University of Strathclyde Business School

Exploring Limits to Performativity: (Re)Constituting Everyday Performances through Planned Change

Final Thesis

A thesis submitted in partial fulfillment of the degree of Doctor of Business Administration

Hunter Centre for Entrepreneurship

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Abstract

This thesis addresses a critical conundrum in the strategy-as-practice debate: to what extent and under what conditions can a model be performative during the co-performation of routines and strategy? The concept of performativity argues that models do not merely describe settings but transform and shape the reality within these settings. As evidenced by the failure of most change initiatives, not all models successfully transform settings. Drawing on an ethnographic study of interactional patterns of action in the context of a complex technology-mediated, boundary-spanning professional service routine; this work explores the limits to progression and diffusion of a planned change model's performativity during the co-performation of routines and strategy to achieve the purposeful routinisation and coordination of organizational activities. Through identifying the felicity and infelicity conditions for the performativity of a planned change model and analyzing their dynamic interplay, I develop a model for the co-performation of routines and strategy; and propose a framework for the model's empirical limits to performativity. I argue that these limits demarcate the space for 'performativity struggles' and provide a framework for the analysis of 'performativity failures' for new strategy. I add to the literature on strategy-as-practice through theorising on the empirical limits to performativity – a key dynamic within strategy praxis that is as yet under studied within the strategy-as-practice approach.

Keywords: *Organizational Change; Routine Dynamics; Strategy-as-practice; Practice Theory; Performativity Theory*

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Declaration of authenticity and author's rights

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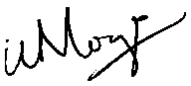

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Dated: 01/11/2018

Definitions/ Acronyms

BOM	Bill of Materials
CMMS	Computerised Maintenance Management System
EMCR	Engineering Maintenance Change Request
EPCC	Engineering, Procurement Construction & Commissioning
ERP	Enterprise Resource Planning
HAE	Hazardous Area Equipment
FI	Finance
IAL	Internal Approved Limit
IDEF	Integrated Definition Methods
GSOC	Global Sites Operations Contractors
MIE	Maintenance & Inspection Engineering
MM	Materials Management
OEM	Original Equipment Manufacturer
P&ID	Piping & Instrumentation Diagram
PFD	Process Flow Diagram
PM	Plant Maintenance
PMCR	Planned Maintenance Change Request
RCM	Reliability Centred Maintenance
RBI	Risk Based Inspection
RU	Resource Utilisation

SCE	Safety Critical Equipment

1 Introduction

Implementing strategic change within organizations is a key challenge to management practitioners. Managers today are constantly challenged to develop operational models that transform organizational settings from as-is arrangements to to-be arrangements to meet new operational targets, achieve efficiencies and/or adapt to wider organizational changes. Such changes may also require the introduction of or be because of the introduction of new technology. This challenge requires managers to define the new end-states and the operational models that will ensure the realisation of these end-states. The implementation of these operational models to realise defined end states is in the realm of Callonian Performativity Theory which argues that such models are engines that seek to transform the settings they describe. A key notion of Callonian Performativity Theory is that these models are not deterministically applied but are realised through iterative cycles of framings, overflows and reframings.

A model, as used here refers to organizational arrangements that are implemented to achieve specific objectives. Although Callonian Performativity Theory emerged from research into how the Black-Scholes Equation affected market performance (Callon, 2007); previous work has applied this concept to planned strategic change. For example, Kornberger and Clegg (2011) investigated the strategy development for achieving the vision of Sydney 2030 (Kornberger and Clegg, 2011); D'Adderio & Pollock investigated the effects of modularity – how an organization setup new operations to achieve specific objectives based on a template of the organizations' operations in another geographic location (D'Adderio and Pollock, 2014). Similarly Aggeri (2017) investigated how management

interventions resulted in transformations within the design activities of a car company (Aggeri, 2017); Ligonie (2017) studied how a gambling company developed a tool to measure shared value of the organizations' activities (Ligonie, 2017). In each of these cases, the organizations developed operational arrangements (the model) to realise the intended objectives and the studies focus specifically on the concept of Callonian Performativity within the setting.

This work seeks to answer the research question of: to what extent and under what conditions can a model be performative during the co-performation of routines and strategy? I draw on an ethnographic case study within a leading major oil and gas company ("GasCo" from hereon) based in Scotland to answer this question. GasCo is part of a multi-national company with operations in over 130 countries and a turnover in excess of US$100 billion from over 90 000 employees globally at the conclusion of the study in 2015. The Scottish subsidiary implemented a program to change a key routine called the Planned Maintenance Change Request (PMCR) routine – a key routine for asset intensive organizations which is the basis and focus of this study. The organization used the routine to develop and make changes to the procedures and method statements for the maintenance and management of its physical assets.

Faced with a significant backlog of new Projects and Modifications which were going through commissioning without maintenance or spares in place, poor maintenance work delivery due to inaccurate and misleading work instructions as well as new assets in the pipeline; GasCo took the decision to develop and define a strategic planned change program which would address these challenges. An overview of the vision of the planned change is given below;

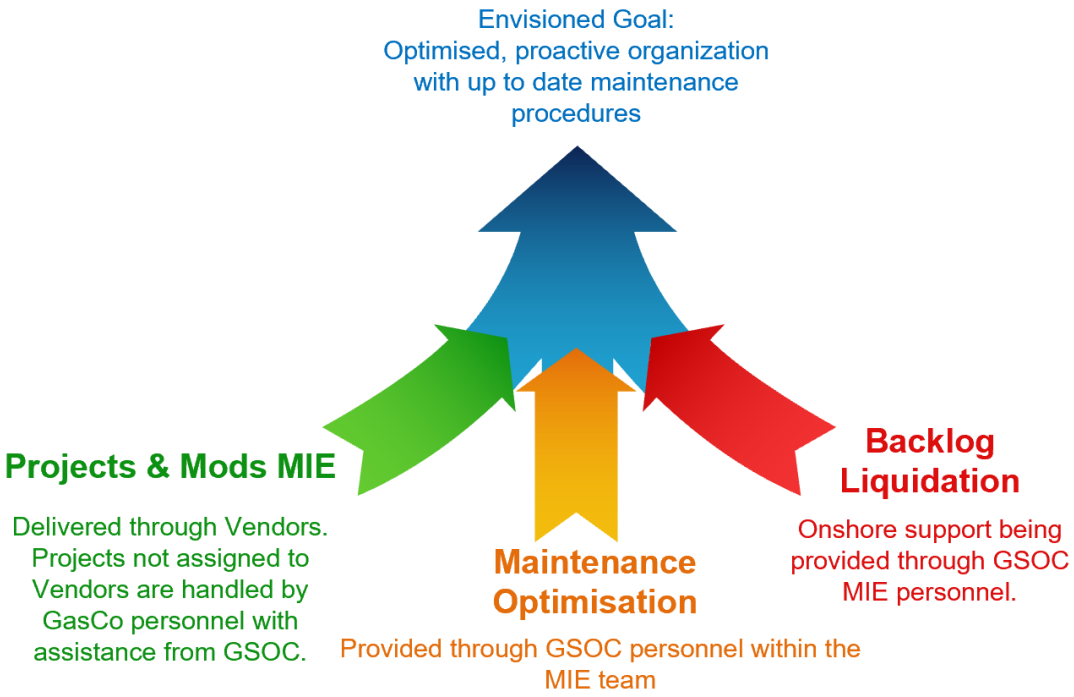

Figure 1: GasCo's Envisioned Goal

In order to achieve the desired goal, an in-depth assessment of the challenges facing the department tasked with delivering the maintenance instructions was completed. A strategic planned change model; which outlined new organizational arrangements to be embedded to realise the envisioned goal was defined as shown below; within Callonian Performativity Theory, implementation of such models gives rise to the Performativity Space. This is illustrated below;

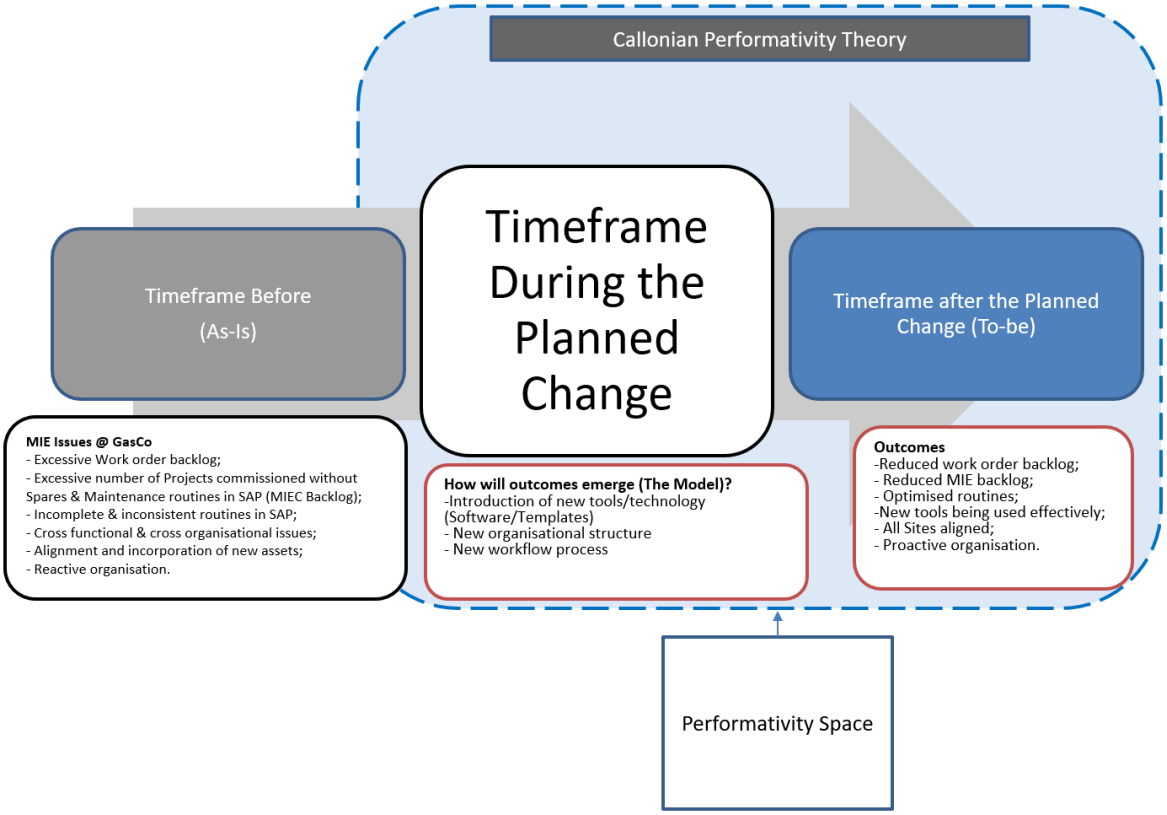

Figure 2: The Planned Strategy Change Model and the Performativity Space

Key to understanding the Performativity Space is an understanding of the felicity and infelicity conditions. For Austin (1962), felicity conditions are the underlying requirements for performativity to occur as applied to utterances (Austin, 1962); here these conditions are underlying requirements for a model to successfully transform the setting and achieve the desired objectives. In a similar way, infelicitous conditions are underlying conditions that result in performativity failures.

1.1 Understanding the Performativity Space

For Kornberger and Clegg (2011), strategy *is* performative practice (Kornberger and Clegg, 2011). Yet despite this recognition of the centrality of performativity to the study of strategy; strategy-as-practice studies are yet to fully embrace the concept of performativity – particularly in the study of the implementation of new strategy models. In organizational theory, the concept of performativity as articulated by Callon (1998) argues that models do not merely describe settings but transform and shape the reality within these settings. Yet it is common cause that not all models successfully transform settings as evidenced by the failure of most strategy change initiatives. To some extent, previous studies have detailed 'performative struggles' (Callon, 2009; D'Adderio and Pollock, 2014; Merkus and Veenswijk, 2017) but despite this; direct evidence and explanations for 'performativity failures' is sparse. For Brisset (2016, 2017) this is mainly due to Callonian Performativity Theory's lack of recognition of felicity conditions – a core concept of the original Performativity Theory advanced by John Austin (Austin, 1962). This lack of recognition of felicity conditions raises a key question for Callonian Performativity Theory: To what extent and under what conditions can a model (or theory) be performative?

For Callon (1998b, 1998c, 2007, 2010) a model (or theory) attempts to structure an exterior to itself through 'framings' which are temporary but fragile exclusions (Callon, 1998b, 1998c, 2007, 2010); building up on Goffman (1971)'s concept of a frame (Goffman, 1971). However, "all framings are incomplete and imperfect because by definition, to frame is to make selective inclusions and exclusions" (Çalışkan and Callon, 2010, p. 8). Overflows from the framings expose the framing devices leading to debates on how these frames can be

improved (Callon, 1998c). Full performativity is observed when there is convergence between the iterative cycles of framing and observed performances; and overflows lead to divergence between the framing and observed performances (D'Adderio, 2008, 2010; D'Adderio and Pollock, 2014). Framing therefore provides a space for agents to engage in a process of entanglement-disentanglement (Callon, 1998b) in which participants co-produce and collectively enact strategy. Missing from the study of strategy-as-practice are the felicity conditions that facilitate this entanglement-disentanglement process; the demarcation of the space in which overflows occur leading to performativity struggles and the infelicity conditions that result in performativity failures. Detailing these conditions and exposing this space in essence establishes limits for performativity for strategy models.

Prior work has sought to detail the limits to performativity – elsewhere Felin and Foss (2009) comprehensively argued objective reality and human nature provide theoretical boundary conditions for performativity (Felin and Foss, 2009). From an empirical perspective, Aggeri (2017) argues that errors in calculations and a lack of supervision of the supply chain produced conditions of infelicity for performativity (Aggeri, 2017). For Brisset (2016), the extent of a model's performativity is restricted by social institutions and models or theories have to be self-fulfilling to be performative (Brisset, 2016). Ligonie (2017) argues for the performativity of a model within 'infelicitous conditions' (Ligonie, 2017). Taken as a whole this extant work has helped conceptualise felicity and infelicity conditions and the theoretical and empirical limits to performativity for theories and models within organizational settings, but is yet to fully address the issue of defining the limits to performativity through a holistic consideration of felicity and infelicity conditions and their effects. Further work is therefore required to understand the limits to performativity

particularly from an empirical perspective and their implications for managerial efforts when seeking to achieve a new constitutive order given the meagre evidence presented so far. Our understanding of the Callonian Performativity space and the questions that the study seeks to answer is shown below;

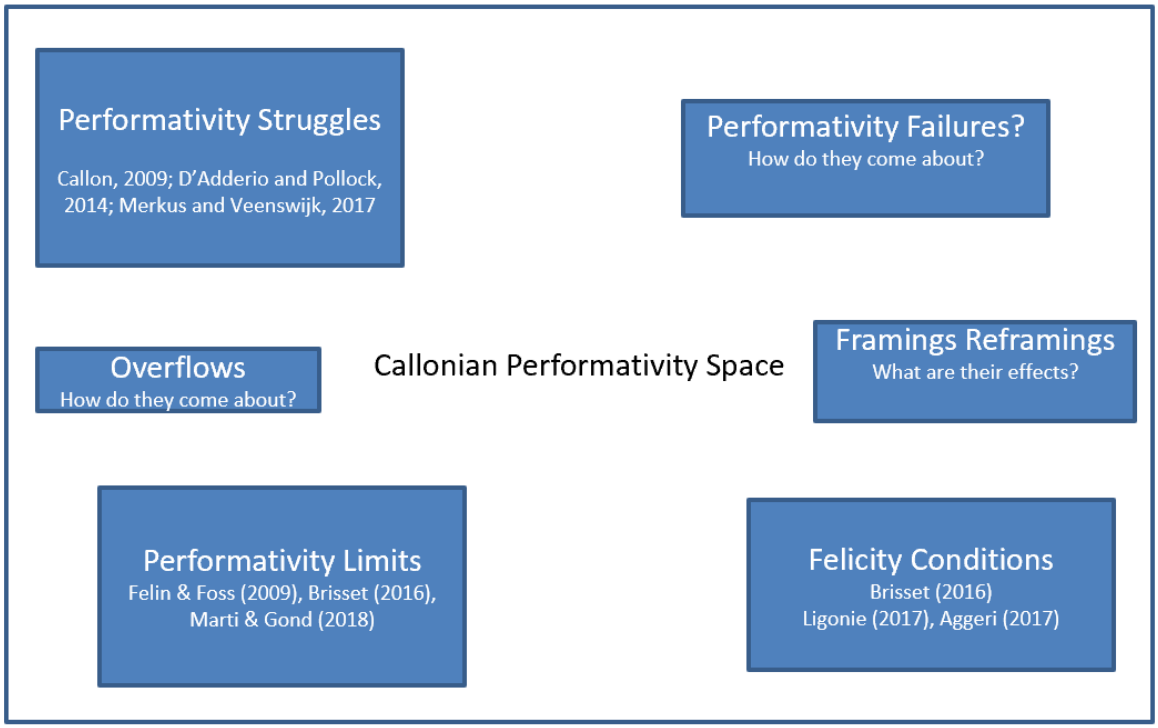

Figure 3: The Callonian Performativity Space

In this context, the limit sets a delimitation for the purposive, distributed, agentic dimensions (Battilana and D'Aunno, 2009) of performativity; key to eliciting its contextual applicability given the situated nature of strategy praxis within the strategy-as-practice approach (Golsorkhi et al., 2015a). Understanding this is essential to unlocking the black box of strategy praxis (Feldman, 2015; Golsorkhi et al., 2015b; Vaara and Whittington, 2012) – a core concept within the strategy-as-practice field. Through analysis of data from a 27-month

ethnographic study of the progression and diffusion of a planned change model within a large multi-national oil and gas organization; I attempt to address this blind spot. I study the progression of efforts to achieve a new constitutive order that produces the purposeful routinisation (Feldman and Pentland, 2003) and coordination (Jarzabkowski et al., 2012; Okhuysen and Bechky, 2009) of organizational activities during the implementation of planned changes to the Planned Maintenance Change Request (PMCR) routine – a key "professional service routine" (Spee et al., 2016, p. 759) particularly for physical asset intensive organizations.

Today, faced with strong and particular expectations in a turbulent contemporary workplace characterised by complex, distributed, matrix environments; managers are under immense pressure to deliver on their objectives. Therefore, in order to remain viable, it is essential for organizations to understand the limits to performativity when seeking to enact new models to achieve the coordination and routinisation of activities. Drawing on routines theory (D'Adderio, 2008, 2010, Feldman and Pentland, 2003, 2008; Feldman, 2000; Feldman et al., 2016) to illuminate the strategy-as-practice approach (Feldman, 2015; Golsorkhi et al., 2015a; Jarzabkowski and Spee, 2009) I adopt the concept of co-performation which shifts the analytic focus of planned strategy change as a stepwise process advocated by many models (Boje et al., 2012; Burnes, 2009, 2014, Cameron and Green, 2009, 2015; Dawson and Andriopoulos, 2014; Grieves, 2010; Hayes, 2014) to a view of planned strategy change as a social practice (Nicolini, 2012; Schatzki, 2001). This combination provides a new unique lens to study the sociomaterial setting, providing a richer view of the co-performation of strategy and routines and adding to the literature on strategy-as-practice.

In addition to providing a rich, thick (Geertz, 1993) firsthand empirical account that explicitly argues for the performativity of planned change; this thesis offers four contributions to organizational studies. First, through an analysis of the performativity space that emerges within the setting; I add to the list of known felicity and infelicity conditions alongside Aggeri (2017) and Ligonie (2017) for performativity within organizations. Through further analysis of the dynamic interplay of the felicity and infelicity conditions; I build on (Brisset, 2016, 2017)'s view that social institutions restrict performativity and propose a framework for the planned strategy change model's empirical limits to performativity. The framework outlines the extent of a model's performativity and demarcates the space for 'performativity struggles' and provides a basis for the analysis of 'performativity failures' for new strategy. Practitioners can focus on the performativity space to produce felicity conditions and tackle infelicity conditions in order to achieve the purposeful routinisation and coordination of organizational activities.

Second, building up on D'Adderio (2008, 2010) and D'Adderio & Pollock (2014), I then develop a model for the co-performation of routines and strategy, which accounts for framings, overflows and reframings through an analysis of the performativity space defined. Emerging from the setting and recognized in the model are two types of adaptation: adaptation due to strict performativity and adaptation due to outcomes from performativity struggles or overflows. Recognizing both forms of adaptation will lead to practitioners recognizing the progression and diffusion of the planned strategy change model despite intended outcomes not being fully realized. The model represents a significant departure from traditional planned strategy change models and offers a new way to understand and plan for strategy change.

Third, alongside with (Burgelman et al., 2018; Cacciatori, 2008, 2012, D'Adderio, 2008, 2010; Dionysiou and Tsoukas, 2012; Jarzabkowski et al., 2015; Jarzabkowski and Kaplan, 2015), this work emphasizes the potential agency of material artifacts through detailing their role in enabling and constraining performativity while facilitating mutual constitution between the performative and ostensive aspects (Feldman, 2015). Findings from the study show that the introduction of templates that codified activities undertaken by the SAP Method Analysts resulted in a significant change to the role. Through adopting a sociomaterial view, which recognizes the sociomaterial assemblage or *agencement* that privileges neither the human actor nor material objects; the inherent agency in all organizational participants – including artifacts, emerges from the setting. The significant changes to participants roles due to the introduction of templates and technology is an example of this.

