagree with a statement, circle 1. If you strongly agree with a statement, circle 7. If your views are not so strong, circle one of the numbers in the middle which best represents your views. There are no right and wrong answers. Please indicate honestly the strength of your views with regard to each statement.

If you wish to provide additional information or comments regarding any of the statements then please do so on the comments sheet provided at the rear of the questionnaire referencing, where appropriate, the relevant statement and section of the questionnaire

	strongly disagree						strongly agree
	1	2	3	4	5	6	7
1. I feel that I am part of a team in the organization that I work for.	1	2	3	4	5	6	7
2. Everyone in the organization that I work for contributes towards a team effort to service customers.	1	2	3	4	5	6	7
3. I feel a sense of responsibility to help my fellow employees do their jobs well.	1	2	3	4	5	6	7
4. My fellow employees and I cooperate more often than we compete with each other.	1	2	3	4	5	6	7
5. I feel that I am valued by the organization that I work for.	1	2	3	4	5	6	7
6. I feel comfortable in my job in that I am able to perform my job well.	1	2	3	4	5	6	7
7. The organization that I work for employs only people who are qualified to do their jobs.	1	2	3	4	5	6	7

	strongly disagree						strongly agree
8. The organization that I work for supplies me with all the tools and equipment that I need to do my job well.	1	2	3	4	5	6	7
9. I spend a lot of time in my job trying to resolve problems over which I have little control.	1	2	3	4	5	6	7
10. I have the necessary freedom in my job to truly satisfy the needs of the customers that I serve.	1	2	3	4	5	6	7
11. I feel a lack of control over my job because my services are in demand by too many customers at the same time.	1	2	3	4	5	6	7
12. One of the frustrations of my job is that I have to rely on others to serve my customers.	1	2	3	4	5	6	7
13. When my job performance is appraised I am judged on how well I interact with my customers.	1	2	3	4	5	6	7
14. In the organization that I work for, making a special effort to serve customers well does not result in more pay or recognition.	1	2	3	4	5	6	7
15. In the organization that I work for, employees who do the best job in serving their customers are more likely to be rewarded than other employees.	1	2	3	4	5	6	7
16. The amount of paperwork involved in doing my job makes it difficult to serve my customers well.	1	2	3	4	5	6	7
17. In the organization that I work for, what my customers want me to do and what my superiors wants me to do are usually the same thing.	1	2	3	4	5	6	7
18. The organization and I have the same ideas about how my job should be performed.	1	2	3	4	5	6	7
19. I receive sufficient information from management regarding what I am supposed to do in my job.	1	2	3	4	5	6	7

	strongly disagree						strongly agree
20. I often feel that I do not completely understand the services offered by my organization.	1	2	3	4	5	6	7
21. I am able to keep up with changes that affect my job.	1	2	3	4	5	6	7
22. I feel that I have not received sufficient training from the organization that I work for in how to interact effectively with customers.	1	2	3	4	5	6	7
23. I am not sure which aspects of my job will be assessed when my job performance is evaluated.	1	2	3	4	5	6	7
24. When the organization I work for makes promises about the level of service that is to be provided, I am consulted about the reality of achieving these promises.	1	2	3	4	5	6	7
25. I am often not made aware in advance of the service levels that the organization I work for sets in relation to my job.	1	2	3	4	5	6	7
26. I interact with operations supervisors to discuss the level of service the organization can deliver to it's customers.	1	2	3	4	5	6	7
27. The organization that I work for has customer service policies that are consistent throughout the company from top to bottom.	1	2	3	4	5	6	7
28. Increasing competition from our competitors is putting pressure on the organization that I work for to generate new business.	1	2	3	4	5	6	7
29. Our key competitors make promises that they cannot possibly keep in order to obtain new contracts.	1	2	3	4	5	6	7

COMMENTS SHEET

Please use the space provided below to record any additional observations or information which you think is relevant to the contents of the questionnaire. Please ensure that, where relevant, the question / statement number and section are referenced.

Appendix 6

SERVQUAL Data and Tabulation

SERVQUAL - INTERNAL CUSTOMERS - SECTION A - EXPECTATIONS - DTI

CUSTOMER No.