Finally, this thesis addresses the role of performativity within strategy praxis; a prominent but neglected phenomenon within the strategy-as-practice approach. Thus, I respond to calls to connect strategy-as-practice with other streams of work (Golsorkhi et al., 2015b) through detailing its linkages to routines theory and sociomateriality alongside other scholars (Balogun et al., 2014; Cecez-Kecmanovic et al., 2014; Feldman and Orlikowski, 2011; Jones, 2013; Orlikowski, 2007; Orlikowski and Scott, 2008; de Vaujany and Mitev, 2013, Feldman, 2015) and emphasizing the centrality of performativity theory to the field.

1.2 Structure of Thesis

This Chapter provides an overview of the thesis and its theoretical foundations. Following the introductory remarks; in Chapter 2, I explore the literature on Performativity Theory, Routines Theory and Strategy-as-practice. Key concepts within these theories are introduced and I outline their relevance to this study; which serve as a conceptual framework for this thesis. At the end of the Chapter, I explore how the conceptual framework relates to the research question which is: To what extent and under what conditions can a model (or theory) be performative?.

In Chapter 3, the Research Methodology for exploring the research questions is outlined. A longitudinal ethnographic study was selected and data was gathered in the form of documentary evidence, observations and email communication. Using a practice view of the organization where "human behaviour and social context are intertwined" (Jansson, 2013, p. 1003); the study views the organization as a sociomaterial assemblage and the data gathering perspective was structured to accommodate this view. Data analysis was based on an inductive Grounded Theory approach. Within Chapter 3, I also outline the Research Setting and the specific routine under study as well as the changes implemented as part of the study. I deliberately present a detailed description of the technology and techniques under study to allow for the recognition of the contextual aspects of the areas under study which may have application elsewhere and be recognised by other terms. A detailed overview of the planned changes, their timelines and progression is also presented.

Chapter 4 details the findings from the study in the form of observable patterns that were evident within the setting during the period of study. These finding have implications for managers, strategy practitioners, academics and researchers.

Chapters 5 outlines the discussion and conclusion from the study along with an outline of the contribution of the work to both theory and practice. Key insights are elaborated on and potential areas for further exploration are also identified.

2 Literature Review

Despite widespread acceptance of the Theory of Performativity – which argues that models and theories have the power to shape and be shaped by reality (Callon, 1998a; MacKenzie, 2006; Mackenzie and Millo, 2003); not all models or theories are successful. This means that within the organizational studies domain there are enablers and barriers to the performativity of a model or theory – which facilitate or constrain the subsequent adoption or diffusion of a model or theory across the organization. The notion of 'performative struggles' (Callon, 2009; D'Adderio and Pollock, 2014; Merkus and Veenswijk, 2017) has established the presence of other competing models or theories within the organization but does not go far enough in identifying the limits to performativity. Likewise, the propositions for the theoretical limitations of performativity (Brisset, 2016; Felin and Foss, 2009) are inadequate in articulating what the nature of the limits to performativity within organizations could be.

Of particular importance is the exploration of the inherent power of sociomateriality in facilitating or constraining performativity given that models affect practices through embedding tools and devices (Callon, 2007). Unraveling this requires taking a sociomaterial view given that complex boundary-spanning, technology-mediated professional service routines that integrate work across functional boundaries are becoming the norm for most contemporary organizations. These routines; facilitated by workflow systems, meld technology, human and material artifacts into a sociomaterial setting (Balogun et al., 2014; Cecez-Kecmanovic, Galliers, et al., 2014; Feldman and Orlikowski, 2011; Jones, 2013; Orlikowski, 2007; Orlikowski and Scott, 2008; de Vaujany and Mitev, 2013). Such settings

cannot be understood as separate entities but are enacted and emerge through relations in practice (Feldman and Orlikowski, 2011; Orlikowski and Scott, 2008): as sociomaterial assemblages (Barad, 2003; Latour, 2005, 2007, Law, 2004, 2008; Orlikowski and Scott, 2008). Implementing or changing such systems is in the realm of organizational strategy – and an understanding of these settings requires a sociomaterial view as comprehensively argued by Orlikowski and Scott (2008).

Within a sociomaterial setting, these relationships span across technology, human and material artifacts and are central to the performative struggles that ensue (D'Adderio and Pollock, 2014). A core concept of sociomaterial settings is the relational nature of the setting and the rejection of dualisms; the setting is "a constitutive entanglement that does not presume independent or even interdependent entities with distinct and inherent characteristics" (Orlikowski and Scott, 2008, p. 456): "the social and the material are inherently inseparable" (Orlikowski and Scott, 2008, p. 456).Within this context, D'Adderio (2008)'s seminal recognition of the performativity of organizational routines led the way in illuminating the sociomaterial nature of the modern workplace. This next section describes the notion of performativity and how its limits can be conceived.

2.1 Understanding Performativity

"You are more than entitled not to know what the word "performative" means. It is a new and ugly word, and perhaps is does not mean anything very much. But at any rate there is one thing in its favour, it is not a profound word. I remember once when I had been talking on this subject that somebody afterwards said: "You know, I haven't the least idea what he means, unless it could be that he simply means what he says". Well, that is what I should like to mean." (Austin, 1979, p. 233)

Performativity is a core organizational concept, which as a theory has received much attention in management studies particularly in the last decade or so. Since its introduction by Callon (1998), it has been used to shed light on the adoption of the Black & Scholes equation in economics (MacKenzie, 2006; Mackenzie and Millo, 2003); move beyond the simple, representational conceptualisation of routine artifacts and theorise on their generative nature (D'Adderio, 2008); show that strategizing is performative (Kornberger and Clegg, 2011); reflect the performative dimension of the decision-making process (Merkus et al., 2014); reveal the inherent indeterminacy of the success and failure of Information Systems (Cecez-Kecmanovic, Kautz, et al., 2014); show how a modular organization emerges over time through 'performative struggles' (D'Adderio and Pollock, 2014); conceptualise purposive performative agents who enact a specific theory (Merkus and Veenswijk, 2017); theorise on the concept of performative work (Beunza and Ferraro, forthcoming); demonstrate how shared value shaped a gambling company's strategy despite the inherent inconsistency (Ligonie, 2017). In other fields, some have argued that the entire marketing field is designed to be performative (Mason et al., 2015).

Performativity Theory originates from John Austin's (1962) work "How to do things with words" (Gond et al., 2015). A performative utterance is one "in which to *say* something is to *do* something; *or* in which *by* saying something we are doing something" (Austin, 1962, p. 12 Emphasis original). There have been various interpretations and developments of Performativity Theory since then and within the organizational studies domain, Callon (1998)'s seminal recognition that "...economics performs the economy, creating the phenomena it describes.." (Mackenzie and Millo, 2003, p. 108) has led to extensive work in the area of organizational studies. Within this space, the concept of performativity "explains how theories and models are not merely simple descriptions of settings but transform the settings that they describe" (D'Adderio, 2008, p. 775). For many, the performativity thesis represents a turning point through offering "research that reflexively considers managerial activity and its effects" (Aggeri, 2017, p. 31), and rids us of the representational approach (Pickering, 1995) – which sees representations and the objects they represent as independent entities (Barad, 2003).

Mackenzie (2006) distinguishes between different types of performativity; generic performativity, effective performativity, "Barnesian" performativity and "counterperformativity" (MacKenzie, 2006, p. 17). Generic performativity refers to the use of the concept in practice and effective performativity is where "the use must *make a difference*" (MacKenzie, 2006, p. 18 Emphasis original). On the other hand "Barnesian" performativity is described as the strongest form of as "practical use of an aspect … makes … processes more like their depiction" (MacKenzie, 2006, p. 17). In this sense "a theory is said to be performative when it influences social reality in such a way that its premises, and sometimes even its predictions, become true" (Cabantous and Gond, 2011, p. 578). Finally,

"counterperformativity" is the reverse of Barnesian performativity whereby "the effect of the practical use of a theory or model may be to alter economic processes so that they conform less well" (MacKenzie, 2006, p. 19).

For Mackenzie (2006), a way of identifying Barnesian performativity of a theory or model is to compare "conditions and pattern … before and after" its rollout (MacKenzie, 2006, p. 21). This can be achieved by "examin[ing] the extent to which the model's predictions are borne out" which arguably can be quite complex as some aspects may not be directly observable (MacKenzie, 2006, p. 21). A key construct of Performativity Theory is the construct of 'performative praxis' (Cabantous and Gond, 2011). This performative praxis "requires the copresence and combination in action of three core elements: theory, tools, and actors" (Cabantous and Gond, 2011, p. 578), alternatively expressed as a sociomaterial assemblage or *agencement* (Callon, 2007), which must contain all the elements of the theory or model (D'Adderio and Pollock, 2014). For Callon (2007), *"[a]gencement* has the same root as agency: *agencements* are arrangements endowed with the capacity of acting in different ways depending on their configuration. This means that there is nothing left outside *agencements:* there is no need for further explanation, because the construction of its meaning is part of an *agencement*: A sociotechnical *agencement* includes the statement(s) pointing to it, and it is because the former includes the latter that the *agencement* acts in line with the statement, just as the operating instructions are part of the device and participate in making it work" (Callon, 2007, p. 320).

Therefore, it is through performative praxis that "daily activities … turn theory into social reality"; a concept that underpins the performative approach adopted in this work (Cabantous and Gond, 2011, p. 578). So although all the ingredients for performativity are

well defined, little is known about the limits to its diffusion. For D'Adderio & Pollock (2014), "the potential of a theory to gather strength and prevail is closely related to its ability to involve not only actors but also artifacts and material devices" (D'Adderio and Pollock, 2014, p. 1816), although the limiting factors remain unexplored. In the context of planned strategy change – the change models are intended to alter the course of everyday performances where they are introduced. Given that the performativity of the models is well established, understanding the specific conditions for successful performativity is the next logical step. Although organizational change studies have investigated barriers to organizational change, none of them has done so from a performative theory perspective.

2.1.1 Performative Agency vs Performative Struggles

For Callon (1998b, 1998c, 2007, 2010) a model attempts to structure an exterior to itself through 'framings' which are temporary but fragile exclusions (Callon, 1998b, 1998c, 2007, 2010): building up on Goffman (1971)'s concept of a frame (Goffman, 1971). For Callon (1998), framing is "the tracing of a boundary between relationships and events which are internalized and included in a decision or, by contrast, externalized and excluded from it" (Callon, 1998b, p. 15). This implies that "all framing thus represents a violent effort to extricate the agents concerned from this network of interactions and push them onto a clearly demarcated 'stage' which has been specially prepared and fitted out. But their links with the 'outside' world-links that betray their existence simply by the fact that the agents are simultaneously involved in other worlds from which they can never be wholly detached - cannot be reduced to personal relationships alone" (Callon, 1998c, p. 253). As a result, "all framings are incomplete and imperfect because by definition, to frame is to make selective inclusions and exclusions" (Çalışkan and Callon, 2010, p. 8). Overflows from the framings expose the framing devices leading to debates on how these frames can be improved (Callon, 1998c). For Callon (1998), this presents a paradox – if the frame were completely successful then the frame would be sterile and common knowledge and given that developing an all-embracing frame which covers every eventuality would be a difficult and likely expensive task; these overflows are inevitable (Callon, 1998c).

Another way to conceive the notion of framing and overflows is through Feldman & Pentland (2003)'s ostensive and performative aspects; the ostensive aspect cannot prescribe all specific performative aspects "as they are *inherently improvisational*... and as *it*

is impossible to specify any routine in sufficient detail that it could actually be carried out ... there are always contextual details that remain open" (Feldman and Pentland, 2003 Emphasis mine).

As already outlined, multiple theories and their ordering systems coexist within organizations; some in competition while others are complementary and serve to configure the organization (D'Adderio and Pollock, 2014). Competition between theories is manifest as "confrontations between multiple competing ordering systems (the theories, their rules and the array of sociomaterial elements that support them)" (D'Adderio and Pollock, 2014, p. 1835). The sociomaterial assemblage enables or constrains performative agency within the setting and as Callon (1998) describes it; "[t]he capacity of an agent to make autonomous choices, that is to say, to make decisions which do not merely fall in line with the decisions made by other agents, is not inscribed in her nature; it coincides with the morphology of her relationships" (Callon, 1998a, p. 9). In this sense "[a]gency as a capacity to act and to give meaning to action can neither be contained in a human being nor localized in the institutions, norms, values, and discursive or symbolic systems assumed to produce effects on individuals. Action, including its reflexive dimension that produces meaning, takes place in hybrid collectives comprising human beings as well as material and technical devices, texts, etc" (Callon, 2005, p. 4). Therefore, introducing a new, full resourced model has the capacity to escalate these battles, further constraining and enabling the capacity for performative agency. For D'Adderio & Pollock (2014) the outcomes of such confrontations can only ever be emergent due to temporal and contextual variations over time within the setting (D'Adderio and Pollock, 2014).

Combined with the plurality of theories within the setting, the battle between multiple agents is a dynamic contestation between agents seeking to realise different models or theories (D'Adderio and Pollock, 2014) – otherwise known as 'performative struggles' (Callon, 2009; D'Adderio and Pollock, 2014). For D'Adderio & Pollock (2014); "the conscious use of strategic practices by agents that aim to increase the performative effects of their ideas has not yet been the main focus of academic research, although some scholars implicitly mention strategic and political practices" (D'Adderio and Pollock, 2014, p. 1837). The focus of this work is to employ this conscious use of strategic practices by agents to understand the limits to performativity. These performative struggles are a direct result of overflows, which are necessary for productivity. Within this context, organizational routines theory is valuable in unpicking the distributed nature of everyday activities; surfacing the barriers and enablers to performativity during the dynamic confrontations. In the next section, I investigate the concept of routines theory and its relevance to the study.

2.2 Everyday Performances from an Organizational Routines Perspective

The study of organizational micro-foundations and in particular organizational routines has emerged as a critical area of organizational studies in recent years (Felin et al., 2015). Organizational routines are thought to be key building blocks of organizational behavior (Nelson & Winter 1982; Feldman & Pentland 2003; Becker 2005; Becker 2008) and understanding them leads to a clearer understanding of how organizations can be managed (Becker 2008). They have been defined as "repetitive, recognizable patterns of interdependent actions, carried out by multiple actors" (Feldman and Pentland, 2003, p. 96). This new understanding of organizational routines has evolved from initially understanding them as a means to co-ordinate organizations (Stene, 1940); to being a means to economise cognitive resources (Cyert and March, 1963); to being sources of organizational memory (Nelson and Winter, 1982) whilst being conceived as truces (Nelson and Winter, 1982); eventually to being seen as "rule-guided behavior" (Cohen et al., 1996) and finally to being seen as sources of organizational change (Feldman, 2000). Over the years, scholars have argued that routines have the potential to shed light on the organizational planned change debate.

For Nelson & Winter (1982), organizational routines are "all regular and predictable behavioral patterns" within organizations (Nelson and Winter, 1982, p. 14). They are "recurring and selectable action patterns" (Cohen et al., 1996; Parmigiani and Howard-Grenville, 2011, p. 417) whereby "the consequentiality of action means not just that routines are created through action and do not exist without action, but also that *the development of the routine occurs through the enactment of it*" (Feldman and Orlikowski,

2011, p. 1245 Emphasis original). As such “change may be engaged in order to promote stability, and stability may be essential to bringing about change” (Feldman and Orlikowski, 2011, p. 1245). Therefore from a routines theory informed perspective “stability and change are different outcomes of the same dynamic rather than different dynamics” (Feldman and Orlikowski, 2011, p. 1245).

Feldman & Pentland (2003)’s characterisation of routines as being made up of ostensive and performative aspects brought clarity to the understanding of organizational routines. In this view, the performative aspect “embodies the specific actions, by specific people, at specific times and places, that bring the routine to life” (Feldman and Pentland, 2003, p. 94). As such “the ostensive aspect enables people to guide, account for, and refer to specific performances of a routine, and the performative aspect creates, maintains, and modifies the ostensive aspect of the routine” (Feldman and Pentland, 2003, p. 94). They go on to “argue that the relationship between ostensive and performative aspects of routines creates an on-going opportunity for variation, selection, and retention of *new practices and patterns of action* within routines and allows routines to generate a wide range of outcomes, from apparent stability to considerable change” (Feldman and Pentland, 2003, p. 94 Emphasis mine). As defined by Feldman & Pentland (2003), there are intrinsic characteristics that delineate organizational routines. One of these characteristics is recurrence; scholars argue that it would be difficult to argue that an activity that occurs once is a routine (Becker, 2004). The concept of recurrence is however problematic even though it is a useful one within the study of routines (Pentland et al., 2010).

Another established property of routines is coherence. It is a necessary requirement for organizational routines to be recognizable according to Feldman & Pentland (2003)’s

definition and coherence allows for this recognition to take place. For a certain aspect of organizational behavior to be recognized as a routine, “there must be a certain amount of stability to the conditions molding behaviour” (Becker et al., 2005, p. 775) and for participants to be able to co-ordinate their activities they must “be able to predict each others’ behavior at least to a certain degree” (Becker et al., 2005, p. 781). Coherence is made possible “by socially defined and organized competencies” (May and Finch, 2009, p. 542). It is a result of “negotiations, both explicit and implicit which are occasioned by actions” (Birnholtz et al., 2007, p. 318) which gives rise to mutually adapted action dispositions which can be described as an “ecology” (Birnholtz et al., 2007). Coherence is thought to reside within organizational character as Birnholtz et al. (2007) conclude; “a coherent system of mutually adapted action dispositions forms an ecology that has the property of organizational character” (Birnholtz et al., 2007, p. 319). As “characterological behavior” determines “specific aspects of behavior that are identifiable by others” (Levinson, 1997, p. 247); therefore coherence allows for the recognition of repetitive patterns of behavior. However, others argue that the behavioral expression of the routine is a flawed basis for studying routines as “when the behavior stops, the capacity to perform the routine still exists” (Birnholtz et al., 2007; Hodgson, 2008, p. 20). On the other hand, without observing the behavior, it is not possible to determine if the routine still exists (Pentland et al., 2010).

Coherence implies collective action. Given that organizational routines have to be undertaken by multiple actors, there must be negotiations and agreements within the actors on the best way of undertaking a particular activity. Prior to an agreement being reached, conflict between the actors may occur resulting in the final routine adopted being

perceived as some form of truce (Nelson and Winter, 1982). However, “the terms of a truce can never be fully explicit, and in the case of the intra-organizational truce are often not explicit at all” (Nelson and Winter, 1982, p. 111). There is evidence that routines “can be disrupted when participants in a routine start acting in a manner that is more individual than collective” (Becker, 2004, p. 647; Weick, 1990, p. 579 cited in) and indeed, major changes to “truces” can reveal hidden interests within the setting (Zbaracki and Bergen, 2010). Therefore, the organization is faced with a challenge of synthesizing “diverse, typically inconsistent capabilities and preferences of its members into a coherent ecology of recurring actions that affects the world in a recognizable way” (Birnholtz et al., 2007, p. 316). This means that routines are distributed across space and/or across the organization (whereby “different people hold overlapping, identical knowledge” (Becker, 2004, p. 646)) and dispersed (whereby there is “specialization and complementarity” (Becker, 2004, p. 646)). The distributed and dispersed nature of the activity is another necessary feature of organizational routines as defined by Feldman & Pentland (2003) – multiple actors are required to carry out the interdependent actions.

However, as Law (2004) cautions, we “need to rethink how far whatever it is that we know travels and whether it still makes sense in other locations, and if so how” (Law, 2004, p. 3). In this way, organizational routines can be said to be situated; Feldman (2000) states that routines are performed by individuals whose “reactions are situated in institutional, organizational and personal contexts” (Feldman, 2000, p. 614). Within their context, routines also provide stability which can result in a reduction in uncertainty and an increase in predictability and hence enables co-ordination (Cyert and March, 1963; Nelson and Winter, 1982; Stene, 1940). However, context dependence is also closely linked to routine

evolution; adaptation is incremental based on prevailing routines based on feedback (Becker, 2004; Cohen et al., 1996). The perception of routines as situated is generally accepted within extant literature; according to Becker (2004), "routines are embedded in an organization and its structures" (Becker, 2004, p. 651) and for Cohen et al. (1996), "context dependence is fundamental" (Cohen et al., 1996, p. 662). For D'Adderio (2008), routines are "*highly distributed* across a complex web of people and everyday artefacts" (D'Adderio, 2008, p. 770 [Emphasis original]). The distributed nature of routines hinges on technology and artifacts and for D'Adderio (2010); it is difficult and perhaps impossible to have a routine without artifacts (D'Adderio, 2010).

For some, conceptual ambiguity within the concept of routines arises on whether participants "follow routines without devoting attention to them" (Becker, 2004, p. 648) [based on Ashforth & Fried (1988)'s characterization of routines as "mindlessness"]; or whether routines are "effortful accomplishments" (Pentland and Reuter, 1994, p. 488) capable of changing and "open to variation" (Becker, 2004, p. 648). However, Feldman (2000) has established that routines change because they do not achieve required outcomes, and/or create new resources/problems during their execution or as part of their outcome, or as a result of perceived improvements (Feldman, 2000). Furthermore, recent empirical work supports the view that organizational routines are effortful; for example Turner & Rindova (2012) found that organizational members sought consistency as it allowed them to "act with less cognitive effort" but at the same time they "engage(d) in mindful processes to preserve consistent, well-learned, and agreed upon patterns of behaviour" (Turner and Rindova, 2012, p. 43) and therefore "stability is an accomplishment" (Feldman et al., 2016, p. 506). As such, the research project will assume the notion of

routines as ongoing, “effortful accomplishments” (Pentland and Reuter, 1994, p. 488), with internal dynamics and structures capable of continuous endogenous change (Feldman, 2000).