QUESTION #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
tangibles																	
1	4	5	5	7	2	2	4	3	4	1	6	2	2	6	4	6	4
2	4	7	7	7	5	5	6	2	5	4	6	3	7	7	4	7	5
3	6	5	3	6	4	6	5	4	4	1	3	2	7	1	5	2	5
4	5	6	4	6	5	5	7	6	4	7	5	3	2	6	5	4	5
av. score	4.75	5.75	4.75	6.5	4	4.5	5.5	3.75	4.25	3.25	5	2.5	4.5	5	4.5	4.75	4.75
weighting	1.2	1.25	1.05	1.2	1.15	1.1	1.1	1.05	1.15	1.1	1.1	1.05	1.05	1.05	1.1	1.4	1.15
sub-total	5.7	7.188	4.988	7.8	4.6	4.95	6.05	3.938	4.888	3.575	5.5	2.625	4.725	5.25	4.95	6.65	5.463
reliability																	
5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	3	6	7
6	7	7	7	7	7	7	7	7	7	7	7	7	4	7	4	4	7
7	7	6	6	7	6	6	7	7	6	7	7	7	7	7	4	1	7
8	7	7	6	7	5	7	6	7	7	7	7	7	7	7	4	7	7
9	6	6	5	7	5	5	6	6	6	7	5	5	4	6	5	7	7
av. score	6.8	6.6	6.2	7	6	6.4	6.6	6.8	6.6	7	6.6	6.6	5.8	6.8	4	5	7
weighting	1.25	1.35	1.35	1.23	1.35	1.4	1.2	1.3	1.3	1.25	1.4	1.35	1.4	1.41	1.3	1.2	1.25
sub-total	8.5	8.91	8.37	8.61	8.1	8.96	7.92	8.84	8.58	8.75	9.24	8.91	8.12	9.588	5.2	6	8.75
responsiveness																	
10	7	5	7	7	7	6	6	7	6	7	7	5	5	7	5	7	7
11	7	6	7	7	6	6	6	7	6	7	7	7	7	7	4	5	7
12	7	7	7	7	7	7	7	7	6	7	6	7	7	6	5	6	7
13	6	6	6	7	5	6	7	5	6	7	6	6	4	6	5	4	7
av. score	6.75	6	6.75	7	6.25	6.25	6.5	6.5	6	7	6.5	6.25	5.75	6.5	4.75	5.5	7
weighting	1.25	1.15	1.3	1.15	1.2	1.3	1.4	1.25	1.3	1.25	1.2	1.25	1.3	1.41	1.15	1.15	1.2
sub-total	8.438	6.9	8.775	8.05	7.5	8.125	9.1	8.125	7.8	8.75	7.8	7.813	7.475	9.165	5.463	6.325	8.4
assurance																	

SERVQUAL- INTERNAL CUSTOMERS - SECTION A - EXPECTATIONS - DTI

	CUSTOMER No.																
QUESTION #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14	7	6	7	7	6	6	6	6	5	7	7	7	3	6	6	5	7
15	7	6	7	7	5	6	6	7	5	7	6	6	5	7	6	5	7
16	6	6	6	7	5	6	7	7	5	6	7	6	7	7	5	7	7
17	7	6	7	7	5	6	6	6	6	6	6	6	7	7	5	7	7
av. score	6.75	6	6.75	7	5.25	6	6.25	6.5	5.25	6.5	6.5	6.25	5.5	6.75	5.5	6	7
weighting	1.15	1.15	1.1	1.15	1.2	1.1	1.2	1.2	1.15	1.25	1.15	1.2	1.2	1.08	1.3	1.15	1.2
sub-total	7.763	6.9	7.425	8.05	6.3	6.6	7.5	7.8	6.038	8.125	7.475	7.5	6.6	7.29	7.15	6.9	8.4
empathy	7	6	6	7	6	7	6	7	6	6	5	6	4	6	5	6	7
18	7	5	6	6	5	7	6	5	6	5	7	5	4	7	4	7	7
19	7	6	7	7	6	7	6	7	5	5	5	7	4	6	5	6	7
20	7	6	7	7	5	6	7	7	6	7	7	6	4	7	5	6	7
21	7	6	7	7	5	6	7	7	6	7	7	6	4	7	5	2	7
22	6	6	7	7	6	7	6	6	7	7	7	7	7	6	5	7	7
av. score	6.8	5.8	6.6	6.8	5.6	6.8	6.2	6.4	6	6	6.2	6.2	4.6	6.4	4.8	5.6	7
weighting	1.15	1.1	1.2	1.27	1.1	1.1	1.1	1.2	1.1	1.15	1.15	1.15	1.05	1.05	1.15	1.1	1.2
sub-total	7.82	6.38	7.92	8.636	6.16	7.48	6.82	7.68	6.6	6.9	7.13	7.13	4.83	6.72	5.52	6.16	8.4
time in DTI	3	3	3	3	3	3	3	20	6	3	12	20	5	20	5	17	15
age	3	3	3	3	3	3	3	3	2	2	3	3	3	3	1	2	2
sex	F	F	M	M	M	M	F	F	M	F	M	M	F	F	M	M	M

18 19 20 21 22

QUESTION
tangibles

1	4	4	6	7	7
2	5	5	6	7	6
3	6	6	6	7	7
4	7	7	7	7	7

av. score	5.5	5.5	6.25	7	6.75 average	4.955
weighting	1.1	1.25	1.3	1.5	1.6	
sub-total	6.05	6.875	8.125	10.5	10.8 average	5.963

reliability

5	7	7	7	6	7
6	7	7	7	6	7
7	7	5	7	6	7
8	7	6	7	6	7
9	7	7	6	6	6

av. score	7	6.4	6.8	6	6.8 average	6.4
weighting	1.2	1.25	1.3	1.2	1.15	
sub-total	8.4	8	8.84	7.2	7.82 average	8.255

responsiveness

10	6	7	6	6	7
11	7	7	7	6	7
12	7	6	7	7	7
13	7	7	7	7	7

av. score	6.75	6.75	6.75	6.5	7 average	6.409
weighting	1.2	1.15	1.3	1.1	1.1	
sub-total	8.1	7.763	8.775	7.15	7.7 average	7.886

assurance

QUESTION	18	19	20	21	22
14	7	7	7	7	7
15	6	7	7	7	7
16	7	7	7	7	7
17	7	6	7	7	7
av. score	6.75	6.75	7	7	7 average
weighting	1.4	1.2	1.05	1.1	1.1
sub-total	9.45	8.1	7.35	7.7	7.7 average
6.375					7.46
empathy					
18	6	7	7	6	7
19	4	5	6	7	7
20	5	7	7	7	7
21	6	6	7	7	7
22	6	7	7	7	7
av. score	5.4	6.4	6.8	6.8	7 average
weighting	1.1	1.1	1.05	1.1	1.05
sub-total	5.94	7.04	7.14	7.48	7.35 average
6.191					6.965
time in DTI	7	0.5	5	14	28 average
age	1	2	2	3	3 average
sex	F	M	M	F	F
11.83					2.5