There is also ambiguity surrounding the characterisation of the routines concept – not least of all because “the term has an everyday, commonsense meaning” and the different characterisations are not reducible, for example: “Rules are not behaviour, behaviour is not the same as rules, potential behaviour is not the same as actual behaviour” (Becker, 2008a, p. 4). In spite of this, organizational routines have provided a different lens for studying organizations and in particular organizational change (Becker et al., 2005), although “different authors operationalize organizational routines differently” and as a result “empirical results are difficult to compare as they might refer to slightly different things” (Becker, 2005a, p. 817). Different empirical studies have adopted different ways of studying routines which include; “identifying repeated sequences; identifying fixed condition-action rules; identifying task variety and analyzability; and identifying the content, process and sequence of recurrent interaction patterns” (Becker, 2005a, p. 819). Each method presents its own challenges, for example; “for an operationalization based on repetition, we also need a measure of similarity (or conversely, variety) of the recurrent instances of an interaction pattern, identifying the degree to which two instances of a behaviour vary from each other” and given this how exactly does one “decide what precisely constitutes the *same* behaviour” (Becker, 2005a, p. 820 Emphasis original)? For the ‘condition-rule’ based study “one has to compare the similarity of the *rules* followed by the actors, not the *behaviour* induced by the rules” which can be straightforward if the rules are documented, however “inferring rules from expressed behaviour is very difficult terrain” (Becker, 2005a,

p. 821 Emphasis original). This is because rules are not entirely deterministic and the "link between rules and behaviour is rather complex" (Becker, 2005a, p. 821). Both methods require "identifying the causal methods of behaviour" which "outside the laboratory, identifying causal mechanisms of behaviour seems a very difficult task" (Becker, 2005a, p. 822).

The 'identification of task variety and analyzability' presents its own challenges too. This approach requires an assessment of "the number of exceptions to be handled in carrying out a task, and the analyzability of the search procedure required for carrying out the task" and "the case of few exceptions and analyzable search procedure is termed the routine case" (Becker, 2005a, p. 821 Emphasis original). This requires a broad assessment across various organizational units and may not be suited for "the situated action perspective" as it "fails to distinguish clearly between the content of what is produced and the process of how it is produced" (Becker, 2005a, p. 822 Emphasis original). The method of 'identifying the content, process and sequence of recurrent interaction patterns' focuses on "assessing the *routineness of tasks* instead of the *routinization of task units*" (Becker, 2005a, p. 822 Emphasis original). Using this method, the researcher, "observes sequences, codes them using a coding scheme" and compares their "similarity" (Becker, 2005a, p. 822).

Based on the above, Becker (2005), proposes a conceptual framework of characterising "recurrent interaction patterns" (Becker, 2005a, p. 823). Within the framework, he raises the following questions;

> "If recurrent interaction patterns are the causes of certain performance outcomes of the organization, what causes recurrent interaction patterns to

> have the characteristics that lead to a particular performance? Which are the important antecedents of recurrent interaction patterns?" (Becker, 2005a, p. 823).

These questions are fundamental to understanding organizational change and subsequently the reasons for superior organizational performance. The perspectives above inform this study and provide the basis for the arguments made. However, of overarching interest is the concept of 'performativity' which is central to both sociomateriality and routines theory. Its juxtaposition with the dynamics at play within the setting is also of key interest.

Feldman (2000)'s characterization of routines as sources of change was a watershed point in the study of routines within organizations and has led to a new understanding of organizational routines; whereby they are perceived "as dynamic generative systems characterized by internal structures and dynamics" (Pentland and Feldman, 2005, p. 793). This concept of routine dynamics is an interesting one that opens up organization analysis. For Feldman et al. (2016) routines "are dynamic because they exist through a process of (re)production, over time and space, through the ongoing effort of actants people and things" (Feldman et al., 2016, p. 505). For Feldman et al. (2016) routines are dynamic in at least two ways;

> "First, these action patterns are temporal: there is no way that the performance of a routine can occur instantaneously or persist indefinitely. Like the flight of a bird, it exists as a trace through time and space. It is a process, not a thing. Second, any action pattern that repeats can potentially change from one

> performance to the next: like a folk song, there is always the possibility of a new verse" (Feldman et al., 2016, p. 505).

However, scholars caution that the variable and flexible nature of routines can prove challenging to understand when studying organizational change. For example for Feldman et al. (2016), "the simultaneous production of pattern and variety can be a source of confusion in theorizing about routines, because variation is easily confused with change" (Feldman et al., 2016, p. 508). This "variation is necessary to produce the same pattern (effortful accomplishment) while at other times variation produces new or different patterns (emergent accomplishment)" (Feldman et al., 2016, p. 508). In addition, Feldman & Pentland (2003) argue that "while organizational routines are commonly perceived as reenacting the past, the performance of routines can also involve adapting to contexts that require either idiosyncratic or ongoing changes and reflecting on the meaning of actions for future realities" (Feldman and Pentland, 2003, p. 95). Given this, the "question of how individual routines emerge and change over time remains a central concern for routine dynamics" (Feldman et al., 2016, p. 510). This is at the core of my research question, which seeks to elucidate the extent of the performativity of a planned change model and the conditions under which a model can be performative during the co-performation of routines and strategy.

A focus on routines necessarily calls for a focus on situated action patterns. As Plourde (2013) argues, "the advantage of focusing on patterns of actions is that it captures both the strategies that are formulated through a conscious process and the strategies that form gradually, perhaps unintentionally, as decisions are made one by one. This distinction is important because strategies are not always explicit" (Plourde, 2013, p. 96). Another

interesting aspect which obtains from the use of routines theory is that for Feldman & Rafaeli (2002), "routines make connections" (Feldman and Rafaeli, 2002, p. 312); a view consistent with the sociomaterial view of the setting (Latour, 2005; Orlikowski, 2007; Orlikowski and Scott, 2008). After all in the study of organizational change, the challenge is "how to convey dynamic complexity and contextual movements in a way that remains accessible and understandable" (Dawson, 2003a, p. 188) and undoubtedly routines theory is best suited to capture this. This is particularly applicable to the modern workplace which consists of networks of technology, artifacts and participants. As Orlikowski & Scott (2008) note;

> "Work practices are inherently sociomaterial, and so to understand work, we must understand its sociomaterial (re)configurations. The implications for organizations are particularly important; these practices don't just mediate work, they perform organizational realities" (Orlikowski and Scott, 2008, p. 467).

Understanding organizational routines requires getting to grips with everyday organizational practices. For Feldman & Orlikowski (2011), "central to a practice lens is the notion that social life is an ongoing production and thus emerges through people's recurrent actions" (Feldman and Orlikowski, 2011, p. 1240). This is in line with Carter et al. (2008), who argue that "in order to become a *practice*, some action needs to resemble a routine" (Carter et al., 2008a, p. 89 Emphasis original). Jarzabkowski (2004) also states that practice "implies repetitive performance in order to become practised; that is, to attain recurrent, habitual, or routinized accomplishments of particular actions" (Jarzabkowski, 2004, p. 531). As such, practice theory is at the centre of routines theory and for Feldman (2015); the "theory of routine dynamics is not only a compatible theory but also a useful tool for the study of

strategy as practice" (Feldman, 2015, p. 784). Such an approach facilitates investigating how "discursive and material actions are made possible and acquire meaning" while recognizing that "practices are social accomplishments" that are "inherently contingent, materially mediated, and cannot be understood without reference to a specific place, time, and concrete historical context" (Nicolini, 2012, p. 214).

Empirical studies so far (Bapuji et al., 2012; Birnholtz et al., 2007; Turner and Rindova, 2012) suggest that specific organizational routines can be selected and studied in detail resulting in a clearer understanding of the routine in question. While strategy-as-practice studies have contributed immensely to our understanding of strategic management, the field could benefit from new work that explores "various sociological theories and methods that have so far played a limited role in the disciplinary mainstream" (Vaara and Whittington, 2012, p. 324); and as Whittington (2007) argues "the minutiae of strategy are likely to have unexpected significance" (Whittington, 2007, p. 1578). As such, the strategy-as-practice approach based on a routines theory viewpoint offers an interesting lens for an ethnographic study of the co-performation of strategy and routines to produce the routinisation and coordination of activities. For Feldman (2016), "strategy and routines are recursively related" as "strategy constrains routines and, *at the same time*, the routines constrained by strategy produce the strategy that constrain them" (Feldman, 2015, p. 792 Emphasis original).

Although organizational routines have been well defined in the seminal paper by Feldman & Pentland (2003); further work to understand how they emerge or evolve is required (Parmigiani and Howard-Grenville, 2011). For example, artifacts are thought to mediate the performance of routines (D'Adderio, 2010), although their exact status is yet to be fully

defined (Bapuji et al., 2012). For others everyday organizing is inextricably bound up with materiality (Orlikowski and Scott, 2008) and "objects do not acquire particular meaning in or because of a given context; rather they are brought into being, realized in the course of a certain practical activity" (Woolgar and Lezaun, 2013, p. 324). The implications of this conceptualization for strategy activities are yet to be fully explored. Extant strategy research "has typically remained on the macro-level of firms and markets while reducing strategy to a few causally related variables in which there is little evidence of human action" (Jarzabkowski et al., 2007, p. 6). The study will adopt a routines theory focus of organizational behavior to detail the co-performation of routines and strategy to achieve the purposeful routinisation and coordination of organizational activities. Next I investigate the role of technology in the contemporary workplace.

2.2.1 Technology as a Mediator

The modern workplace is heavily dependent on technology; we can no longer view organizations as being made up of individuals and groups that use technology as and when required; agency is mediated through entities (D'Adderio, 2008, 2010; Latour, 2005; Orlikowski and Scott, 2008; Parmigiani and Howard-Grenville, 2011). Etymologically, Heidegger traces the origins of the word technology to the Greek word *Techne* and argues;

> "*Techne* is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. Techne belongs to bringing forth, to *poiesis*; it is something poetic" (Ihde, 1979, p. 280 Emphasis original)

Some scholars argue that the philosopher Martin Heidegger was a pioneer in taking technology seriously as "he was among the first to raise technology to a central concern for philosophy" particularly in his works *Being and Time* (1927) and *The Question Concerning Technology* (1954) (Ihde, 1979, p. 277). In particular, Heidegger's (1954) work investigated "the *essence* of technology in its *relationship* with human *existence*" (Ihde, 1979, p. 277 Emphasis original). In this work, Heidegger proposed two definitions of technology;

> "One says: Technology is a means to an end. The other says: Technology is a human activity. The two definitions of technology belong together. For to posit end and procure and utilize the means to them is a human activity. The manufacture and utilization of equipment, tools, and machines, the manufactured and used things themselves, and the needs and ends that they serve, all belong to what technology is. The whole complex of those contrivances

> is technology. Technology itself is a contrivance – in Latin an *instrumentum*" (Ihde, 1979, p. 278 Emphasis original).

This definition which characterises technology as "merely an invention of a *subject* and functions as a mere, neutral instrument" (Ihde, 1979, p. 278 Emphasis original) is correct yet untrue (Ihde, 1979). This is because the correctness is "limited to a subjectivistic set of conditions" (Ihde, 1979, p. 279) and may be "characterised as a partial truth" (Ihde, 1979, p. 278). In line with this thinking, Herbert Marcuse argues that technology should be "taken as a social process in which technics proper (that is, the technical apparatus of industry, transportation, communication) is but a partial factor" (Marcuse, 1982, p. 63). He goes on to argue;

> "Technology, as a mode of production, as the totality of instruments, devices and contrivances which characterise the machine age is thus at the same time a mode of organizing and perpetuating (or changing) social relationships, a manifestation of prevalent thought and behaviour patterns, an instrument for control and domination" (Marcuse, 1982, p. 63)

The view of technology as a tool for control and domination resonates with Kallinikos (2011) who argues that "technology obtains its distinctive regulative reach thanks to the variety of *strategies of functional simplification and reification* by which it lays out its prescriptive order" (Kallinikos, 2011, p. 7 Emphasis original).

Technology has also been seen as an agent for change; interestingly, Karl Marx is said to have argued that "in the most significant complex of technical changes of his time, the coming of large scale mechanised production, social relations molded technology, rather

than vice-versa" (Mackenzie, 1998, p. 23). Although this account "contains difficulties and ambiguities" (Mackenzie, 1998, p. 38), for MacKenzie (1998) it can be argued that "the most obvious way to legitimate any particular design decision or choice of technique is to say it is *technically necessary*" (Mackenzie, 1998, p. 46). Furthermore, technology is also seen as responsible defining people, particularly in the workplace; for Kallinikos (2011) "humans (or their social practices) [...] are, in part, unmistakably *products of technologies*" (Kallinikos, 2011, p. xi Emphasis original). He argues that most skills on an individual's CV are linked to technology and people typically make claim to have 'assimilated' the technology's critical requirements and the individual identifies himself/herself "as someone skilled at applying them" (Kallinikos, 2011, p. xi). In this way, for Kallinikos (2011) "technology contributes to constructing forms of agency by shaping skill profiles and professional practices over time" (Kallinikos, 2011, p. 3).

In view of the aforesaid, the social is becoming harder to define and the world today moves away from dichotomies and dualisms and towards seamless webs and networks (Bijker et al., 1987); what Bruno Latour calls "assemblages" (Latour, 2005, p. 2). In fact, Latour (2005) goes further and questions the way the word social' is used in many contexts. He argues that "there is nothing wrong with the use of the word as long as it designates what is *already* assembled together, without making any superfluous assumptions about the *nature* of what is assembled" (Latour, 2005, p. 1 Emphasis original). He sees the 'social' as "a trail of *associations* between heterogenous elements" (Latour, 2005, p. 5). These arguments have profound implications for the understanding, implementation and success of planned change in the modern workplace.

Despite the ubiquitous technology in the workplace, most management research does not "take into account the role of technology in organizational life" (Orlikowski and Scott, 2008, p. 433). For Orlikowski & Scott (2008), technology has been characterised within literature in a number of ways; the first as a "relatively distinct entity that interacts with various aspects of the organization, becoming particularly salient during moments of technology design, diffusion, implementation, deployment, adoption, adaptation, use, or breakdown" (Orlikowski and Scott, 2008, p. 434). An alternative stream of study views technology as "mutually dependent ensembles" and "is understood as part of the complex process through which organizing is accomplished" (Orlikowski and Scott, 2008, p. 446). However, these perspectives see technology "to be of particular interest at certain times, in explicit places, and during special organizational circumstances" which obscures "how all organizational practices and relations *always* entail some sort of technological (or material) mediation" (Orlikowski and Scott, 2008, p. 454 Emphasis original). They propose a "sociomaterial assemblage" view; away from "discrete entities of people and technology" to "agencies that have so thoroughly saturated each other that previously taken-for-granted boundaries are dissolved" (Orlikowski & Scott 2008, p.455). In this view, "entities (whether humans or technologies) have no inherent properties, but acquire form, attributes, and capabilities through their interpenetration" (Orlikowski & Scott 2008, p.455). A core concept within sociomateriality "is the notion of *performativity*" (Orlikowski and Scott, 2008, p. 460 Empasis original). In this sense performativity implies enactment, which "challenges the positioning of materiality as either a given or a mere effect of human agency" (Barad, 2003, p. 827).

This view is shared by Schatzki (2006), who states that "an organization, like any social phenomenon, is a bundle of practices and material arrangements" (Schatzki, 2006, p. 1863). In this view, "the importance of activity, performance, and work" if brought to the fore and the world is seen "as an ongoing routinized and recurrent accomplishment" (Nicolini, 2012, p. 3). This where the concept of organizational routines comes in; the "recurrent behaviour patterns, rules or procedures, and dispositions" (Becker, 2008a, p. 4); that is the repetitive activities that organizations undertake to accomplish their tasks (Becker, 2008a, 2004; Feldman and Pentland, 2003). As such, some have argued that "to understand routines is to understand organizations" (Becker, 2008a, p. 3).

In the past, the social and technological aspects of a setting has presented challenges in the study of organizational change from a routines perspective, in addition to the ambiguity associated with the routines concept (Becker et al., 2005). This is primarily due to the fact that the definition of routines as proposed by Feldman & Pentland (2003) did not recognise artefacts and materiality (D'Adderio, 2008, 2010) and the sociomaterial approach as developed by Orlikoski & Scott helps address this. D'Adderio (2008)'s work on perfomativity theory also provides some useful insights which form the foundations of this study. Next, I examine the concepts of strategy and practice and how they have been brought together through strategy-as-practice.

2.3 Strategy and Practice

The concept of strategy is key to organizations and as Lilley (2001) puts it;

> "Strategy is up there. Right up there. At the top. And, above all, the language that it mobilizes, and is mobilized by it, is what puts it there." (Lilley, 2001, p. 66)

Strategy defines what organizations do and how they do it – and "a central proposition of routine theory is that organizations change what they are doing and how they are doing it by changing their routines" and in specific circumstances routines can be designed to instigate and produce change (Becker et al., 2005, p. 776). On organizational strategies, Hendry & Seidl (2003) argue;

> "They shape the routines and discursive structures of an organization and, importantly, they are in turn shaped by these: strategies are recursively reproduced by the very practices they produce. On the other hand, the discourses of strategy and the role-definitions of strategists are very largely concerned with change. Strategy, for practitioners as well as academics, is explicitly concerned with the future, and with how this might differ from the present: with what 'should be' rather than with what is" (Hendry and Seidl, 2003, p. 177).

Despite an emphasis on strategies that result in radical change, it is well established that strategies can be developed "incrementally or through organizationally distributed bottom-up processes" (Hendry and Seidl, 2003, p. 177). As Labatut et al. (2012) argue "how novel innovations and new practices emerge and become taken for granted, and how they change

organizational structures and broader institutions, is neither an exclusively top-down nor an entirely bottom-up process" (Labatut et al., 2012, p. 40).

For some, "organizational change is a context-dependent, unpredictable, non-linear process, in which intended strategies often lead to unintended outcomes" (Balogun, 2005, p. 1573) and "strategizing implies the capacity to influence organizational action" (Denis et al., 2007, p. 182). Given that organizations are shaped and guided through strategy – which is enacted through organizational change, it follows therefore that a study on planned change is in essence a study on strategy. For many "organizational change cannot be separated from organizational strategy, or vice versa" (Burnes, 2009; Rieley and Clarkson, 2001; Todnem By, 2005, p. 369). However, the biggest challenge with the concept of strategy is that "as an activity, is not well defined" (Hendry and Seidl, 2003, p. 176); a challenge which the strategy-as-practice approach seeks to address (Vaara and Whittington, 2012; Whittington, 2006). This is an area which this study seeks to contribute to, through detailing the practices associated with the implementation of planned change.

For Schatzki (2001), practices are "embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (Schatzki, 2001, p. 11). This is because practices are a "nexus" of "phenomena [such] as knowledge, meaning, human activity, science, power, language, social institutions, and historical transformation" (Schatzki, 2001, p. 11). As a result, "a unified theory of practice does not exist" and practice theories "can only be approached as a plurality" (Nicolini, 2012, p. 1). For Vaara & Whittington (2012), "*practice* signals both an attempt to be close to the world of practitioners and a commitment to sociological theories of practice" (Vaara and Whittington, 2012, p. 286 Emphasis original). As such, "the social world appears as a vast

array or assemblage of performances made durable by being inscribed in human bodies and minds, objects and texts, and knotted together in such a way that the results of one performance become the resource for another" (Nicolini, 2012, p. 2) – in other words the "relations are mutually constitutive" (Feldman and Orlikowski, 2011, p. 1241). Therefore, practice perspectives as defined "foreground the importance of activity, performance and work" and "see the world as an ongoing routinised and recurrent accomplishment" (Nicolini, 2012, p. 3).

The concept of practice as outlined above is quite powerful and its appeal stems from its ability to "resonate with the contemporary experience that our world is increasingly in flux and interconnected" as well as its denial of "the tendency of describing the world in terms of irreducible dualisms between actor/system, social/material, body/mind and theory/action" (Nicolini, 2012, p. 2). For Feldman and Orlikowski (2011), "contemporary organizing is increasingly understood to be complex, dynamic, distributed, mobile, transient, and unprecedented" (Feldman and Orlikowski, 2011, p. 1240). Given this, practice tackles the "taken for granted" and the "apparently durable features" and exposes the "work and effort" behind these features (Nicolini, 2012, p. 3) which "transforms the way in which we conceive social order and conceptualise the apparent stability of the social world" (Nicolini, 2012, p. 6). From this perspective, "the basic units of analysis for understanding organizational phenomena are practices, not practitioners" (Nicolini, 2012, p. 7). Given that there are a number of practice theories addressing different tenets; Nicolini (2012) advocates "a pluralist approach" to the use of practice theories in empirical study (Nicolini, 2012, p. 213), an approach adopted for this research. However, despite the vast literature the concept of practice, the ambiguity surrounding its definition remains as Antonacopoulou

(2008) argues, "the richness in perspectives informing social practice theory could also account for the lack of clarity concerning practice" (Antonacopoulou, 2008, p. 1292).

This sense of ambiguity is also prevalent within the concept of organizational strategy. As a concept organizational strategy has been loosely defined as "a course of action for achieving an organization's purpose" (de Wit and Meyer, 2005, p. 26) who then go on to argue that strategy is an ambiguous concept whose exact definition is quite elusive (de Wit and Meyer, 2005). Despite this, de Wit & Meyer (2005) characterise strategy as possessing three dimensions: process, content and context (de Wit and Meyer, 2005). Strategy process is seen as the manner in which strategies develop and "is concerned with the *how, who* and *when* of strategy" (de Wit and Meyer, 2005, p. 5 Emphasis original). Strategy content is the product of strategy and addresses "the *what* of strategy" (de Wit and Meyer, 2005, p. 5 Emphasis original) and Strategy context is "the set of circumstances under which both strategy process and content are determined" and addresses "the *where* of strategy" (de Wit and Meyer, 2005, p. 5 Emphasis original). This characterisation of strategy as a multi-dimensional concept helps with its definition and understanding but does not imply that these parts are separable (de Wit and Meyer, 2005). However, this characterisation of strategy misses "the ways in which actors are enabled by organizational and wider social practices in their decisions and actions" (Vaara and Whittington, 2012, p. 286). Furthermore, a review of extant strategic management articles found that the field was treated as evolutionary and cumulative with a strong resonance between the accounts (Thomas et al., 2013) which suggested that scholars were not being critical enough of preceding work.