SERVQUAL - INTERNAL CUSTOMERS - SECTION B - PERCEPTIONS - DII

	CUSTOMER No.																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
QUESTION #																	
tangibles																	
1	6	4	2	7	5	4	4	4	4	4	4	4	4	3	4	6	6
2	6	5	3	6	5	4	3	3	5	4	5	5	4	3	3	4	5
3	4	5	3	6	5	5	7	4	5	4	4	3	4	4	3	4	4
4	2	1	2	6	4	2	3	4	3	5	2	3	4	1	3	3	5
av. score	4.5	3.75	2.5	6.25	4.75	3.75	4.25	3.75	4.25	4.25	3.75	3.75	4	2.75	3.25	4	5
weighting	1.2	1.25	1.05	1.2	1.15	1.1	1.1	1.05	1.15	1.1	1.1	1.05	1.05	1.05	1.1	1.4	1.15
sub-total	5.4	4.688	2.625	7.5	5.463	4.125	4.675	3.938	4.888	4.675	4.125	3.938	4.2	2.888	3.575	5.6	5.75
reliability																	
5	3	5	5	7	5	3	4	3	5	4	4	2	4	4	2	5	4
6	4	5	3	7	4	1	6	3	6	4	3	2	5	5	2	7	4
7	4	5	3	7	4	3	4	3	5	4	4	4	4	1	3	5	4
8	4	5	5	7	3	3	4	3	5	5	3	3	4	4	3	6	3
9	4	4	4	4	2	4	5	1	5	5	4	4	3	1	3	4	4
av. score	3.8	4.8	4	6.4	3.6	2.8	4.6	2.6	5.2	4.4	3.6	3	4	3	2.6	5.4	3.8
weighting	1.25	1.35	1.35	1.23	1.35	1.4	1.2	1.3	1.3	1.25	1.4	1.35	1.4	1.41	1.3	1.2	1.25
sub-total	4.75	6.48	5.4	7.872	4.86	3.92	5.52	3.38	6.76	5.5	5.04	4.05	5.6	4.23	3.38	6.48	4.75
responsiveness																	
10	1	4	6	5	3	4	6	4	5	4	3	3	3	4	3	6	3
11	3	5	5	6	5	2	4	4	5	4	3	3	4	4	3	7	3
12	6	5	6	7	6	3	6	4	5	4	4	2	4	4	3	7	5
13	5	4	1	6	3	3	7	3	5	4	4	3	4	4	2	7	4
av. score	3.75	4.5	4.5	6	4.25	3	5.75	3.75	5	4	3.5	2.75	3.75	4	2.75	6.75	3.75
weighting	1.25	1.15	1.3	1.15	1.2	1.3	1.4	1.25	1.3	1.25	1.2	1.25	1.3	1.41	1.15	1.15	1.2
sub-total	4.688	5.175	5.85	6.9	5.1	3.9	8.05	4.688	6.5	5	4.2	3.438	4.875	5.64	3.163	7.763	4.5

SERVQUAL-INTERNAL CUSTOMERS-SECTION B-PERCEPTIONS-DII

	<u>CUSTOMER No.</u>																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
QUESTION #																	
assurance																	
14	5	5	5	6	4	2	5	4	5	4	3	4	4	4	3	7	4
15	6	5	6	6	4	2	6	4	5	4	4	4	4	5	2	7	4
16	6	5	6	7	6	2	7	4	5	4	5	5	5	5	2	7	5
17	4	5	5	7	5	2	5	3	5	4	4	4	5	4	3	6	5
av. score	5.25	5	5.5	6.5	4.75	2	5.75	3.75	5	4	4	4.25	4.5	4.5	2.5	6.75	4.5
weighting	1.15	1.15	1.1	1.15	1.2	1.1	1.2	1.2	1.15	1.25	1.15	1.2	1.2	1.08	1.3	1.15	1.2
sub-total	6.038	5.75	6.05	7.475	5.7	2.2	6.9	4.5	5.75	5	4.6	5.1	5.4	4.86	3.25	7.763	5.4
empathy																	
18	5	5	5	7	5	2	6	4	5	6	4	5	5	5	3	7	6
19	5	4	5	5	5	1	5	4	5	6	5	4	3	5	2	5	6
20	6	5	6	7	4	2	5	3	5	7	4	5	4	5	3	6	6
21	7	5	5	7	3	1	5	4	5	4	4	4	4	4	1	4	4
22	5	5	5	7	4	2	5	3	5	5	4	5	4	4	2	7	4
av. score	5.6	4.8	5.2	6.6	4.2	1.6	5.2	3.6	5	5.6	4.2	4.6	4	4.6	2.2	5.8	5.2
weighting	1.15	1.1	1.2	1.27	1.1	1.1	1.1	1.2	1.1	1.15	1.15	1.15	1.05	1.05	1.15	1.1	1.2
sub-total	6.44	5.28	6.24	8.382	4.62	1.76	5.72	4.32	5.5	6.44	4.83	5.29	4.2	4.83	2.53	6.38	6.24
time in DTI																	
age	3	3	3	2	3	3	3	20	6	3	12	20	5	20	5	17	15
sex	F	F	M	M	M	M	F	M	F	F	M	M	F	F	M	M	M