Furthermore, extant literature is replete with other competing definitions for organizational strategy; for example for Knights and Morgan "strategy is actively involved in the constitution, or re-definition, of problems in advance of offering itself as a solution to them" (Knights and Morgan, 1991, p. 270). For Kornberger (2013), "strategy aims at transforming reality" and "represents certain conditions that allow the articulation and the discussion of the future in the present" (Kornberger, 2013, p. 105). However over time, there has been a growing school of thought that argues that strategy is not something that an organization has; rather it is something that people within organizations *do* and enact (Jarzabkowski 2004; Hambrick 2004; Whittington 2006; Jarzabkowski & Spee 2009; Golsorkhi et al. 2015; Vaara & Whittington 2012). In this view, strategy is defined "as a situated, socially accomplished activity, while strategizing comprises those actions, interactions and negotiations of multiple actors and the situated practices that they draw upon in accomplishing that activity" (Jarzabkowski and Spee, 2009, p. 70). Within this view of strategy, strategy-as-practice is "concerned with the doing of strategy; who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy." (Jarzabkowski and Spee, 2009, p. 69) and "is interested in the *black box* of strategy work" (Golsorkhi et al. 2015, p.47 Emphasis original). The strategy-as-practice approach "treats strategy like any other practice in society, capable of being studied from many different angles" (Whittington, 2007, p. 1575) whereby "the organization is de-centred, and people, practices and societies enter equally onto the stage" (Whittington, 2007, p. 1578).

In this way, the strategy-as practice approach's stated research goals are studying: "practitioners (those people who do the work of strategy); practices (the social, symbolic and material tools through which strategy work is done); and praxis (the flow of activity in

which strategy is accomplished)" (Jarzabkowski and Spee, 2009, p. 70). This view departs from the traditional strategy concept by depicting strategy as an activity that is more intimately entangled with our everyday performances than established views would suggest. For Vaara & Whittington (2012), "the power of this perspective lies in its ability to explain how strategy-making is enabled and constrained by prevailing organizational and societal practices" (Vaara and Whittington, 2012, p. 285). It is at variance with the traditional view that strategy is "understood as the task of the top management team" (Carter et al., 2008a, p. 83). In fact, Carter et al. (2008) encourage strategy-as-practice theorists to break away from the more dominant approaches and argue that the alternative Resource Based View (RBV) of strategy for example has little to offer as "the intellectual straitjacket it places on the intellectual development of the new perspective is very clear" (Carter et al., 2008a, p. 87).

However, other scholars argue that strategy-as-practice is something "*institutionally* new" and not "*intellectuall*y new" as leading researchers in the field would suggest (Carter et al., 2008b, p. 108) and does no more than "integrate earlier epistemologically and ontologically more reflexive positions into a new orthodoxy" (Carter et al., 2008a, p. 83). They provide examples of Lindblom whose work characterised managerial behavior as muddling through (Lindblom, 1959). They also highlight Mintzberg (1973)'s studies of the daily routines of five managers that "found that their roles were far more fragmented in practice than theories of rational behavior would suggest" (Mintzberg 1973 cited in Carter et al. 2008b, p.88), which is a key argument of the strategy-as-practice approach. Thus, for Carter et al. (2008), "the deliverables of the old and the new approach are the same – they [only] claim to help managers manage better" (Carter et al., 2008a, p. 88). For others, too much focus on the

micro can potentially result in “micro-myopia”; which is a potential limitation of the practice approach and the strategy-as-practice approach by extension (Herepath, 2014, p. 857; Vaara and Whittington, 2012, p. 312). However, for most scholars (Jarzabkowski & Spee 2009; Vaara & Whittington 2012; Golsorkhi et al. 2015) there is no doubt that the contribution of the strategy-as-practice approach has advanced our understanding of strategy. The definition of strategy used here is de Wit & Meyer (2005)’s definition which states that strategy is “a course of action for achieving an organization’s purpose” (de Wit and Meyer, 2005, p. 26). Next, I explore the concept of strategy praxis – a core concept within the strategy-as-practice approach.

2.3.1 Strategy Praxis

For Whittington (2006), strategy praxis is the "actual activity, what people do in practice" (Whittington, 2006, p. 619) and is "about the activities of strategy, for instance planning, issue selling and decision-making, done formally or through ad hoc meetings and offline attempts at influence" (Whittington, 2007, p. 1578). This view is further enhanced by Paroutis et al. (2016) who state that strategy praxis "refers to the activity comprising the work of strategizing" (Paroutis et al., 2016, p. 10) and "encompasses all the continuous practices and processes through which strategy is conceived, maintained, renewed, and executed" (Paroutis et al., 2016, p. 4). For Whittington (2006), "praxis is an artful and improvisatory performance" whereby through experience "practitioners are able to adapt existing practices; by exploiting plurality, they are sometimes able to synthesize new practices; by taking advantage of openness, they may be able to introduce new practitioners and new practices altogether" (Whittington, 2006, p. 620). For Whittington (2007), Mintzberg's (1973) work, "based on close observation of actual managerial activity, provides an inspiring model for the study of strategy praxis" (Whittington, 2007, p. 1581).

The relationship between planned organizational change and organizational strategy is an implicit one. As Mintzberg (1978) argues; "*strategy* has been defined in a variety of ways, but almost always with a common theme, that of a deliberate conscious set of guidelines that determines decisions into the future" and "*realized* strategy" can be "defined as *a pattern in a stream of decisions"* (Mintzberg, 1978, p. 935 Emphasis original). Uncovering praxis was one of the key goals that led to the development of the strategy-as-practice approach (Vaara and Whittington, 2012). As such, understanding planned change praxis

could potentially contribute to our understanding of the factors that can ensure the success of planned change initiatives. Such a focus may shed new light on our understanding of organizational change as it is through paying attention to "praxis" that the strategy-as practice approach adds value to strategy research as "in practice theory, individual behavior is always embedded within a web of social practices: praxis relies on practices" (Vaara and Whittington, 2012, p. 288). As such under this view, the activities and interactions that bring about planned strategy change are surfaced. For Carter et al. (2008) strategy is a "practice that focuses on the forming of coalitions, on the control of obligatory points of passage, the capturing of the right rhetorical tone, the building of convincing discursive scenarios" (Carter et al., 2008a, p. 93).

It is however, to difficult to determine activities that might be termed strategic. For Carter et al. (2008), "strategy might happen in different departments, in different circumstances and different contexts; however, only a small percentage of actions that occur will be called *strategic* because they revolve around a set of practices that constitute what is formally acknowledged to be strategy" (Carter et al., 2008a, p. 92 Emphasis original). Consequently, "the domain of praxis is wide, embracing the routine and the non-routine, the formal and the informal, activities at the corporate centre and activities at the organizational periphery" (Whittington, 2006, p. 619). Furthermore, strategy-as-practice researchers has been reaching out to gain a better understanding of the role of materiality in strategy praxis (Vaara and Whittington, 2012), which further enlarges the domain of investigation. Despite this, "attention to actual praxis can inform the critique of influential and contested practices" (Whittington, 2006, p. 627) and in any case strategy-as-practice "needs to establish what outcomes are applicable to strategy-as-practice research" (Jarzabkowski and

Spee, 2009, p. 69). As such, the definitions and the boundary of what is deemed strategic will emerge from ongoing research as the "emergent and mutually constituted nature of organizational processes" can make the "a priori identification of analytical entities difficult and misleading" (Feldman, 2015, p. 783). Next, I explore the concept of co-performation.

2.3.2 The Co-performation of Routines and Strategy

The concept of performation at the core of the research question is described by its progenitor Michel Callon as follows;

> "We can agree to call performation the process whereby sociotechnical arrangements are enacted, to constitute so many ecological niches within and between which statements and models circulate and are true or at least enjoy a high degree of verisimilitude. This constantly renewed process of performation encompasses expression, self-fulfilling prophecies, prescription, and performance" (Callon, 2007, p. 330).

For Callon (2007), the concept of co-performation encapsulates the notion of performative struggle – reality is an accomplishment from the multiple organizational theories and models being performed by multiple agents within a setting (Callon, 2007). For Aggeri (2017), "performation as a process cannot be dissociated from an intentional intervention" (Aggeri, 2017, p. 34) and co-performation emphasizes the involvement of many participants within the setting (Callon, 2007). Within the study co-performation is the concurrent enactment of everyday organizational activities along with the new organizational arrangements and tools introduced as part of the planned strategy change. This work looks at the social agencements created by the new tools and organizational arrangements.

Key to this study is the achievement of coordination. For Okhuysen & Bechky (2009), coordination is "the process of interaction that integrates a collective set of interdependent tasks" (Okhuysen and Bechky, 2009, p. 463); and seeks to achieve consistency and reliability

through coperformance (Jarzabkowski et al., 2012; Nelson and Winter, 1982). For Faraj & Xiao (2006) “at its core, coordination is about the integration of organizational work under conditions of task interdependence and uncertainty” (Faraj and Xiao, 2006, p. 1156). Achieving coordination is a critical activity for organizations, with its outputs of embedding “accountability, predictability and common understanding” (Okhuysen and Bechky, 2009, p. 463) key to managing everyday performances. For Jarzabowski et al. (2012) “coordinating mechanisms are dynamic social practices that are under continuous construction” (Jarzabkowski et al., 2012, p. 907); and in order to achieve the required coordination in instances where the organization needs to reconstitute or realign activities, new coordinating mechanisms have to be enacted. The everyday performances that people undertake as part of their work are central to understanding strategy (Balogun et al., 2014, 2015; Johnson et al., 2003; Vaara and Whittington, 2012; Whittington, 2007).

Adopting a view of routines as repetitive sequences of coordinated action (Feldman and Pentland, 2003; Howard-Grenville, 2005; Nelson and Winter, 1982) and how they change in light of new strategy which requires a temporal view (Becker, 2005a). In this view, routines are formally defined as “repetitive, recognizable patterns of interdependent action, carried out by multiple actors” (Feldman and Pentland, 2003, p. 95). This view facilitates routines to be seen as networks of technical systems, artifacts and participants which “are produced through a continuous process of translation and their apparent solidity or obviousness only holds inasmuch as this ceaseless work of translation stabilizes a heterogeneous actor network which ‘performs’ them and gives them their coherence” (Licoppe, 2010, p. 182).

Arguably, the longitudinal research study is best suited for this work; given the “deliberate way in which temporality is designed into the research process, making change a central

focus of analytical attention" (Thomson et al., 2003, p. 185). Furthermore, a routines theory informed study is well suited to efforts to clarify the concept of strategy through close observation of its co-performation with day to day activities. Whilst much is known about the craft of strategy (Balogun et al., 2014; Golsorkhi et al., 2015a; Jarzabkowski et al., 2007; Jarzabkowski and Spee, 2009), little is known about the co-performation of strategy and routines. The study goes beyond calls to further investigate strategizing within the strategy-as-practice approach (Golsorkhi et al., 2015a) through presenting a firsthand account of the co-performation of strategy and routines and contributes to our understanding of the contextual limits to performativity. In the next section, I bring all the concepts together to outline how they inform planned strategy change.

2.3.3 (Re) Constituting Everyday Performances through Planned Change

Planned strategy change starts with the definition of a new operating model for the organization that will transform it from its current as-is state to the desired to-be state. It necessarily requires the deployment of a sociomaterial assemblage or *agencement* (Callon, 2007), which must contain all the elements of the theory or model (D'Adderio and Pollock, 2014). Once deployed into the organizational environment where multiple organizational theories and models being performed by multiple agents within a setting (Callon, 2007); the daily activities to turn the model into reality begin in earnest – and the model's progression and diffusion is subject to the outcomes of the performative battles within the setting. This work details these performative struggles and through adopting a routines theory approach to detail the co-performation of routines and strategy to achieve the purposeful routinisation and coordination of organizational activities.

There is consensus in extant literature of organizational routines "as the primary means by which organizations accomplish much of what they do" (Dionysiou and Tsoukas, 2012, p. 181). For Nelson & Winter (1982), organizational routines constitute an organization's "operational knowledge" (Nelson and Winter, 1982) and "are considered basic components of organizational behavior and repositories of organizational capabilities" (Nelson & Winter 1982 cited in (Becker et al., 2005). They "hold the key to organizational change" as "they provide a basic definition of what change really is" (Becker et al., 2005) and for Becker (2008), "to understand routines is to understand organizations" (Becker, 2008b). For Becker et al. (2005), "organizational routines are units of analysis that capture change on a microlevel, and then allow us to 'zoom in' and make change, and its driving forces, more

visible to the eye of the researcher" (Becker et al., 2005, p. 775). This is because without any sense of how everyday performances look like as well as the typical outcomes that they deliver, any attempt to change the setting might be futile. Organizational routines therefore provide the key to understanding the variability of organizational activity (Pentland and Feldman, 2008).

The concept of planned change when viewed from a routines theory perspective has generated some useful insights (Becker, 2005a; D'Adderio, 2008; Nelson and Winter, 1982). For example D'Adderio (2014) investigates how organizations replicate best practice during a transfer of operations to a new organizational setting (D'Adderio, 2014). Turner & Rindova (2012) also investigate how organizations deal with competing objectives; in this instance the organization deals with pressure to retain consistency while maintaining flexibility due to imposed constraints (Turner and Rindova, 2012). Their findings indicated that "that repetitive interactions in the absence of structural ties foster the development of unintended and divergent understandings" and that consistency was favourable as it facilitated reduced mindfulness (Turner and Rindova, 2012, p. 42). A focus on organizational routines has also revealed the effect of context - Pentland et al. (2010) compared patterns of action across "four organizations use the same technology for the same task" and found them to vary significantly despite the similarities (Pentland et al., 2010, p. 917). Lazaric & Denis (2005) investigated the effect of the introduction of new standards through a longitudinal case study and found that politics and willingness of participants were significant factors in the success of the change implementation (Lazaric and Denis, 2005).

Therefore, the use of routines theory to untangle the patterns of behaviour during planned change is well established in literature. As such, in seeking to understand the limits of performativity during the co-performation of routines and strategy – routines theory is instrumental in unraveling the everyday performances that constitute strategy praxis. Next, I return to the research question to outline how the study will explore the limits to performativity.

2.4 Exploring Empirical Limits to Performativity

As outlined, Performativity Theory argues that theories and models in such settings are not simple descriptions but powerful engines which can transform the contexts they describe (Gond et al., 2015). For a concept or theory, a boundary defines the sphere of influence – "something that *constitutes* that which is bounded" (Cilliers, 2005, p. 611 Emphasis original). It is clear from Austin (1962)'s work that performativity occurs under very specific conditions – the felicity conditions (Austin, 1962). The research question seeks to establish the production, existence and persistence of felicity conditions for the performativity of a planned change model and how these felicity conditions are limited or bounded. By so doing, I seek establish the enablers and barriers to performativity that influence the progression and diffusion of a model within an organizational setting and thereby define the boundary for performativity. However, within complex systems the relational nature of the system can make it difficult to demarcate a boundary and one must be careful not to overemphasize the closure of a boundary (Cilliers, 2005).

Extant work appears to have taken the felicity and infelicity conditions for granted and has not attempted to explicitly address the limitations to performativity despite clear evidence that not all models persist and prevail within organizational settings. The contextual nature of these limiting conditions is inherent in the nature of strategy praxis and this work will draw out these contextual nuances in addressing the research question. Through detailing the patterns of the co-performation of routines and strategy during planned change, I draw out the felicity and infelicity conditions that enable or constrain the progression and diffusion of the planned change model. I then use the felicity and infelicity conditions to

define potential limits to the performativity of a planned strategy change model. Next, I outline the research setting and detail the research methodology adopted in the study.

3 Research Methodology

3.1 Research Setting

Asset intensive organizations have to decide on how best to operate, maintain and optimize their assets based on their resources to maximize production and value from their assets. For most large organizations, this means that all the asset data has to be consolidated in a Computerised Maintenance Management System (CMMS) - a business tool integrating all business data into a single information system, which is then used to develop operational strategies and allocate resources. GasCo uses SAP (an abbreviation for Systems, Applications, and Products in Data Processing) as its CMMS. As SAP works from a common database, information entered into the system by one department is immediately accessible to other departments. Likewise, activities completed in SAP by one department impact on another department at a later stage in the SAP process. GasCo uses SAP to manage procurement, plant maintenance, logistical and financial data. These aspects are managed by dividing SAP into four areas of responsibility: Materials Management (MM), Plant Maintenance (PM), Finance (FI) and Resource Utilisation (RU). The MM (Materials Management) module covers all aspects of buying and expediting goods and services. GasCo's warehouse contains a large amount of stock items for all operational sites; this SAP module enables the company to buy, store, transport, and repair items and to procure services.

The focal PMCR routine is a core part of the asset management activity; a key part of fulfilling the organizations' purpose or overall strategy (de Wit and Meyer, 2005). Equipment

reliability and availability is key to the organizations' profitability and the PMCR routine facilitates the maintenance engineering activity – a process of determining appropriate maintenance strategies for an organization's physical assets. Therefore, the routine selected for study is a key part of the strategic planning of the organization – and this study provides an opportunity to detail it in its stabilized form as well as under a program of planned change to highlight how it changes.

Within SAP, the PM (Plant Maintenance) module covers all aspects of maintenance including breakdowns and routine maintenance of all equipment, and scope of work involved. All sites, and equipment held on the sites, are detailed within SAP. This module is used to record the maintenance history of equipment at each site. The equipment database is held in the form of a hierarchy and shows all interdependencies; with the highest level being the asset and subordinate items such as a Bill of Materials, the maintenance strategy as well as the spares data held within the hierarchy. All company assets such as items of plant & equipment, including structures, piping, vessels are identified by unique equipment tag numbers and grouped by system, within a structured parent/child hierarchy in the CMMS. The FI (Finance) module covers all aspects of corporate accounting, treasury, cost control, accounts payable and receivable (including invoice processing, payments, financial reporting and budget reporting for the business, audits, partners and head office). A comprehensive and up to date Asset Register is required to ensure that all equipment is uniquely identified and maintained in accordance with the relevant maintenance strategy. A structured equipment tag hierarchy is required to support the efficient planning and cost reporting of maintenance activities. Specifically, the tag hierarchy is required by the CMMS to facilitate "rolling up" of maintenance activities, cost reporting and a number of other CMMS

functions. Finally, the RU (Resource Utilisation) module is a custom module created especially for GasCo. It allows the capture all hours worked on specific projects, and to record field break allowances and duty payments.

Like every other database, SAP is only as good as the information that it contains. It is therefore important that users enter information correctly and that the integrity of the system is maintained. Correctly using SAP with improved data quality will enable the organization to maintain accurate equipment history and cost records, which leads to accurate total cost of ownership. Typically, resources are limited and the process of deciding how these resources are allocated presents some difficult challenges and it's no different for GasCo. Production operations within asset intensive organizations are heavily dependent on the health of their assets. Such organizations therefore need to decide how best to manage their assets to achieve optimal production – and these decisions relate to the level of maintenance required, the inventory held and the human resources that will support ongoing operations and undertake the maintenance work. For most organizations, decisions related to these aspects are quite significant as they determine how scarce capital is used – inventory can tie up significant capital in spares held in the event of a failure while downtime due to unavailability of a spare part for a critical piece of equipment can lead to unwanted production losses. Therefore, decisions related to this need to be taken carefully and this study details how these activities were undertaken at the selected organization.

More specifically, the study is focused on how the Maintenance and Inspection Engineering ("MIE" from here on) activities within the company's Maintenance & Inspection Department were affected by a program of planned change. The research setting provided an opportunity to capture complex planned strategy change from within an asset-intensive

multinational organization. The setting is ideal for assessing the enactment of strategy; large companies are typically associated with big strategy and an insider's view of some of the associated activities provides empirical data that is comparable with most extant studies.

In some settings, a routine can be difficult to determine and isolate (Becker et al., 2005; Pentland and Feldman, 2005); but in this instance the routine has been detailed in Standard Operating Procedures (SOPs) and attempts have been made to encode it in a workflow process to reduce variability due to its strategic importance. The activity is quite common among physical asset intensive organizations and there are national and international standards that seek to guide its application e.g. ISO55000-series of standards. Despite this, contextual factors drive variability as each organization's strategy will determine the nature and extent of the activity. By using routines theory (Feldman and Pentland, 2003; Feldman, 2000, 2015; Pentland and Feldman, 2005) to illuminate the strategy-as practice approach (Jarzabkowski 2004; Hambrick 2004; Whittington 2006; Jarzabkowski & Spee 2009; Golsorkhi et al. 2015; Vaara & Whittington 2012); I detail the activities undertaken as part of implementing a planned strategy change program; in efforts to answer the research question of how strategy and routines are co-performed to produce the coordination and routinisation of activities during the course of planned change. The matrix, distributed nature of the organization; common across most large organizations provides an excellent vantage point to unravel the co-performation of strategy and routines in multiple ways.

First, the context affords a rich case study given that organizational participants are subjected to multiple, simultaneous and at times contrasting demands which challenge the routinisation and coordination of activities. Thus, the study provides a rare glimpse into the micro-dynamics of strategy enactment within a complex environment and contributes to

our understanding of the purposeful coordination and routinisation of participants' activities in order to reconstitute everyday performances. Through positing change management as the co-performation of strategy and routines theory, the study takes a new lens to study the concept of planned strategy change.