18 19 20 21 22

**QUESTION
tangibles**

1 4 4 6 4 5
 2 4 6 5 4
 3 3 5 4 4
 4 7 6 3 1

av. score 4.5 5.25 5.25 4 3.5 average 4.136
 weighting 1.1 1.25 1.3 1.35 1.6
 sub-total 4.95 6.563 6.825 5.2 5.6 average 4.872

reliability

5 4 6 4 4 4
 6 2 7 4 3 6
 7 4 7 4 4 6
 8 5 7 3 3 4
 9 5 6 4

av. score 4 6.6 3.75 3.6 5 average 4.116
 weighting 1.2 1.25 1.3 1.2 1.15
 sub-total 4.8 8.25 4.875 4.32 5.75 average 5.271

responsive

10 4 7 3 2
 11 6 7 3 3 6
 12 6 7 4 3 6
 13 4 7 3 3 4

av. score 5 7 3.25 2.75 5.333 average 4.322
 weighting 1.2 1.15 1.3 1.1 1.1
 sub-total 6 8.05 4.225 3.025 5.867 average 5.3

QUESTION	18	19	20	21	22
assurance					
14	4	4	3	2	4
15	5	6	4	4	4
16	7	6	4	4	6
17	6	7	4	4	5
av. score	5.5	5.75	3.75	3.5	4.75 average
weighting	1.4	1.2	1.05	1.1	1.1
sub-total	7.7	6.9	3.938	3.85	5.225 average
empathy					
18	6	5	4	4	7
19	6	6	5	3	4
20	6	4	4	4	6
21	4	7	4	2	1
22	4	7	5	2	3
av. score	5.2	5.8	4.4	3	4.2 average
weighting	1.1	1.1	1.05	1.1	1.05
sub-total	5.72	6.38	4.62	3.3	4.41 average
time in DTI	7	0.5	5	14	28 average
age	1	2	2	3	3 average
sex	F	M	M	F	F
					11.83
					2.5

SERVQUAL - CONTACT PERSONNEL - SECTION A - EXPECTATIONS - DTI

QUESTION # tangibles	CONTACT PERSONNEL No.					
	1	2	3	4	5	6
1	6	4	6	6	6	4
2	6	5	4	6	5	6
3	4	7	7	6	7	2
4	5	5	5	5	5	6
av. score	5.25	5.25	5.5	5.75	5.75	4.5 average
weighting	1.2	1.2	1.15	1.1	1.15	1.1 average
sub-total	6.3	6.3	6.325	6.325	6.613	4.95 average
5.333						1.15
6.135						
reliability						
5	6	7	7	5	6	6
6	7	7	7	4	6	4
7	6	7	7	6	6	3
8	6	7	7	6	6	6
9	7	7	7	5	6	6
av. score	6.4	7	7	5.2	6	5 average
weighting	1.2	1.2	1.3	1.2	1.2	1.25 average
sub-total	7.68	8.4	9.1	6.24	7.2	6.25 average
6.1						1.225
7.478						
responsiveness						
10	7	7	6	6	6	5
11	7	7	7	5	6	5
12	7	7	7	4	6	6
13	6	7	5	4	6	5
av. score	6.75	7	6.25	4.75	6	5.25 average
weighting	1.2	1.2	1.2	1.15	1.2	1.15 average
sub-total	8.1	8.4	7.5	5.463	7.2	6.038 average
6						1.183
7.117						
assurance						

SERVQUAL - CONTACT PERSONNEL - SECTION A - EXPECTATIONS - DTI

QUESTION #	CPNTACT PERSONNEL No.						av. score	weighting	sub-total
	1	2	3	4	5	6			
14	7	7	7	6	6	5	6.25		
15	7	7	7	6	6	6	1.225		
16	7	7	7	6	7	3			
17	6	6	5	7	7	5			
	6.75	6.75	6.5	6.25	6.5	4.75	average	6.25	
	1.2	1.2	1.2	1.3	1.15	1.3	average	1.225	
	8.1	8.1	7.8	8.125	7.475	6.175	average	7.629	
empathy									
18	6	7	6	7	5	6			
19	7	7	7	7	7	4			
20	6	7	7	7	7	5			
21	7	7	7	6	7	6			
22	7	7	7	5	6	6			
	6.6	7	6.8	6.4	6.4	5.4	average	6.433	
	1.2	1.2	1.15	1.25	1.3	1.2	average	1.217	
	7.92	8.4	7.82	8	8.32	6.48	average	7.823	