Secondly, the study provides a rare indepth account of how asset intensive organizations craft their procedures and method statements for the maintenance and management of their physical assets. Vigilant physical asset management is key to many manufacturing and process organizations extracting value from their operations and this area has seen global growth with the introduction of the ISO55000 series of international standards. Third, the daily activities within the setting are heavily dependent on technology and this presents an opportunity to explore aspects of sociomateriality and their role within a setting. Here the systemic and distributed aspects of the artifacts; the tools and procedures including their role in constituting the routine were a key area of study. In sum, this work presents a valuable, rich ethnographic case study where complex technological systems and software tools facilitate human actions to complete tasks undertaken on a daily basis; a common feature in most modern large, physical asset intensive organizations.

3.1.1 The Planned Maintenance Change Request (PMCR) Process

At the core of the PMCR routine is a formal workflow process. The PMCR workflow process serves as a formal representation of the routine under study and activities undertaken as part of this routine are the focus of the investigation. The workflow system started off as a paper based system in the early 2000's. When a change to the maintenance strategy was identified, a paper form was completed and emailed to the onshore team to process the change into the ERP system. In 2008, the system was migrated to an online workflow system that was christened the Planned Maintenance Change Request System. The idea behind the system was to save time and codify requirements, a core function of workflows. The PMCR was a workflow in the formal sense; i.e. ''the automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules'' (Workflow Management Coalition, 1999). Workflows "assist in the specification, execution and completion of well defined processes" within organizations (Corrêa da Silva et al., 2013, p. 121). Extant research notes that the demand for automated business processes is increasing as they can save time (Corrêa da Silva et al., 2013; Saleem et al., 2014).

The process creating, modifying and aligning planned maintenance work instructions can have significant outcomes for the company, non-maintained equipment is a safety hazard and over-maintained equipment puts a strain on scarce resources. Furthermore, a lot of work is spent on maintaining equipment where the maintenance work instructions are not aligned; with shutdowns and mobilization of specialist personnel poorly planned. The result is a high maintenance cost to the company and given the rising costs within the industry: 2014 operating costs are estimated at 62% higher than 2011 (Oil & Gas UK, 2014) and

significantly reduced oil price, pressure is high to make this routine as efficient and effective as possible. For equipment whose failure may result in a loss of life, the Health & Safety Executive takes particular interest in ensuring that the equipment is correctly maintained; and in the event of an incident related to equipment failure, the company would be severely exposed if the equipment manufacturer's maintenance requirements were not being followed. As can be seen from the above, the PMCR process is a key routine for the department and company as a whole.

PMCRs were raised as part of continuous improvement for the company's operations as well as part of routine operations when new assets were installed. Within the company, continuous improvement of the maintenance management strategy was dependent on feedback from those personnel involved in the operation and maintenance of the plant and equipment. For example, identification of excessive Defect Maintenance suggests that a change to preventative or predictive maintenance may be appropriate. Proposed changes were generally the result of maintenance reviews, operational changes, and modifications or identified improvements to working practices. In ideal circumstances, sufficient supporting information was to be attached to each PMCR to enable the proposal to be reviewed, endorsed and a comprehensive technical review to be completed. This would be in the form of copies of reference documentation, such as P&IDs, Cause and Effects, Vendor/OEM information. For systems where an RCM/RBI analysis dossier exists, a copy of the pages affected by the proposal should be attached. The workflow is structured such that the value, content and relevance of existing PMRs can be assessed and questioned.

An overview of the formal PMCR process as defined in GasCo's procedures prior to the change is shown in the figure below.

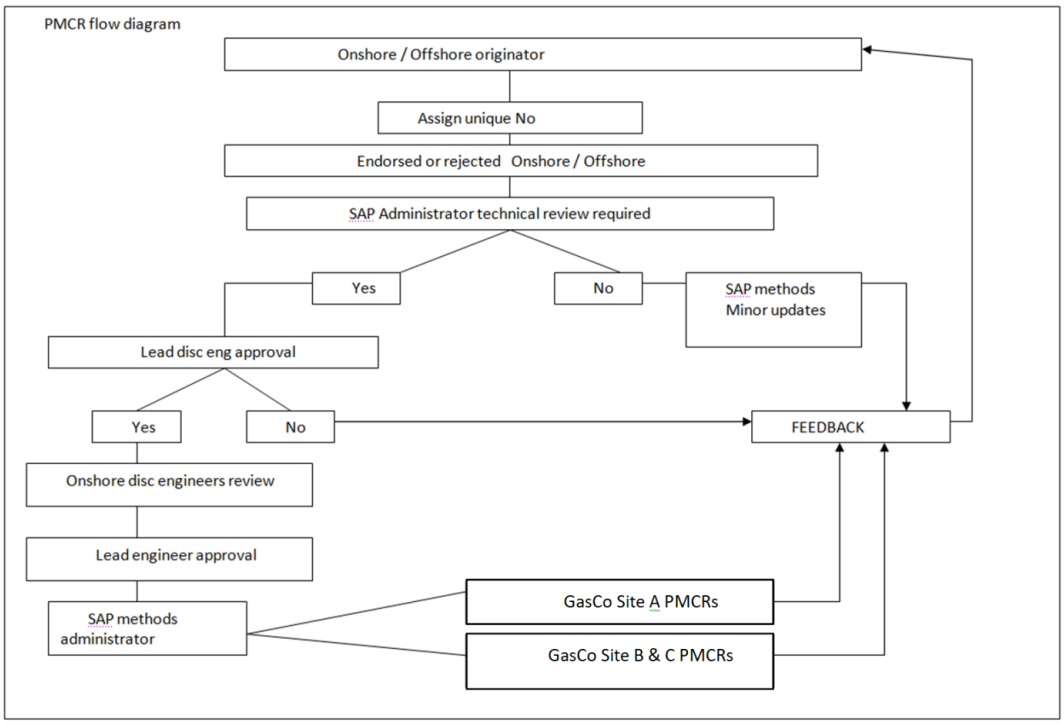

Figure 4: Formal PMCR process in GasCo Procedures

The key roles formally defined within the process are outlined below.

3.1.1.1 Initiator

Within GasCo, the Initiator can be anyone within the organization with access to the company's intranet. This is deliberately built into the process to allow for as much feedback as possible to be provided. The Initiator accesses the PMCR system through an online webform, completes predefined fields some of which are mandatory, and attaches any relevant supporting information. The Initiator then submits the PMCR for initial approval by an Endorser, who is usually an individual with supervisory responsibilities at the location where the request is raised.

3.1.1.2 Endorser

The Endorser is required to review the request raised and determine whether there is sufficient information to complete the request and whether the request is justified. The

Endorser can reject the request, decide that further review is required, or approve it outright. Where further technical review is required, the request is forwarded to a Lead Discipline Engineer based on the discipline of the required change.

3.1.1.3 Lead Discipline Engineer

The Lead Discipline Engineer is required to review request and approve it if it fits with the organization philosophy. The Lead Engineer can choose to delegate the request to a subordinate Discipline Engineer to undertake a more detailed review.

3.1.1.4 Discipline Engineer

The Discipline Engineer is required to review any requests as delegated by the Lead Engineer. The request passed to the Discipline Engineer is passed back to the Lead Engineer within the existing workflow arrangements.

3.1.1.5 Administrator

The Administrator is responsible for the administration of the system and is the first line of technical support in case of any issues. More complex issues are passed on to the organization's IT team who developed and deployed the system. Administration involves ensuring that requests are routed to the correct individuals; supporting documentation is available in an acceptable format and tracking the progress of requests on a regular basis.

3.1.1.6 SAP Data Analyst

Approved requests are sent to the SAP Data Analyst for update in CMMS within the organization's CMMS. Requests that are marked as not requiring further technical review by the Endorser are also sent directly to the SAP Data Analyst for update. This is the end of the workflow process as defined.

The requirement for all participants to detail their daily activities as part of the development of the (Responsible, Accountable, Consulted & Informed) RACI process required the

participants to unravel the PMCR routine in full and detail all the minutiae of everyday activity that they undertook during the early part of the research phase. This differentiated the PMCR routine from the documented 'process' above that served as a representation of the routine. It was immediately clear early on that there was a huge gap between the representation of the process and the process itself. There were a lot of activities that were undertaken which were not captured by the formal process – a representation of the actual process is detailed in the findings.

The specifics of each request were subject to some variation, and the PMCRs could be broadly grouped into basic, medium and complex PMCRs. For example, a basic PMCR would be one that required the change to the functional location or technical attribute. Functional locations are used to represent a process or physical location and systems and certain elements within that system. Functional locations are also created in a hierarchical fashion. By using the hierarchy, master data field values can be passed down through the hierarchy. When installing a functional location into the hierarchy, the amount of information inherited will be dependent on the level it is entered at. The functional location hierarchy within SAP is controlled by the naming convention of functional locations, definitions and system assignment.

A medium PMCR would also include changes to the maintenance planning interval without changes to the strategy, changes to measurement points and setup of hazardous area equipment maintenance. Measuring points are defined as the equipment settings, trips, alarms, set points, valve timings, or equipment condition. They require to be monitored as part of a Planned Maintenance strategy in order to maintain asset integrity. Complex PMCR included all elements of the above while including changes to the maintenance task lists,

scheduling changes and assigning equipment criticality. Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly. Task lists are used to standardise these recurring work sequences and to plan them more effectively by assigning equipment of the same type and maintenance requirement to one task list. This enables the CMMS to standardise maintenance procedures based on equipment type and the effort required to maintain task lists when work sequences change. All the maintenance items that refer to the task lists automatically receive any changes that are made to that task list. Task lists should contain all the important information required to perform the maintenance task, e.g. Trade requirements, including supporting trades, the amount of personnel required from each trade, the estimated duration of each task, the materials required to perform the task, any specialised tool requirements and isolation requirements for the task.

Within the Task list you also define the interval for each task or operation by assigning a package to that operation, e.g. operation A has to be performed every month, operation B has to be performed every 6 months and operation C has to be performed every year. The operations can also be set up in a hierarchy format so when operation C for the yearly task is generated, operations A & B are also generated. The task list can also be set up so the yearly task overrides the 6 monthly and monthly tasks. The use of standard text is also assigned to each operation. Standard Text provides the detailed instructions or method statement to be followed in undertaking the maintenance. These instructions can be captured directly with the CMMS with the ability to attach documentation and drawings for more complex instructions. As work falls due, these instructions are printed out and handed over to the technicians to undertake the work.

Equipment criticality codes provide an input to defining task priority which is essential to the ensuring the effective prioritisation and if required the deferral of work that has fallen due without the appropriate resources required for completion. Spare parts requirements for GasCo are established based on equipment criticality. Information about the spare parts has to be described and referenced in the CMMS to facilitate their storage and re-purchase. Scheduling determines the call dates and scheduling dates for the operations based on the calendar (time-based preventive maintenance) or on a counter (hour-based preventive maintenance). Careful consideration went into the scheduling of new projects (Greenfield developments). In many cases, the scheduled start dates had to be spread out in order to smooth the workload over the year.

Data entry and the specification of the various parameters were at the SAP Data Analyst's discretion resulting in a wide variability of outputs. SAP provided a stable and unchanging template in which all data could be captured and evaluated during the change of the PMCR routine from a manual, error prone process to a template driven, automated process with inbuilt validations.

3.2 Data Collection

Embeddedness: The study was conducted within my existing employment arrangements at the time, in the form of a longitudinal ethnography (Van Maanen, 2011) which commenced in September 2013 and was completed in December 2015 – a period of over 575 days (27 months) which constituted almost 4600 working hours (40 hour week). Tasked with a role where I could influence and enact change, I was curious as to how the participants within the setting would respond to planned change and I saw an opportunity to investigate planned change firsthand and develop a deeper understanding of the phenomena. With the research question of how does the co-performation of strategy and routines produce the coordination and routinisation of activities in mind; I collected data on action and action patterns using Grounded Theory (Glaser and Strauss., 1967) looking very closely at the focal PMCR routine. The familiarity with the setting coupled with the prolonged engagement in the field ensured that rich archival data was gathered, which helped create a detailed understanding of the routine under study.

Arguably, Action Research could have been selected as a way to study the setting. The decision to select the Grounded Theory Approach rather than Action Research was informed by the objectives of the Research; while Action Research "aims at both taking action and creating knowledge or theory about that action as the action unfolds" (Coghlan and Brannick, 2014, p. xiv); this study was aimed at creating knowledge through seeking to understand the phenomenon under study. There is an inherent trade-off within Action Research between methodological rigor and the interventions the researcher makes as part of Action Research, as Action Research seeks to empower participants (Coughlan and

Coghlan, 2016; Kemmis and McTaggart, 2000; Teram et al., 2005). Therefore the inductive Grounded Theory approach is well suited for this type of knowledge-creating study as grounded theorists focus on data obtained through the study of empirical events; "this data can be gathered through observations, interactions, and materials gathered about the topic or setting" (Charmaz, 2014, p. 3). According to Charmaz (2014), Grounded Theory methods offer a set of "general principles, guidelines, strategies and heuristic devices rather than prescriptions; data form the foundation of theory and the analysis of these data generates the concepts constructed" (Charmaz, 2014, p. 3). For Glaser & Strauss (1967), "the finished grounded theory explains the studied process in new theoretical terms; explicates the properties of the theoretical categories and often demonstrates the causes and conditions under which the process emerges and varies, and delineates its consequences" (Charmaz, 2014, p. 10).

As an existing employee at the time within the organization where the strategy was developed and implemented, I had a unique and privileged vantage point from which to explore the setting. Doing research in one's own organization means that a member of an organization undertakes an explicit research role in addition to the normal functional role that they hold in the organization (Coghlan and Brannick, 2010). The multiple role identity both complicates and focuses the research project and as such, "researchers need to be aware of how their roles influence their world-view as well as how they are perceived by others, and must be able to make choices as to when to step into and out of each of the multiple roles they hold" (Coghlan and Brannick, 2010). For Fox (2004), a researcher in this position has to engage in "a continuous balancing and rebalancing of involvement and detachment" (Fox, 2004, p. 314).

Throughout the data collection, I had to be reflexive about my dual role in the setting. According to Cunliffe (2003) cited in (Reissner, 2008), reflexivity is about "questioning assumptions about reality and the nature of knowledge, truth claims and ways of creating knowledge" (Reissner, 2008, p. 124). Reflexivity requires "researchers to take stock of their actions and their role in the research process and subject these to the same critical scrutiny as the rest of their data" (Finlay, 2012, p. 317). Therefore, during the analysis, "the researcher must be reflexive, not only about the extant models, concepts and terms which they might draw upon to better understand phenomena but also the inherent biases and assumption that any researcher might possess which influence both their own data collection and the future theories and models that they might develop to explain that phenomenon" (O'Mahoney and Vincent, 2014, p. 16). The concept of bias is probably best expressed by Pfeffer (1982) who remarks;

> "Inevitably, one measures according to one's theoretical predispositions, analyses the data accordingly and thus tends to produce support for initial conjectures" (Pfeffer, 1982, pp. 33–34).

Furthermore Van de Ven & Poole (1995) caution; "it is too easy to find evidence in complex processes for whatever one expects" (Van de Ven and Poole, 1995, p. 512). While it may not be possible to approach the setting as "a tabula rasa", the researcher has a duty to distance himself from the data in order to undertake meaningful analysis (Glaser and Strauss., 1967, p. 3 Emphasis original). For Alvesson & Skoldberg (2009), reflection is "*interpretation of interpretation* and the launching of a critical self-exploration of one's own interpretations of empirical material" (Alvesson and Sköldberg, 2009, p. 9 Emphasis original). Often, reflection can result in deeper learning not only about the subject studied but also about the learner"

(Hedberg, 2009, p. 10) and "critical reflection can challenge embedded assumptions, beliefs, and values" (Hedberg, 2009, p. 10). Given that information is never "value-free nor politically neutral" (Brydon-Miller et al., 2003, p. 12), I had to be reflexive about my own values as well as those of the participants and the emergent insights gleaned from the setting.

Some considerations included maintaining a professional demeanor in a challenging environment – as a Chartered Engineer I am bound by a Code of Ethics which always requires my conduct to be exemplary. During the course of the study I would become exposed to privileged information which had to be handled with care. Had my study been an Action Research study perhaps this would have required specific courses of action but within the context of the knowledge building study I was undertaking they served to inform the study as part of the theory building process.

Participant Observation: To investigate the purposeful coordination and routinisation of activities, the study focused on efforts by organizational participants to design and implement artifacts (D'Adderio, 2008, 2010) to achieve a desired performance. As the study was undertaken on a routine that was key to my role within the company at the time, data was collected overtly almost on a daily basis. Participant observation was guided by Schein (1999)'s ORJI (Observation, Reaction, Judgement, Intervention) framework (Coghlan and Brannick, 2010, p. 28). Observations were driven by capturing the daily minutiae of participants (including me) undertaking their daily duties. Familiarity with the setting helped in identifying recurrent patterns of action which can be challenging as outlined by Becker (2005). Routines theory and more specifically the concept of routine dynamics helped recognize and categorise these recurrent patterns.

The observations undertaken were focused on action given that the concept of action is at the core of routines theory; as Pentland *et al.* (2012) put it; "By action, we mean the things that actors do. Action refers to steps in a process of accomplishing an organizational task" (Pentland et al., 2012, p. 1484). Novel and/or noteworthy events generated further exploration in an effort to elicit the dynamics underlying the novelty. Clear patterns of events that could be discerned were noted (Feldman et al., 2016). Data from observations was instrumental in understanding how the routine evolved under the program of planned change and in identifying new subroutines that emerged. I kept a diary as part of my role as a matter of course – in fact diaries were issued to all personnel as part of the tools to record notes from meetings and plan their day. I adapted my diary to record key observations where relevant – and my embeddedness within the setting allowed me to lean on my formal and informal ties within the organization to clarify observations as required.

All participants were aware of my additional role as a researcher in addition to being a key participant within the setting. The effects of holding a dual role within the setting were minimal; my note-taking was unobtrusive and would have been seen as a mundane commonplace activity within the setting. However, my note-taking changed significantly; I became sensitized to the conscious use of strategic practices within the setting, the temporal progression of the model as well as the participants interactions and observable reactions. My primary role as participant and key player within the setting provided me with a unique insight into the behind the scenes activities that perhaps an outsider would not have had. In addition, my deep understanding of the nuances of the sequences of coordinated action making up the PMCR routine alerted me to any subtle changes that may have otherwise gone unnoticed.

It was also key to the study for the observations to "remain agnostic about the nature of the actor" and only focus on patterns of action (Pentland et al., 2012, p. 1485). In particular, "how relations and boundaries between humans and technologies are not pre-given or fixed, but enacted in practice" (Orlikowski and Scott, 2008, p. 462) was a key notion that informed the research study. To unravel these relationships of entanglements between participants and their environment, the study focused on "specific actions, by specific people, in specific places and times" (Feldman and Pentland, 2003, p. 101) which could reveal the patterns of action. After all "the analyst's task is to follow the ways in which actors link up with other actors through activities" (Mutzel, 2009, p. 876). The approach adopted is informed by routines theory and is best described by Pentland & Feldman (2005) who state;

> "… routines consist of many performances of patterns of actions. These actions are performed by specific people, for specific reasons, at specific times, in specific places. Examining and comparing performances is an important way of understanding the relationship between context and action. Studies that compare performative aspects, generally compare them with respect to a specific change in the context" (Pentland and Feldman, 2005, p. 802).

Artifact and Document Review: The study was documented through the review of emails, procedures, archival records, and physical artifacts in line with other routines-theory based studies. Company reports, presentations, internal and external publications were used to underpin and support the data gathered. Archival records helped define and clarify key performance measures that were compared to evaluate the relative success of the planned changes. Email communication within the setting was used to establish participants'

perceptions of the planned changes and the process over time; and through a comparison of the communication over time and drawing on evidence collated from archival records, the intended and unintended consequences of the change were explicated.

Email is a key form of communication in the modern workplace (Fayard and Metiu, 2014; Gupta et al., 2011; Men, 2014; Zhu and White, 2009) with some arguing that up to 25% of working time is taken up by email (Gupta et al., 2011). Indeed, its potential to facilitate speed and accountability has been noted in extant literature (Zhu and White, 2009). Email correspondence is instrumental in "*getting work done*" through facilitating "*talking, reminding, recording, asking and requesting*" (Zhu and White, 2009, p. 292 Emphasis original). Studies have found that employees prefer email communication for important organizational matters such as "new decisions, policies, events or changes" (Men, 2014, p. 264). As such, email was a core feature of the data review process.

Minutes of Meetings, reports, procedures and guidelines helped provide additional context where there was ambiguity in the anticipated patterns of action. In this sense, "ambiguity is indicative of a situation where a given event or a phenomenon has no clear-cut interpretation, with many conflicting interpretations coexisting simultaneously" (Kumar, 2014, p. 83).

Research Ethics: The study commenced in 2013 and at the time I was registered to study for a PhD in Management Studies at the University of Aberdeen. As part of my studies, I was required to complete a Research Ethics course, where I was made aware of the requirements to undertake the study. The requirements included requesting for Senior Management permission to undertake a study within the setting, which was obtained in the form of an email following discussions with management on what my study entailed. Next, all colleagues within the department were informed

of my study and I completed relevant Ethics form as required by the University. In 2014, following discussions with my Supervisor I decided to transfer my studies to the University of Strathclyde as it was agreed that my study was better suited to a DBA rather than a PhD – a fresh request was made to my management highlighting that I had now transferred my studies to a new University with new requirements. Permission to continue the study was granted and all the relevant forms were completed and submitted to the University. The research was conducted on an overt basis with all participants aware of my dual role.

3.3 Data Analysis

Capturing the data is only one part of the process; the biggest challenge arguably comes from trying to make sense of it all. An inherent challenge is that the participants' most important understandings "may consist of tacit understandings, which are seldom articulated out loud" (Charmaz, 2014, p. 44). This section details how these challenges were dealt with in the analysis phase of the data gathered.

Drawing on routines theory and strategy-as-practice and in efforts to answer the research question of how strategy and routines are co-performed to produce the coordination and routinisation of activities during the course of planned change; a question that is at the centre of the praxis debate, I sought to distinguish patterns of action within the setting (Feldman et al., 2016). Since stated strategies are only representations – they are mere statements until acted upon by participants to achieve the stated goals and evidence of their enactment lies in observable action. Participants within the setting are expected to achieve the goals through performation or enactment but we know that strategies are rarely enacted as stated (Pentland and Feldman, 2008). Despite numerous studies into the concept of strategy, the ongoing daily activities that result from the convergence of routines and strategy have remained largely underexplored. The routinisation of everyday activities of the participants to achieve stated goals is the target for most planned strategies and despite appearing unsophisticated; the task of realising these goals is far from trivial as shown by the number of planned change projects that fail (Hornstein, 2015; Jansson, 2013; Thomas et al., 2016; Tobias, 2015; Westerlund et al., 2015).

Using data primarily derived from archival records, direct observation, participant observation and physical artifacts, my analysis took into account the "inherent inseparability" (Orlikowski and Scott, 2008, p. 434) of the social and material aspects of these sequences of coordinated action. The aim of the analysis was to develop an explanation based on Grounded Theory principles. As outlined by Glaser & Strauss, the completed Grounded Theory must meet the following criteria: a close fit with the data, usefulness, conceptual density, durability over time, modifiability, and explanatory power (Glaser and Strauss., 1967). To achieve this, the researcher follows the leads defined in the data and "avoids attempting to force preconceived ideas and theories on the data and instead designs another way of collecting data to pursue the research question if the ideas do not fit the data" (Charmaz, 2014, p. 32). These are the principles that informed the data analysis process throughout, starting with initial coding of data, to identifying core themes emerging from the analysis.

In order to examine how the co-performation of strategy and routines produces the coordination and routinisation of activities, I performed multiple levels of analysis on the data. The data analysis was conducted iteratively; assessing the primary and secondary data and continuously developing the findings while moving back and forth between the empirical material and the literature – an established process for inductive research to develop themes that could describe the context in more general terms (Charmaz, 2014).

First phase: I sorted out all the data that was related to the PMCR routine and isolated data that was deemed irrelevant and arranged the data in a timeline format within an Excel spreadsheet – dates within the diary and emails were very useful facilitating the "temporal bracketing" of the data (Langley, 1999). The raw data; which included emails that were

deemed relevant to the study, observations, Minutes of Meetings, reports and other archival data were arranged in chronological order. Data specific to key events along the timeline was aggregated in the form of a storyboard to detail a storyline. Each data segment was then coded based on a phrase or term found within the data. Email communication provided a useful framework for setting a timeline and tying specific observed events to that timeline. In total over 4000 emails were reviewed over the time period indicated – and as my role was key to the setting and the change program, I was copied in or was directly involved in the majority of the correspondence related to the routine under study. Other archival data in the form presentations, Minutes of Meetings, survey data and reports provided further supporting evidence to the primary data. Over 50 separate PowerPoint presentations related to the study were reviewed including over 30 Minutes of Meeting documents. There were also notable 27 participant observations that were used in the study. This data was copied into an Excel Spreadsheet with over 100 rows of separate data segments analysed – a separate tab was created for different storyboards, while another tab kept track of all the participants (in total, over 50 human participants) were part of the study.

Second phase: Once the broad themes had been established, the data was reviewed again to identify common themes (patterns) from the different data segments. Following this; key phrases, which related to co-performation of routines and strategy were assigned to the initial codes. As an example, this statement by one of the participants; *'…Basically I can create the tags no problem, what I am concerned with is where in the system to hang it, and I am not confident of putting items straight into your live system. Also who would be responsible for the metadata for the valves? ...'* was initially coded using the highlighted

terms (concerned, not confident) – this then led to the data being assigned codes of 'ambiguity' and 'seeking clarification' which was a keyword under strategy synthesis/formulation. Other examples include; '*…Please can you provide some guidance to how I should go about ensuring [Vendor] are using the correct structure of alarm tagging structure….*' which was also assigned codes of 'ambiguity' and 'seeking clarification'; similarly the statement; '*I have had my fingers burned trying to undertake the full optimisation and I am not willing to take the chance again*' was coded using the key phrase '*I am not willing*' to apathy and ambivalence. I systematically analysed each segment of data to identify themes and assigned codes through a process of hierarchical open coding – identifying words or phrases found within the data and grouping them to come up with subcodes which are used as labels within the data structure (Corbin and Strauss, 2007). Instances of participants indicating that they were taking initiative to 'suggest' or 'create' artifacts were coded within patterns of adaptation or improvisation. Where participants suggested that errors or shortcomings could be 'overlooked' this was coded under patterns of accommodations. Where participants sought 'guidance', the data was coded within a common category of patterns of seeking clarity when faced with ambiguity. Instances of 'rework' or 'inefficiencies' identified for correction fell under that category. Where participants were not willing to 'take action' or 'play their part' the data was coded under patterns of apathy and ambivalence. The coding process went through several stages and eventually developed a master coding framework - literature on routines theory, organizational change and strategy-as-practice served to sensitise and inform the process (Lincoln and Guba, 1985). Some broader themes were informed by the outcomes of specific

actions – such as the reluctance to compare all software options based on identical measures (creating new uncertainty).

Third phase: Based on the first level empirical themes (patterns) determined in the Second Phase, higher order theoretical themes began to emerge as specific patterns relevant to each data segment. This was established through an iterative process of reviewing the raw data, assessing the first order theme and determining a specific pattern of action. Using the example given above, the empirical observation of ambiguity led to the development of the theoretical construct of 'patterns of seeking clarification and alignment' which was classed under strategy synthesis/formulation. Patterns were then consolidated under a common header – the example given above was grouped under patterns of felicitous conditions that supported performativity; these were underlying conditions for a model to successfully transform the setting and achieve the desired objectives. On the other hand, conditions that did not support the progression of the model; such as apathy and ambivalence were coded as infelicitous conditions. I reviewed the segmented and coded data and grouped it into broad homogenous themes in a process of axial coding (Corbin and Strauss, 2007). What emerged from this analysis were two coincident patterns in response to co-performation of strategy and routines; first, there were distinct patterns of felicitous conditions for performativity which were evidenced by adaptation, improvisation, rework and seeking clarity when faced with ambiguity; second, infelicitous conditions were evident in the form of dynamic patterns of creating new uncertainty, apathy, ambivalence, as well as undeclared and at times insidious episodes of conflict, antagonism and contradictions. Both patterns were quite dominant from the outset of the data analysis. Some fragments of data however could not be included in the initial broad categories and I set this data aside.

Further analysis of all the data including the problematic fragments revealed a third initially hidden dynamic pattern, which was primarily as a result of the interaction between the two dominant patterns – there were tacit episodes of attempts to shape and reshape the strategy.

Fourth phase: In a fourth and final step, I sought to understand how to connect the concepts developed through the axial coding process and come up with an overarching finding. All this was an iterative process informed by deep knowledge of the setting as well as the PMCR routine in question; with continuous refinement of the theoretical analysis with every cycle of data analysis through a process of "constant comparison" between theory and data (Glaser and Strauss., 1967). This led to the conclusion that the outcome from the data was actually a more defined Performativity Space; building on extant work on Callonian Performativity Theory. At each phase of the data analysis I engaged in reflexivity and my supervisor acted as a sounding board as well as a devil's advocate who challenged the findings all the way through. Artifacts helped redirect ex post rationalisation and validate the emerging themes. Despite being immersed within the setting, the significance of some actions and episodes over the course of the research only dawned on me as the examination of the data deepened. I had undertaken an initial data analysis in the field but it was not until the study concluded that an in-depth analysis was undertaken. Throughout the analysis, I returned frequently to the data and the findings surfaced over time enhanced by the process.

The data structure derived from the data analysis is shown in Figure 5 overleaf.

LABEL: Patterns of synthesis, adaptation and/or improvisation

Representative Quote:

'Since a large number of load files for Measurement points concern HAE, I'm finding the existing MP template is rather cumbersome (One transaction to create the Measurement Point, and a second transaction to apply the relevant Characteristics, with considerable manual intervention to reconcile Measurement Point ID from the first worksheet to the second)….I've created a new transaction…By simply listing the Equipment numbers required in Column 'A'…, this transaction creates the six HAE Measurement Points with the necessary Classes/Characteristics in one go.' [Participant P16] GasCo SAP Data Analyst

LABEL: Patterns of truces accommodations & negotiations

Representative Quote:

'Attached final load file highlighting the few errors which I believe we can overlook as they relate to instances where a characteristic value has been specified against an object (Functional Location or Equipment), where the corresponding characteristic isn't associated with that particular object type Class' [Participant P18] GasCo SAP Data Analyst

LABEL: Patterns of seeking clarity when faced with ambiguity

Representative Quote:

'…Please can you provide some guidance to how I should go about ensuring [Vendor] are using the correct structure of alarm tagging structure. We will be replacing the [Site] Crepelle generators with two MTU diesel driven alternator sets. During recent FAT testing we found the alarm tags to be in accordance with MTUs standard tag allocation. Can you advise any procedures or who I need to discuss / agreeing the correct structure of alarm tags and descriptions please. I have a list of the trips and alarms and can come by briefly to discuss whenever is convenient for you…' [Participant P34] GasCo Electrical Engineer – Projects

LABEL: Patterns of rework & identified inefficiencies

Representative Quote:

'…Plan 6020530 was created by [Vendor] circa 2009 and has not been scheduled – looking at the Plan there seems lots of things wrong with it! – it's aimed at a specific Equipment, the HAE Maintenance Item has no associated route, some of the maintenance is duplicated across other plans 6PT1107 is maintained on Plan 6027623, 6SDV1107 is maintained under Plan 6026152, 6026153 – [Participant P20]'s recent PMCR25953 refers…' [Participant P16] GasCo SAP Data Analyst

LABEL: Patterns of apathy and ambivalence

Representative Quote:

'I have had my fingers burned trying to undertake the full optimisation and I am not willing to take the chance again' [Participant P9] GasCo Manager

'I was helping [Participant P15] with a PMCR the other day and he told me that there is meant to be a presentation on the new workflow to clarify things? I am getting the impression that the workflow is still not firmly established and understood by everyone involved if it requires this further discussion. As you can imagine, it is difficult for me to justify spending further development time on implementing changes if the core of these changes are still being finalised, as it may result in the work that I put in being unused or discarded.' [Participant P5] GasCo IT Developer

LABEL: Patterns of conflict & antagonism

Representative Quote:

'We cannot have someone coming over here and changing things that have worked for over 10 years and have him move on after 3 years' [Participant P36] GasCo Site Manager

LABEL: Patterns of contradictions & tensions

Representative Quote:

'Giving originators free reign to create and up-rev attachments in DocUK could have serious impacts, as attachments could then be changed during or after the original request has been undertaken without the knowledge of the person completing the PMCR. If we go down this route we would need some way of validating that the document version attached to the PMCR doesn't post-date the date stamp at each stage, and prompt the user when this situation is detected – unless there's some way that originator documents could be loaded to a specific location in DocUK and then moved to a final (indelible) format at PMCR approval stage.' [Participant P16] GasCo SAP Data Analyst

LABEL: Patterns of creating new uncertainty

Representative Quote:

'[DSP]..did not demonstrate the PM module nor the complex scenario as they said they did not have the facilities to do this despite several requests (please note that this is contrary to what was agreed at the start of this Project – my records indicate that it was explicitly agreed that all packages would need to demonstrate how they would handle a complex scenario step by step). However, IT are convinced that the product would be able to handle all scenarios and I am happy to go on their technical judgement' [Participant P22] GasCo Senior Maintenance Engineer

Felicity conditions for the co-performation of routines and strategy

Patterns of shaping and reshaping the strategy – effects on performative agency

Infelicity conditions for the co-performation of routines and strategy

The performativity space during the co-performation of routines and strategy

Figure 5: Data Structure

4 Research Findings: Purposeful Routinisation & Coordination of Activities

This thesis examines how organizations co-perform routines and strategy to achieve the purposeful routinisation and coordination of activities. I do so by detailing how participants deal with planned change to their ongoing everyday activities through drawing on data from the change to the PMCR routine, a complex boundary spanning routine that is key to the organizations' management of its physical assets. The organization in question, GasCo had multiple offshore oil and gas sites at various stages of maturity at the time of writing – one platform was built and installed during the period under study while some were beyond their design life in a tough economic environment characterised by falling oil and gas prices. The PMCR routine was key to the organization's adaptation to the changing macro and micro environment; existing plant maintenance and spares management strategies had to be changed and updated and new ones created through this process. Through this routine, the organization achieved its continuous improvement objectives while building up its physical asset register and plant management strategies which determined the organizations resource planning and budgeting process. The plant used on offshore platforms is of high value; and most of the equipment is bespoke in nature given the unique operating challenges the North Sea high pressure, high temperature wells present. In particular gas turbines and compressors spares and unit costs were in millions of pounds: on the one hand their availability was critical to the operations and it was essential to hold the appropriate spare parts, on the

other hand such spares tied up precious capital and had to be carefully maintained; so the decision to determine the maintenance and spares strategy was far from trivial. An overview of a typical physical asset management process at GasCo is shown below;

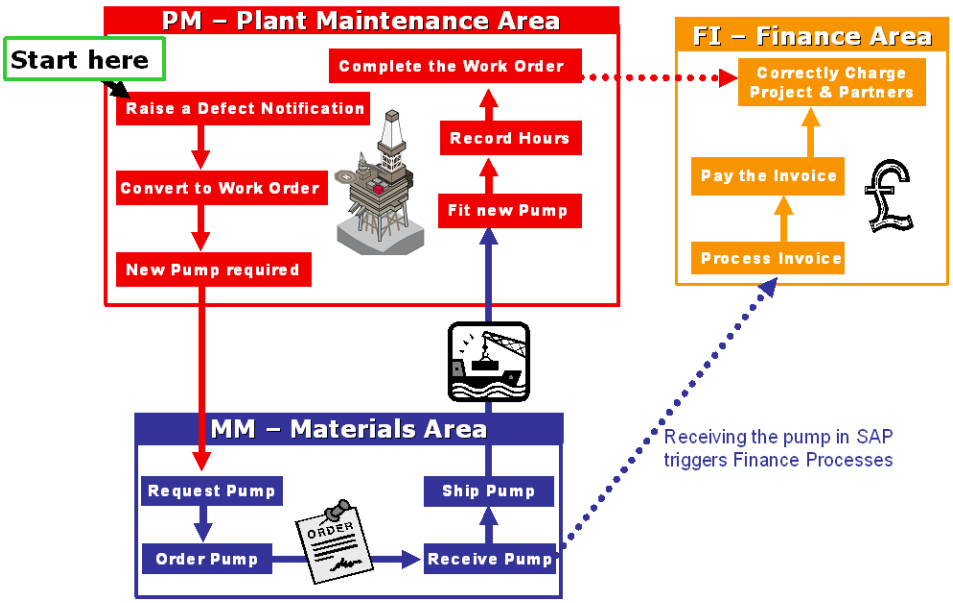

Figure 6: Overview of the Physical Asset Management process at GasCo

The timing, cost and resource requirements for physical asset management process detailed above were defined by activities within the PMCR routine. Core PMCR routine participants who included the Engineers, the Administrators and SAP Data Analysts were all centrally located onshore in the Aberdeen office which also served as the organizations' headquarters. Initiators could be from the onshore teams or from any of the multiple offshore sites – key participants included Maintenance Supervisors and the Technicians that undertook the work. GasCo used multiple

contractors to undertake various tasks and the key relationships are illustrated in the image below.

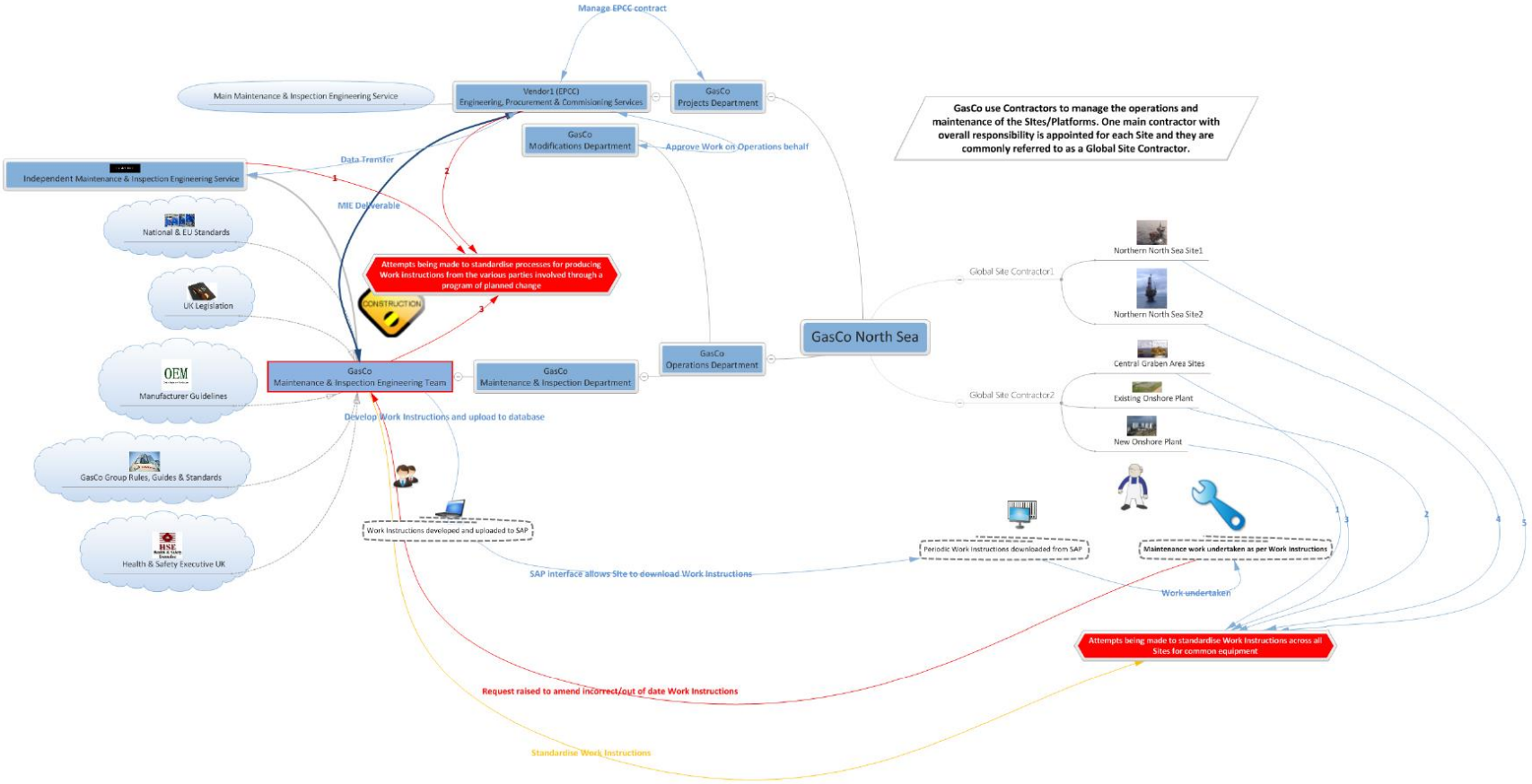

Figure 7: Overview of Research Setting

The overall company structure is shown below;

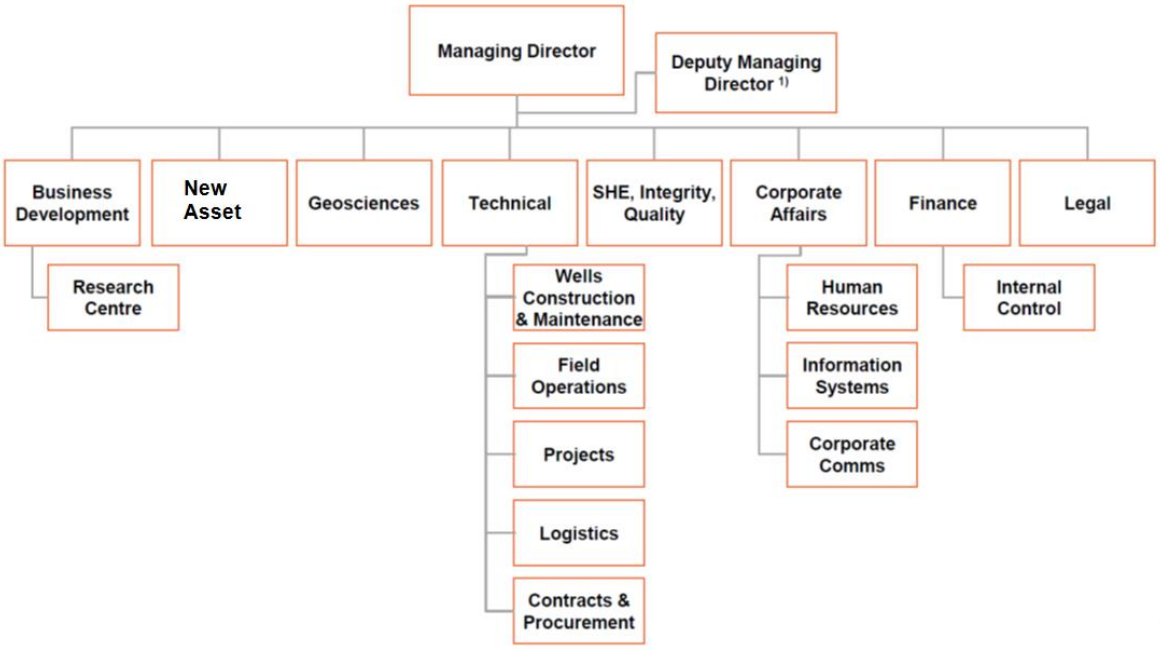

Figure 8: GasCo Company Structure

At the time of writing, the Maintenance organization within GasCo fell within the Field Operations division, which was part of the Technical Business Unit. The Field Operations Manager reported to the Technical Director who was also the Deputy Managing Director (1). The department was centrally located within the company's headquarters and was responsible for creating, modifying and aligning planned maintenance work instructions for operational personnel on various sites within the North Sea.