SERVQUAL - MANAGERS - SECTION A - EXPECTATIONS - DTI

	<u>CUSTOMER No.</u>								
	1	2	3	4	5	6	7	8	9
QUESTION #									
14	4	7	6	6	6	6	6	4	6
15	4	7	6	3	6	5	7	5	6
16	6	6	6	5	6	6	7	4	6
17	6	4	5	6	6	7	6	4	4
av. score	5	6	5.75	5	6	6	6.5	4.25	5.5 average
weighting	1.05	1.35	1.15	1.3	1.2	1.1	1.15	1.1	1.2 average
sub-total	5.25	8.1	6.613	6.5	7.2	6.6	7.475	4.675	6.6 average
empathy									
18	6	6	6	5	5	5	7	4	5
19	4	5	6	6	6	6	6	5	6
20	6	6	7	3	6	6	7	5	5
21	6	4	7	6	6	6	6	4	1
22	4	5	6	5	6	6	5	4	5
av. score	5.2	5.2	6.4	5	5.8	5.8	6.2	4.4	4.4 average
weighting	1.1	1.1	1.3	0	1.1	1.1	1.35	1.1	1.1 average
sub-total	5.72	5.72	8.32	0	6.38	6.38	8.37	4.84	4.84 average
time in DTI									
age									average
sex									average
									ERR
									ERR
									5.378
									1.028
									5.619

GAP 2 - PERFORMANCE STANDARDS - DII - MANAGERS

Question #	Manager #	1	2	3	4	5	6	7	8	9		
1	3	2	4	4	0	6	7	0	4	4	4 average	3.333
2	7	6	5	5	6	6	6	4	4	4	5 average	5.444
3	7	3	5	5	6	4	5	5	4	4	3 average	4.667
4	4	2	4	4	3	5	6	0	4	4	2 average	3.333
5	4	4	1	6	2	4	6	4	4	4	3 average	3.778
											average	4.111

GAP 2 - PERFORMANCE STANDARDS - DII - CUSTOMER CONTACT STAFF

Question #	Contact Staff #	1	2	3	4	5	6		
1	7	5	7	7	3	2	3	3 average	4.5
2	7	5	7	7	2	3	6	6 average	5
3	7	5	7	7	5	3	4	4 average	5.167
4	7	6	6	6	3	3	6	6 average	5.167
5	7	5	5	5	4	3	6	6 average	5
								average	4.967

GAP 3 - SERVICE DELIVERY - DTL - MANAGERS

Question #	1	2	3	4	5	6	7	8	9		
	5	1	4	2	6	7	4	5	6	average	4.444
	5	1	6	2	6	6	2	5	6	average	4.333
	6	5	6	2	5	7	5	5	6	average	5.222
	6	3	6	2	6	6	3	5	5	average	4.667
	6	1	5	2	5	4	2	5	6	average	4
										average	4.533

GAP 3 - SERVICE DELIVERY - DTL - CUSTOMER CONTACT STAFF

Question #	1	2	3	4	5	6		
	7	4	7	2	6	3	average	4.833
	6	1	6	4	4	6	average	4.5
	7	1	7	4	5	6	average	5
	7	1	5	5	7	6	average	5.167
	7	1	5	5	6	4	average	4.667
							average	4.833

GAP 4 - SERVICE PROMISES - DTI - MANAGERS

Question #	1	2	3	4	5	6	7	8	9	
	5	2	4	4	5	7	2	4	4	4.111
	5	4	3	4	6	6	3	4	4	4.444
	6	3	2	4	6	5	2	4	4	4.222
	5	3	2	3	5	4	3	4	4	3.889
	5	1	3	2	5	5	2	4	4	3.556
										average
										4.044

GAP 4 - SERVICE PROMISES - DTI - CUSTOMER CONTACT STAFF

Question #	1	2	3	4	5	6		
	7	4	7	3	7	4	average	5.333
	7	1	6	3	7	6	average	5
	7	1	7	3	7	6	average	5.167
	7	1	6	4	7	5	average	5
	7	1	5	4	7	5	average	4.833
							average	5.067