The Maintenance & Inspection Department consisted of a number of sub-departments split up mainly by discipline. Each discipline was responsible for providing cross-asset first-line operational support for day-to-day activities to all sites and depending on discipline this was through a single individual or an individual per asset depending on workload. A Lead Discipline Engineer who reported to the Maintenance & Inspection Manager headed each

discipline. The Maintenance &Inspection Engineering “MIE” team was made up of the core PMCR routine participants and was headed by the Head of Methods & Services who in turn reported to the Maintenance Manager. Also under the Head of Methods & Services was the SAP team who were responsible for looking after the organization’s CMMS. The MIE service was delivered through a combination of cross-functional and cross-organizational teams; MIE for new projects and modifications was delivered through contractor companies whereas MIE for existing assets was managed through a combination of internal resources and other contractors who were managed by other parties within the company prior to the change. The departmental structure of the Field Operations division is shown below;

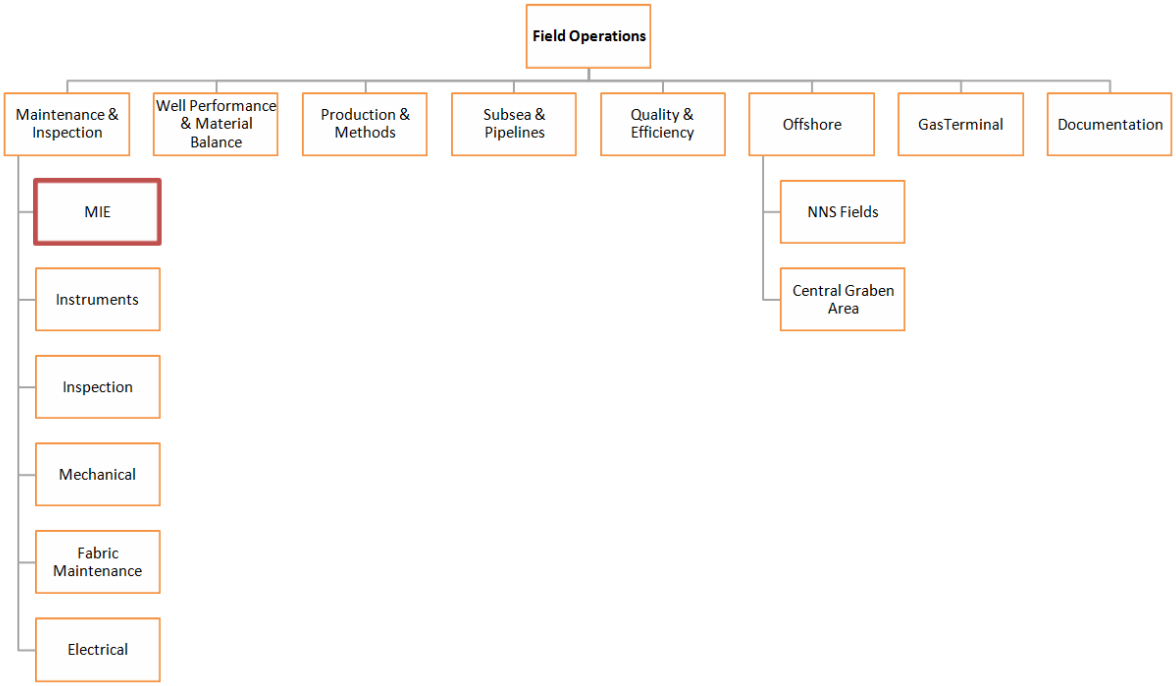

Figure 9: GasCo Field Operations Structure

4.1 The MIE Department

When I took over as Senior Maintenance Engineer reporting to the Head of Methods & Services within the company's Field Operations division in September 2013; I found that the maintenance engineering service was being delivered through a combination of cross-functional and cross-organizational teams which at the time were;

- An external vendor; responsible for delivering maintenance strategies and spare parts lists for projects and modifications at all sites. This service was provided through the Engineering, Procurement Construction & Commissioning (EPCC) contractor managed by the Projects Division. The vendor had direct access to the company database and was expected to make all updates directly into the Computerised Maintenance Management System (CMMS) database once they had been approved by internal stakeholders;
- An internal Optimisation Team, consisting of two multi-discipline engineers responsible for reviewing the CMMS database and ensuring that the maintenance assigned to equipment was relevant and required as well as standardised across the different sites. Previous studies had established that there was extensive duplication of standard texts (method statements for maintenance activities) with different sites undertaking different activities for the same or similar equipment and incomplete/poor quality routines. The engineers would draw up new maintenance plans and spare parts list on non-standard Excel spreadsheets for manual upload by a separate internal team of SAP PM Analysts after approval by internal stakeholders;

- A team of two engineers undertaking a time-bound Safety Critical Element (SCE) alignment project within the CMMS database. Their task was to identify equipment that was deemed safety critical and ensure that there are maintenance routines as defined by the company's Integrity Assurance Scheme. In addition, they would also define measurement points to measure and track the maintenance activities associated with the SCE's. Where required the team would draw up new maintenance routines if the existing routines were found to be inadequate. All the changes they required to the CMMS database were compiled in non-standard Excel spreadsheets and submitted to an internal team of Database Administrators to complete the changes manually to the database after approval by internal stakeholders;

The MIE team was supported by an internal team of SAP PM Analysts that consisted of a team of six led by a Senior Methods Engineer. They were responsible for providing reports from the database as well as making changes to the CMMS database. The team was also responsible for processing maintenance change requests from the different sites that would go directly to the SAP PM Analysts for completion through a pre-defined Planned Maintenance Change Request (PMCR) workflow process.

As Senior Maintenance Engineer, I was responsible for interfacing with the Projects Department for larger modifications which were handled by the Modifications Team and the EPCC Vendor providing the MIE service projects and modifications. The Maintenance Engineers were responsible for the Maintenance Optimisation process which was tasked with identifying areas within the GasCo asset register that did not have MIE requirements

clearly defined and set up the appropriate MIE requirements. The Safety Critical Element (SCE) Alignment team was made up of two engineers who were responsible for identifying the SCE elements within the Asset Register and assigning the relevant measurement points as defined in the Operational Integrity Verification and Assurance Scheme (OIAVS) for each site. At the time, these teams worked independently, reporting directly to the Head of Methods & Services and had a limited interface with the Senior Maintenance Engineer. The organizational structure for the MIE team prior to the change is shown below.

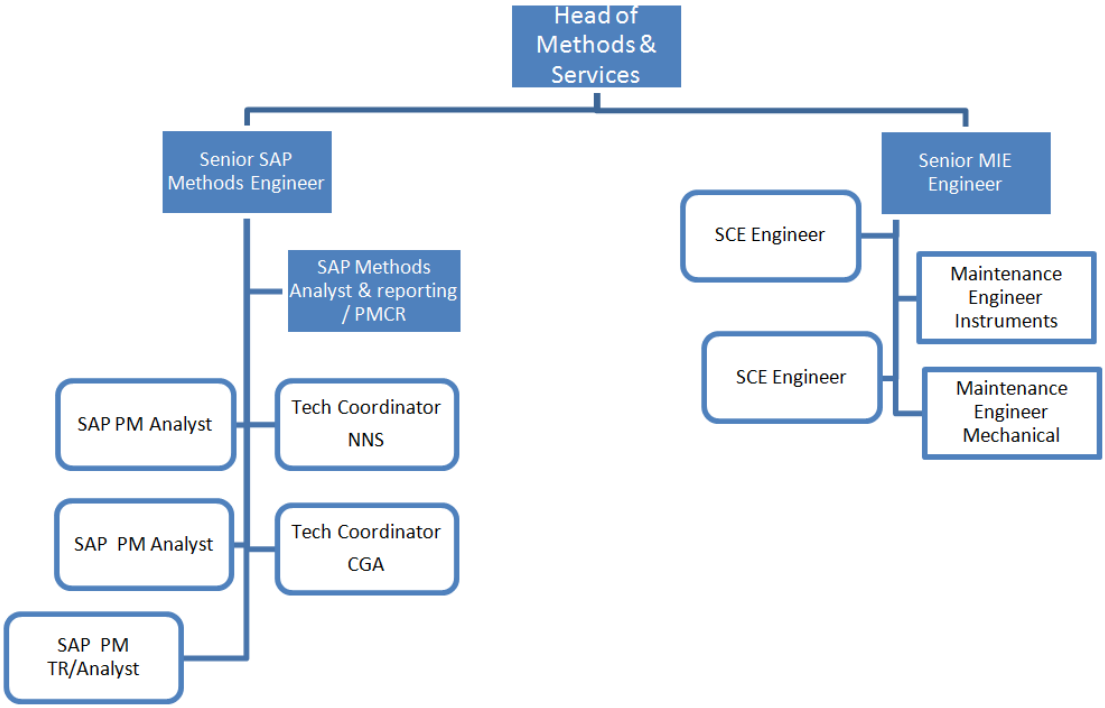

Figure 10: MIE Organizational Structure in 2013

The interdisciplinary relationship for the MIE team is shown below.

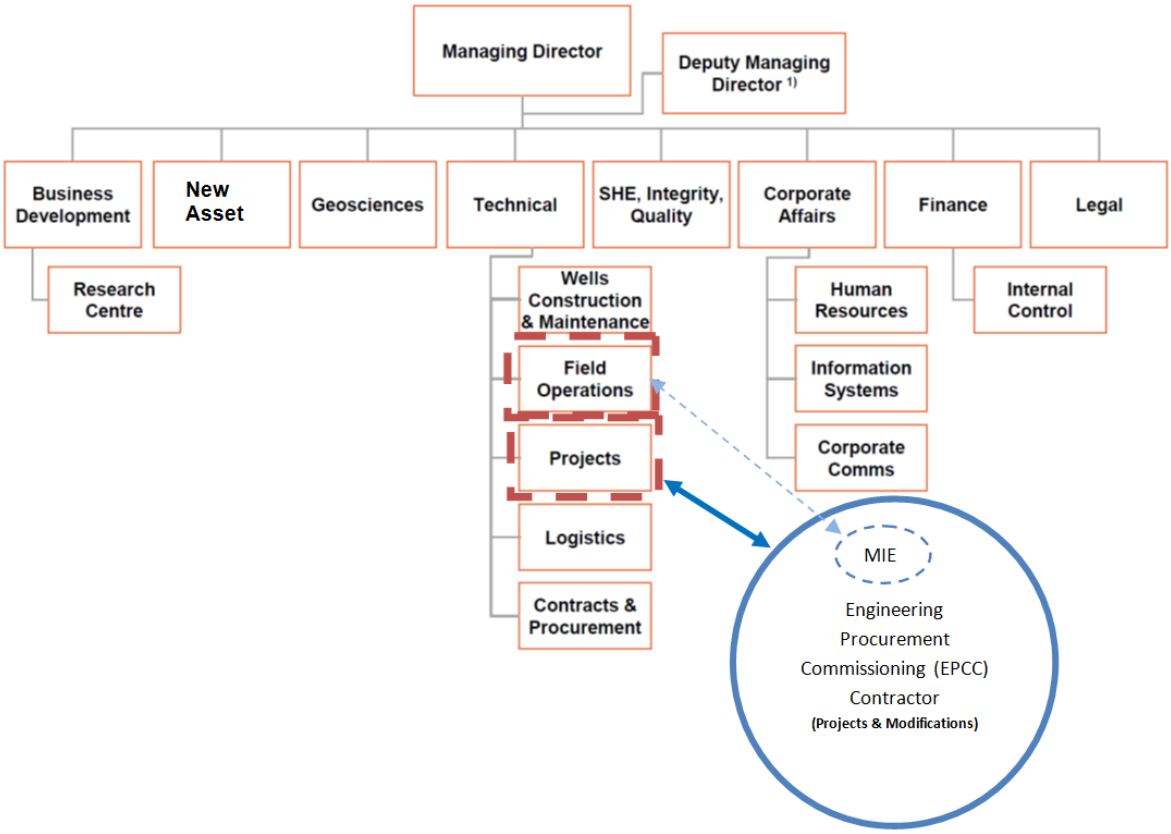

Figure 11: MIE Service Delivery

4.2 Changing the PMCR Routine

"You can't change anything from outside it. Standing apart, looking down, taking the overview, you see the pattern. What's wrong, what's missing. You want to fix it. But you can't patch it. You have to be in it, weaving it. You have to be part of the weaving." — (LeGuin, 2004, p. 137)

The position of Senior Maintenance Engineer was still relatively new within the organization in 2013, with the previous and first incumbent having been with the company for just over two years. My responsibility at the time was seen as managing the timely delivery of maintenance strategies and spares for new projects and modifications provided by the external vendor. Over time, a significant backlog had built up in all areas with a huge number of Projects and Modifications commissioned onsite without maintenance or spares; and there was no clear progress from optimisation activities and workflow change requests from Site remaining uncompleted. Furthermore, contradictory and conflicting change requests were a common occurrence and as people were doing what they were asked without considering the context of their efforts resulting in a lot of rework. All this was significant concern, as operating equipment without the appropriate spares and maintenance posed significant health, safety and environmental risks as well as operational risks to the company. There had been numerous complaints from various stakeholders and it was clear that the situation needed to be addressed. Upon taking over, I was tasked with improving the vendor's performance and clearing the backlog of projects and modifications. I was convinced that productivity could be improved and the backlog reduced through eliminating the inefficiencies and duplication of work.

4.2.1 Consultation Workshops

The formal planned change process started towards the end of 2013. The temporal relationships between the stages were complex, iterative episodes rather than simple linear temporal relationships that may be inferred from the description that follows. The first step was to fully immerse myself into the setting and attempt to articulate the issues being experienced. Working with my Line Manager, we were able to define the core issues affecting service delivery and we put together a management summary of what we identified as the main issues. We then approached senior management with a request to undertake a Value Engineering review process on the department's operations. Once the program of change was agreed and endorsed by Senior Management, a timeline was set to complete the changes. The indicative timeline for the change program is shown below.

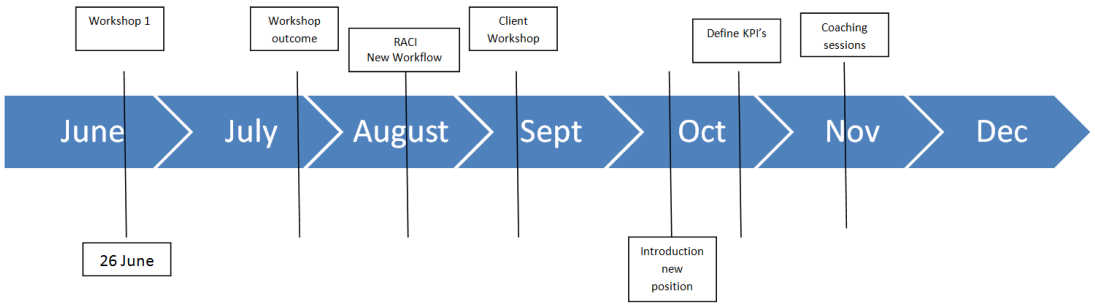

Figure 12: Planned Changes Timeline

It was decided to adopt a structured approach to the change program and the Value Engineering process was selected in line with the organization's broader philosophy. The Value Engineering process was selected because it is simple yet rigorous (Neilson et al., 2004; Reed and Mandelbaum, 2009; The Institute of Value Management, 2013) and provides a conscious and explicit set of disciplined procedures designed to seek out optimum value (SAVE

International, 2013). Value Engineering is also a good tool for driving a collaborative process between cross-organizational teams and strategically ensures a proactive approach to unlocking value at specific points in time (McEuen, 2013). An overview of the process is shown below;

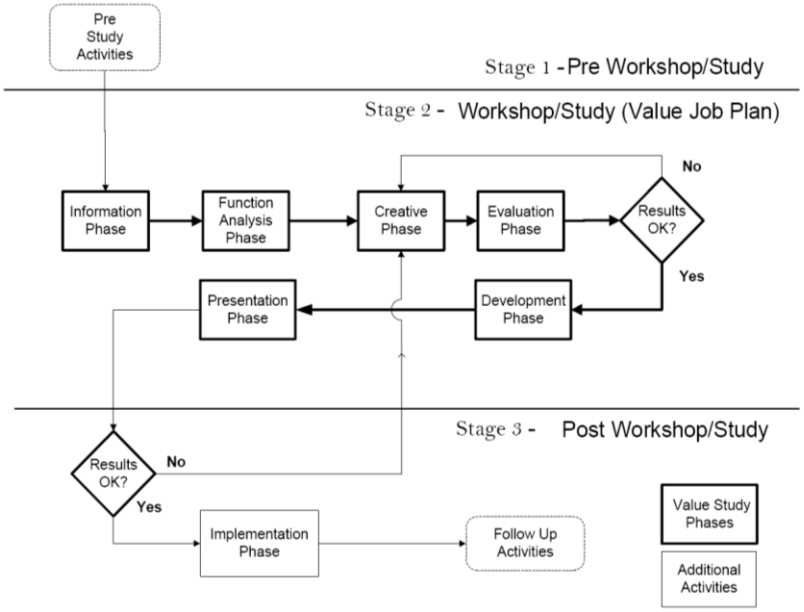

Figure 13: Overview of the Value Engineering process (SAVE International, 2013)

As part of the project, we requested that we engage the services of an independent external consultant to assist with the organizational review process as this would avoid internal conflict, bring a neutral perspective and allow benchmarking. A series of workshops were held to fully define the issues, with the first one being held on June 26, 2014 with everyone within the department and selected stakeholders participating. As part of the preparation for the workshop, the Consultant had engaged key stakeholders through a formal survey. Pictures from the workshops are shown below;

Figure 14: Workshops

4.2.2 Workshop Outcomes

Using a RACI (Responsible, Accountable, Consulted, and Informed) chart, we were able to unravel the full scale of the PMCR routine. Prior to the change the PMCR routine was almost a blackbox – it was known what the inputs and outputs were; but the processes within were poorly understood by all involved. The process involved an initiator (who could be anybody within the organization) raising a request to change the maintenance programme. In principle, the initiator was expected to attach as much information as possible to the request to enable a full assessment of what was required. In practice, this was rarely the case and a large number of requests were submitted with scant information – which at times would be a single descriptive line accompanied by very little detail. The requestor was expected to indicate whether further technical review was required or the change to be implemented directly within CMMS at the initiation stage.

In all instances, all requests went to the Administrator who then decided whether additional information was required and would contact the initiator to provide further information if required. This was not without its challenges as the offshore teams worked on a two weeks

on- two weeks off rotational basis which caused logistical issues. The Administrator then passed the PMCR to the SAP Data Analyst for completion or the engineering teams for technical review. Where technical review was required, the PMCR was initially sent to the appropriate Discipline Lead Engineer for technical review who would assign it to an engineer within his team in most cases. The engineer would then determine the required maintenance change; which in most cases would require detailing the maintenance strategy and task list, which would be approved by the Lead Engineer prior to being sent back to the SAP Data Analyst. This was quite a challenging process too as the Discipline Lead Engineers and their respective teams were primarily preoccupied providing operational support to assets and in most instances the maintenance programmes were found to be poorly defined and required a lot of time for review.

Once the PMCR was technically reviewed, it was forwarded back to the SAP Data Analysts team for implementation. The implementation was a highly complex process which required the Analyst to interrogate several screens with the CMMS and identify the appropriate functional location and equipment related to the change; determine the equipment criticality if required; determine and/or update the maintenance strategy/plan; determine/update the task list; identify maintenance routes and measurement points and where required determine/update the bill of materials, tools and personnel required for the task and schedule the maintenance for execution.

The spare parts requirements were also reviewed and recommendations made for inventory holding during the technical review stage. Once technically reviewed, the spare parts requirements were passed on to the Materials Team for further processing. However, the manual nature of the process which involved multiple hand offs meant that it was very

difficult to determine the status of a spares request at any given point in the process. Documents had to be hand carried, leading to potential delays via misfiling, or inappropriate prioritising of documents. The process also demanded the use of paper forms, drawings and other documentation. Scanning, copying and annotating details and the hand carrying and signing off of documents by various parties was time consuming and participants felt there was scope to review how this could be made more efficient. Extended delays made it difficult to reconfirm specification of items purchased, which resulted in extended lead times, additional costs and raised the degree of operational exposure due to spares not being in place when required by the business.

The review of the PMCR routine established that although the underlying principles for the PMCR routine as-was were sound, the way the workflow was structured presented a number of challenges. One of the biggest challenges with the system was the inability to capture multi-discipline reviews; only one Lead Engineer and Discipline Engineer cycle was allowed. For example, if the PMCR was sent to a Mechanical Engineer to review then it could not be sent to any other disciplines such as Electrical, Instruments, Inspections, Well Integrity and so on. In reality, many of the changes required multi-discipline reviews, even for the simplest systems. For example, assessing a valve as a piece of Mechanical equipment ignored the 'network' effect of the valve on an asset; and in most instances changes assessed by a single discipline were later found to be unsuitable due to the initial analysis not having a complete understanding of the system and its functions.