ANTECEDENTS OF GAPS 1 AND 2 - D.I.I. - CONTACT STAFF VIEWS

QUESTION #	CONTACT STAFF #						
	1	2	3	4	5	6	
Gap 1							
market research orientation							
1	7	4	7	5	4	5	average 5.333
2	3	6	1	4	3	3	average 3.333
3	5	2	5	5	7	4	average 4.667
4	3	2	4	3	5	4	average 3.5
							overall average 4.208
upward communication							
5	6	5	4	3	7	5	average 5
6	3	2	4	3	6	3	average 3.5
7	5	2	6	4	7	4	average 4.667
8	2	1	1	4	7	6	average 3.5
							overall average 4.167
levels of management							
9	2	1	3	1	4	2	average 2.167
							overall average 2.167
Gap 2							
mgmt. commtmt. to serv. qlty.							
10	7	1	6	2	6	4	average 4.333
11	6	1	4	5	2	3	average 3.5
12	7	1	3	5	5	4	average 4.167
							overall average 4
goal setting							
13	5	1	5	5	5	5	average 4.333
14	5	1	6	5	5	6	average 4.667
							overall average 4.5
task standardisation							
15	5	1	7	4	6	3	average 4.333
16	5	1	6	5	5	2	average 4
							overall average 4.167
perception of feasibility							
17	7	1	7	6	7	6	average 5.667

ANTECEDENTS OF GAPS 1 AND 2 - D.T.I. - CONTACT STAFF VIEWS

	<u>CONTACT STAFF #</u>								
	1	2	3	4	5	6	6		
18	1	4	1	1	7	6	6	average	3.333
19	6	7	1	6	6	3	3	average	4.833
								overall average	4.611

ANTECEDENTS OF GAPS 1 AND 2 - D.I.I. - MANAGERS VIEWS

QUESTION #	MANAGER #										
	1	2	3	4	5	6	7	8	9		
Gap 1											
market research orientation											
1	5	1	6	4	5	6	4	4	2	average	4.111
2	5	1	4	5	6	4	6	6	1	average	4.222
3	5	1	6	3	5	4	5	4	1	average	3.778
4	2	7	6	5	6	3	1	1	7	average	4.222
										overall average	4.083
upward communication											
5	5	5	4	3	3	3	2	6	4	average	3.889
6	3	5	6	5	5	3	1	4	1	average	3.667
7	3	7	2	5	3	5	4	4	1	average	3.778
8	4	2	4	6	6	5	1	5	1	average	3.778
										overall average	3.778
levels of management											
9	7	4	6	5	6	5	1	1	1	average	4
										overall average	4
Gap 2											
ingmt. commtmt. to serv. qlty.											
10	4	1	4	3	3	3	5	1	5	average	3.222
11	6	5	2	6	6	4	6	5	1	average	4.556
12	4	4	6	2	5	4	3	1	1	average	3.333
										overall average	3.704
goal setting											
13	6	2	4	3	5	6	4	4	1	average	3.889
14	6	2	3	5	6	6	2	4	1	average	3.889
										overall average	3.889
task standardisation											
15	6	1	4	2	4	5	1	1	2	average	2.889
16	5	3	4	4	6	4	1	2	2	average	3.444
										overall average	3.167
perception of feasibility											
17	4	5	5	2	6	3	3	2	6	average	4

ANTECEDENTS OF GAPS 1 AND 2 - D.T.I. - MANAGERS VIEWS

	<u>MANAGER #</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	
18	1	4	2	3	2	3	1	3	1	7	average
19	6	1	3	4	4	5	4	1	1	7	average
											overall average
											3.556
											3.519

ANTECEDENTS OF GAPS 3 AND 4 - DTI - CONTACT STAFF VIEWS

QUESTION #	CONTACT STAFF #						
	1	2	3	4	5	6	
Gap 3							
learnwork							
1	7	7	6	5	7	6	average 6.833
2	7	5	6	3	7	5	average 5.5
3	7	7	7	6	7	7	average 6.833
4	5	7	7	6	7	7	average 6.5
5	7	5	6	1	5	5	average 4.833
							overall average 6.056
employee-job fit							
6	7	7	7	5	7	6	average 6.5
7	7	1	7	4	7	5	average 5.167
							overall average 5.833
technology-job fit							
8	7	4	5	1	7	3	average 4.5
							overall average 4.5
perceived control							
9	1	1	5	4	4	5	average 3.333
10	7	2	7	6	5	5	average 5.333
11	7	4	5	3	7	5	average 5.167
12	2	4	7	2	7	3	average 4.167
							overall average 4.5
supervisory control							
13	7	4	5	1	6	3	average 4.333
14	1	7	1	2	1	1	average 2.167
15	1	1	7	2	2	3	average 2.667
							overall average 3.056
role conflict							
16	3	4	1	7	7	4	average 4.333
17	7	3	4	4	6	5	average 4.833
18	7	4	6	5	7	5	average 5.667
							overall average 4.944
role ambiguity							

ANTECEDENTS OF GAPS 3 AND 4 - DTI - CONTACT STAFF VIEWS

QUESTION #	CONTACT STAFF #						
19	1	2	3	4	5	6	
20	7	4	6	4	7	3	average 5.167
21	7	4	7	6	7	7	average 6.333
22	7	5	7	6	6	6	average 6.167
23	7	4	7	6	7	5	average 6
	7	4	7	4	5	5	average 5.333
							overall average 5.8
Gap 4							
horizontal communication							
24	7	2	5	2	5	6	average 4.5
25	7	5	7	4	6	5	average 5.667
26	7	4	7	3	6	6	average 5.5
27	7	1	7	5	6	4	average 5
							overall average 5.167
propensity to overpromise							
28	7	4	4	1	5	3	average 4
29	7	1	1	3	1	3	average 2.667
							overall average 3.333

ANTECEDENTS OF GAPS 3 AND 4 - DTI - MANAGERS VIEWS

QUESTION #	MANAGER #	1	2	3	4	5	6	7	8	9		
Gap 3 teamwork	1	6	3	7	6	3	5	4	7	6	average	5.222
	2	6	2	4	2	3	5	2	5	2	average	3.444
	3	6	5	7	5	6	5	6	7	7	average	6
	4	5	6	4	3	6	5	6	7	4	average	5.111
	5	4	1	7	2	2	4	2	1	1	average	2.889
											overall average	4.533
employee-job fit	6	5	1	7	5	5	3	3	7	6	average	4.667
	7	3	1	7	1	5	4	1	1	1	average	2.667
											overall average	3.667
technology-job fit	8	4	1	3	1	5	3	7	3	4	average	3.444
											overall average	3.444
perceived control	9	1	5	4	6	3	1	3	5	2	average	3.333
	10	7	4	5	3	5	5	1	2	6	average	4.222
	11	5	7	4	6	6	1	3	3	6	average	4.556
	12	1	4	5	6	2	2	2	3	2	average	3
											overall average	3.778
supervisory control	13	5	2	3	2	5	5	3	4	3	average	3.556
	14	1	1	3	2	5	2	1	1	1	average	1.889
	15	2	4	6	2	5	3	7	1	1	average	3.444
											overall average	2.963
role conflict	16	3	3	6	3	3	2	6	5	7	average	4.222
	17	4	3	4	2	4	4	2	1	6	average	3.333
	18	7	3	5	5	5	4	3	3	4	average	4.333
											overall average	3.963
role ambiguity	19	7	1	3	5	5	5	1	1	6	average	3.778

ANTECEDENTS OF GAPS 3 AND 4 - DTI - MANAGERS VIEWS

QUESTION #	MANAGER #	1	2	3	4	5	6	7	8	9		
20	4	6	5	4	4	5	7	7	7	7	average	5.556
21	1	2	4	6	6	6	3	6	7	7	average	4.667
22	4	5	4	4	4	6	5	4	4	4	average	4.444
23	4	1	3	6	6	3	3	6	4	5	average	3.889
											overall average	4.467
Gap 4												
horizontal communication												
24	6	4	3	3	3	5	2	2	1	1	average	3
25	4	4	5	6	6	6	5	2	1	1	average	3.778
26	5	6	3	4	4	6	4	4	4	2	average	4.222
27	5	2	4	3	3	5	4	2	1	2	average	3.111
											overall average	3.528
propensity to overpromise												
28	3	7	3	4	4	2	4	4	4	4	average	3.889
29	5	7	3	4	4	4	4	1	1	7	average	4
											overall average	3.944