Overall, the PMCR routine involved a lot of unstructured, informal discussions with other disciplines on the changes. These discussions occurred only if the engineer undertaking the review was aware of the wider implications of the changes and knew who to speak to within

the other disciplines. Failing this, the team of SAP Database administrators would also request informal input from other disciplines in instances where they felt that this was needed – but there was no means of capturing this input within the formal PMCR system. Another issue with the system was traceability – as the changes could be raised in any format, it was very difficult to determine changes that applied to the same equipment. As such, trying to combine common changes by equipment or asset was quite challenging and in many instances contradictory changes were processed without further interrogation. The EPCC Vendor also had direct access to make changes to the PM module, which meant that multiple parties were making uncoordinated changes at any given time which often resulted in contradictory data being processed. An overview of the as-was process is shown below.

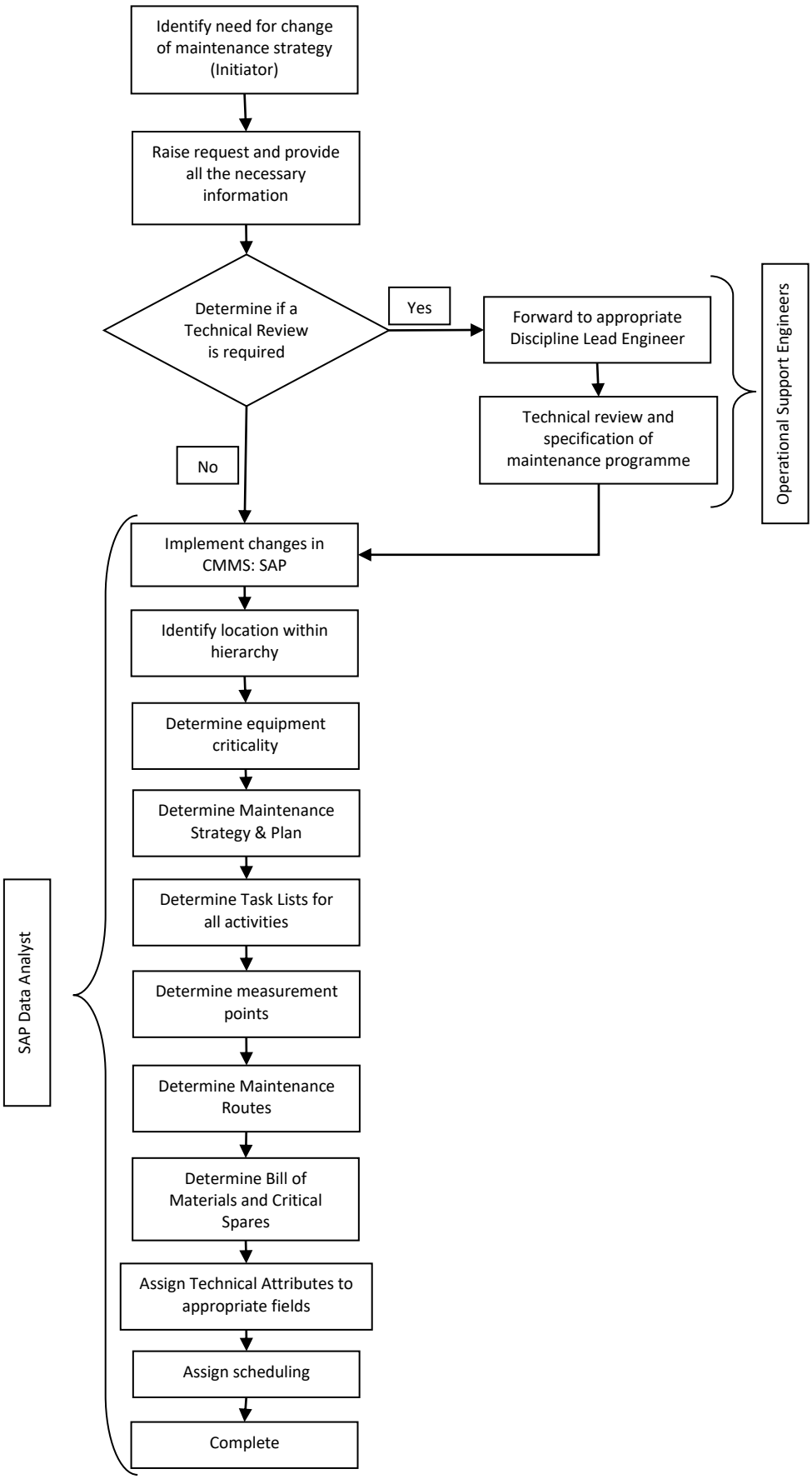

Figure 15: The As-Was PMCR Process

What also emerged from the workshops was that there were two core streams of activity – a database management function and an engineering function. As part of the outcomes from the workshops, all the engineering activities were organized under the Senior Maintenance Engineer role and database management functions were organised under the Senior Methods Engineer's role. A new role was created for an SCE Engineer as it was realised that this critical function would have no cover once the SCE alignment project was complete. The organization had put a freeze on new hires but fortuitously, a recent resignation at the time of one of the Technical Co-ordinators had presented an opportunity to reorganise the department and hire the new engineer as a replacement. The new departmental structure that was developed and implemented after the workshops is shown below;

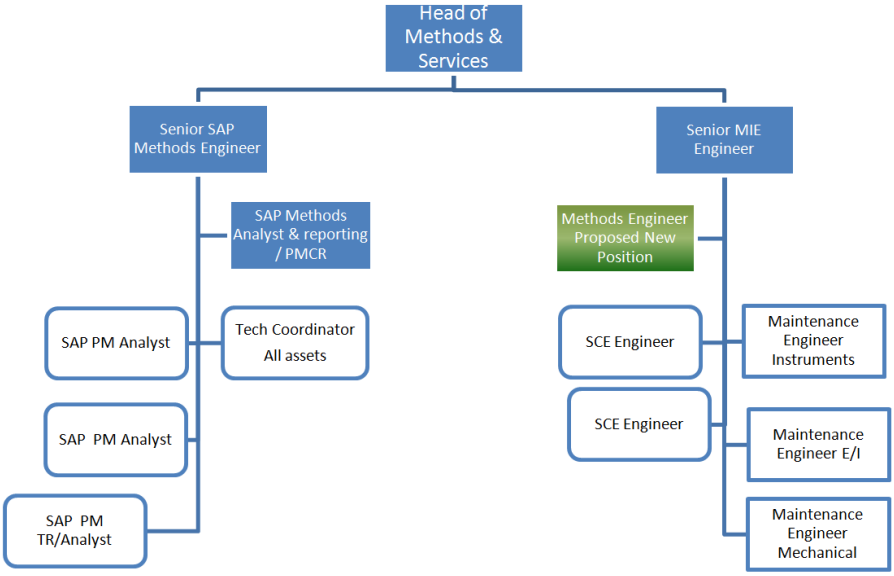

Figure 16: MIE Reorganization

In addition it was agreed to restructure the PMCR workflow process and introduce a tool that facilitated the uploading of data to SAP from Excel spreadsheets. A tool called Winshuttle was selected for this. All engineering reviews were to be coordinated by the MIE team who would liaise with discipline engineers where additional input was required.

4.3 Realizing the New PMCR Routine

With the change to the PMCR workflow process and the introduction of the Winshuttle tool that facilitated automatic data upload, a number of templates were created which made it possible for the Maintenance Engineers to specify all the maintenance changes required within a Microsoft Excel template. The new process's requirements were similar to the old process; an initiator raised a PMCR – however the new routine called for the full articulation, codification and validation of each stage. A template was provided for the change required with simple changes to asset data characteristics still going directly to the SAP Data Analysts team for validation and upload. The SAP Data Analysts role had changed to validating and verifying data before upload – with reporting requirements remaining unchanged. For more complex changes; a template was created which captured the appropriate functional location and equipment related to the change, the equipment criticality if required, the maintenance strategy/plan, the task list, as well as maintenance routes and measurement points. Another template was developed for the bill of materials, tools and personnel required for the task. The templates served to unlock the black box and captured the rules around the detailing of the classes and characteristics and the creation of the complex maintenance routines.

The development of the templates required the SAP Team to replicate the actions they undertook when completing a particular task – for example creating a maintenance plan. The software would then record all the actions taken in the background and provide an Excel template with all the possible fields to be filled in supported by a script in the background. As a team, we then determined typical values for each of the fields and coded

them into the template as a dropdown menu that could be selected as required. Instructions detailing guidelines for selecting each option were developed at the same time. This meant that any suitably trained person could then complete the template during the engineering stage and the script would be run once the data had been verified and validated. This process of inscription (Akrich, 1992; Latour, 2005; Sarker et al., 2006) limited discretionary actions and flexibility – a key requirement in the quest to achieve data consistency and quality.

As all complex changes were forwarded to a specialist team of Maintenance Engineers under the new process, a more detailed review of the requirements for the change could be undertaken which included a review of the drawings for the equipment, the original manufacturer's requirements if possible as well as any standards, guidelines and regulatory requirements. This meant that the Maintenance Engineers could be trained to populate the Excel template while undertaking the review. As the software had the capability to automatically write to multiple screens within SAP, the complexity associated with interrogating several screens to manual type in the required changes was removed. This meant that the SAP Data Analysts role was somewhat diminished as their role was reduced to validating data within the template and scheduling the maintenance for execution.

Once the new organizational structure was determined and the new workflow established, work to determine a suitable approach to the PMCR workflow process began in earnest. Although the need for a new system was established and agreed, the format and structure of the new system was highly contested. The new process that eventually emerged is shown below.

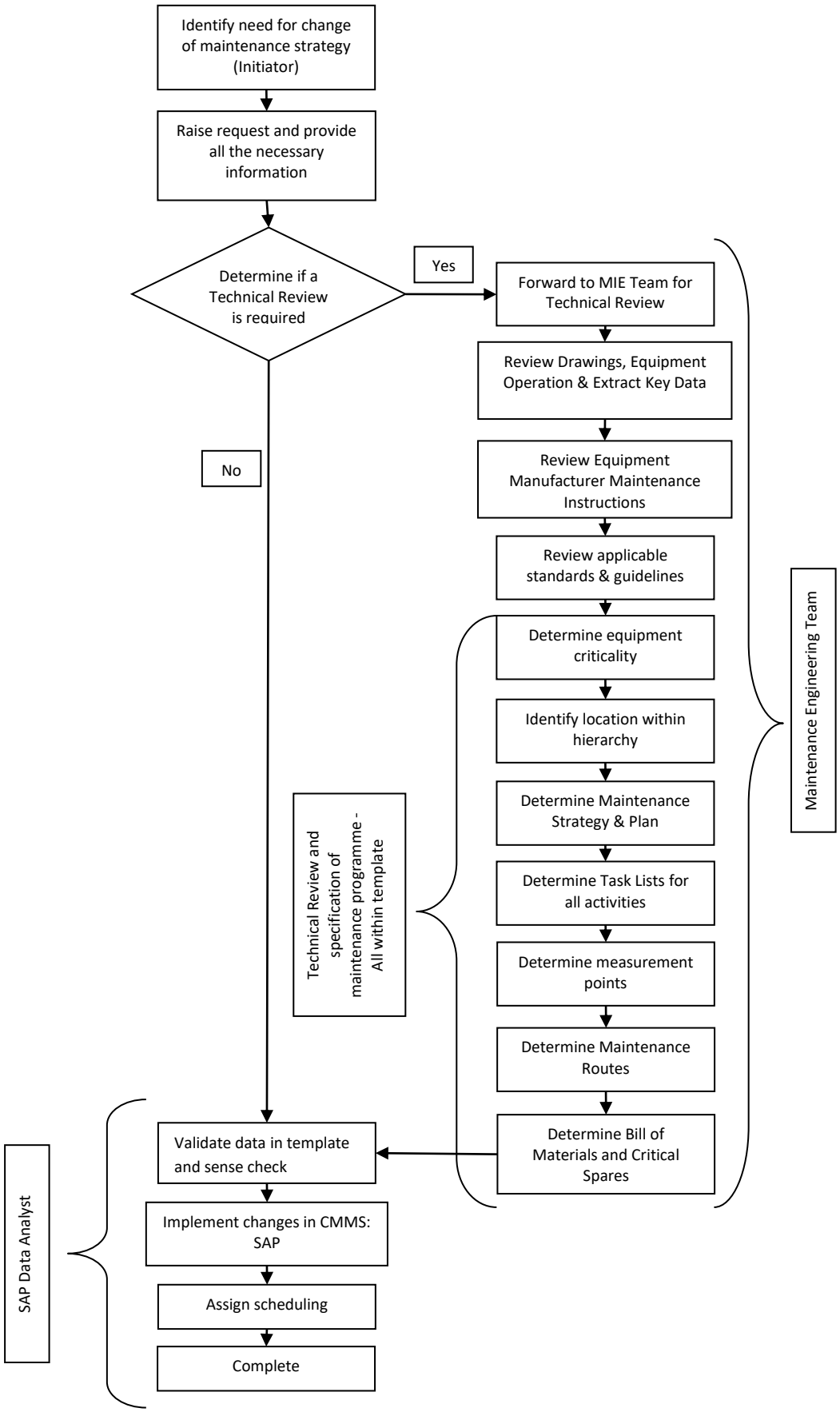

Figure 17: The New PMCR Process

In the sections that follow, I detail the representative data and vignettes used to characterise the co-performation of strategy and routines to produce the purposeful routinisation and coordination of activities during the realization of the new PMCR process at GasCo. The co-performation of routines and strategy to realize the coordination and routinisation of new activities revealed felicitous and infelicitous conditions for the performativity of the planned change model. Over and above this, the interplay of the dominant patterns of alignment and divergence during the co-performation of routines and strategy gave rise to an interesting outcome: there were ongoing efforts to shape and reshape the strategy – evidence of performative struggles within the setting. The following sections details the patterns of felicitous conditions for performativity observed within the setting.

4.4 Felicitous conditions for the co-performation of routines and strategy

Given the outputs of the workshops which detailed specific intended changes to ongoing the focal routine for the department; purposeful steps had to be taken to realise these strategy outcomes. Some of the actions could be taken immediately, such as redirecting the flow of PMCRs that required technical review to the MIE team – however the hire of the required personnel, the redesign of the PMCR workflow and the definition of the user specification for the software took time. In the meantime, participants had to consciously adjust their everyday performances to the new arrangements – this was manifest through explicit patterns of orientation towards and alignment with the intended outcomes. These patterns were supported by pressures to deliver the intended outcomes to the wider organization; which included dealing with and seeking to eliminate ambiguity and remove the need for rework. These conditions provided evidence of felicitous conditions for the performativity of the planned change model.

4.4.1 Pressures from Ambiguity

The PMCR routine as-was presented significant challenges to participants. The routine had evolved from early 2004 as a paper based system to an online workflow system that had stabilised over the course of time. There was significant ambiguity associated with the routine, which was to be addressed through the codification of the requirements and procedures in a template as part of the new strategy. However, prior to this happening there was a lack of clarity on how to deal with multiple situations which meant that the ambiguity persisted prior to the realisation of the new strategy. As explained by one participant;

> '…Basically I can create the tags no problem, what I am concerned with is where in the system to hang it, and I am not confident of putting items straight into your live system. Also who would be responsible for the metadata for the valves?...' [Participant P30] Vendor Technical Coordinator

In this, the participant outlined the challenges with the existing routine – the changes could be developed in a sandbox for review and approval; however, she also had access to make changes to the live system, circumventing the review process. The reason she did not do this was due to lack of confidence as she stated: other more 'confident' participants went ahead and made changes to the live system regardless, which had contributed to the poor quality of data within the CMMS. A significant challenge was that the intricate rules for the definition of the tags along with the classes and characteristics were not documented anywhere and details of how to do this were only known to few members of the SAP team.

The lack of guidance in this area was evident throughout the setting as one Project Engineer put it;

> '…Please can you provide some guidance to how I should go about ensuring [Vendor] are using the correct structure of alarm tagging structure. We will be replacing the [Site] Crepelle generators with two MTU diesel driven alternator sets. During recent FAT testing we found the alarm tags to be in accordance with MTUs standard tag allocation. Can you advise any procedures or who I need to discuss / agreeing the correct structure of alarm tags and descriptions please. I have a list of the trips and alarms and can come by briefly to discuss whenever is convenient for you…' [Participant P34] GasCo Electrical Engineer – Projects

What the above meant was that the Project Engineer was dealing with equipment that had been designed, constructed and was now undergoing Factory Acceptance Testing 'FAT' without an appropriate tag structure. The equipment should have had its structure defined as part of the maintenance development process which should have started at the design phase but did not. Furthermore, the situation was compounded by the lack of clarity on who could create the tags; GasCo SAP Administrators and Vendor personnel had equal access to do this which caused some concern within the setting;

> '.... [Participant P42] is directing more tag requests to [GasCo] – we need to establish a policy and protocol for this – the scenario of tag requests being done partially by [Vendor], partly [GasCo] would be problematic – I understood there would be a "bucket" code for this work assigned to [Vendor], if this isn't the case

we need to decide how we address this?' [Participant P16] GasCo SAP Data Analyst

There were also questions on how the tagging activity would be paid for;

'…I don't understand why you refer to Capex in your bucket split proposals as mods are opex mainly (almost always). Also this issue of allocating tags is for mods class 2 not projects class 1 (so it's about the cost of tags associated with ops driven mods). What is clear is the issue that prompted this, was telecoms mod on [Assets] with a request to [Participant P9]'s team to allocate 14 tags for wifi routers. This request was sent in April and still is outstanding, and I've counted up to 30 emails on the subject trail. (I've attached for reference). I don't understand what [Participant P9]'s team cannot allocate tags and then just time write(if its really necessary for small amount of scope) to the approved individual mod budget. What do we want to pay premium rates to [Vendor] to do this. Is it about skills or is it about the control of multi users accessing a common database(SAP for tags I presume) I guess [Vendor] have many people who can do this, so surely we can set up a process to make sure we communicate what we do' [Participant P40] GasCo Senior Manager

The need to address the ambiguity within the setting served to support the ongoing efforts to achieve the intended outcomes. This was in part because the intended outcomes were believed to adequately address the issues highlighted by the ambiguity – further ambiguity about the proposed solution would have arose had the defined solution been thought to be inadequate. The confidence in the solution presented by the new strategy helped subsist

the efforts towards the intended outcomes and in turn silence any resistance that may have arose during the co-performation of routines and strategy. As Denis et al. (2011) argue, ambiguity creates the space "which can accommodate potentially divergent or even irreconcilable differences" (Denis et al., 2011, p. 236). Additional support for the intended outcomes was found from the need to eliminate rework and inefficiencies as detailed below.

4.4.2 Pressures of Rework/ Inefficiencies

The need to address rework and duplication of work had been one of the key drivers for the change to the new strategy. Rework was a clear, uncontentious output from the existing routine that also provided support to the efforts to achieve the new outcomes. One of the realizable outputs from the routine was the maintenance instructions for technicians on the offshore sites – these had to be accurate and practical to ensure that the work could be carried out. In addition, the correct tools and spares had to be available when the work fell due. However, in most cases the maintenance instructions were of poor quality and had to be revised; in some cases this was identified by the SAP Data Analyst as new instructions were received from the vendors. As one Sap Data Analyst explained after receiving one such instruction:

> '…As discussed this morning I have concerns with the content of the proposed standard text E-1-000 "Device Insp & Cleaning" (See my comments on the attached). I suspect the content either hasn't been reviewed in detail, or the reviewers didn't realise that the content of this instruction will appear on EVERY Electrical Work Order we issue. E-1-000 appears to be a hybrid of random instructions, and the result is simply a mix of confusing statements which will not be applicable to the majority of Work Orders on which they appear – I note many of the "generic" instructions – such as checking wiring, earthing, Anti-condensation heater etc are repeated on the equipment specific standard texts anyway, which negates their requirement on the generic header. I know you weren't responsible for authoring this text, or for proposing the introduction of

> a generic text. Based on my comments attached, I think we should seriously consider abandoning the use of E-1-000 as a generic standard text – it adds no value and will undermine the confidence of the end user in the overall Work Order content…' [Participant P16] GasCo SAP Data Analyst

However, some of the faulty instructions found their way to the technicians on site without adequate review resulting in confusion and delays to maintenance work offshore. For some, these poor instructions were symptomatic of the shortcomings of the PMCR routine – primarily the lack of suitable skills and knowledge in the development and review of the maintenance instructions: as one participant stated after receiving incorrect instructions for a cooling medium system which made reference to irrelevant activities;

> 'the PM is related to the cooling medium system, but still the pump is a vertically mounted item and therefore has no bearing housing to drain or refill and has no breathers. For me this is a small example of what we see, which is fairly substandard really. It indicates to me that whoever wrote the mechanical content has no idea what type of pump is even installed and the PM's are written in such a generic manner.' [Participant P37] GasCo Maintenance Superintendent

To make matters worse, some of the maintenance instructions were completely impractical for the offshore installations and it would appear that they may have been put forward without consideration of how the work would be undertaken; further supporting the belief

that there was a lack of appropriate expertise within the PMCR routine. As explained by one participant;

> '…I have a further query regarding the "Earth – 2nd Mnt" instruction E-3-012. Earth electrode testing – section reads as follows;
>
> 3 - "Measure 20 meters from the electrode to be tested and drive the first test spike 30 centimetres in to the ground. This is the mid spike or the potential electrode. Measure another 20 meters and drive a second test spike in to the ground. This is the last spike or the current electrode. The electrode and the two test spike must be on a straight line as much as possible"
>
> 4 – Connect mid spike to terminal P2 and last spike to terminal C2
>
> 5 – Take measurement
>
> 6 – Take two more readings with the mid spike moved about 3 meters from the midpoint (ie 17 and 23 meters from the electrode under test)
>
> Since [Site] is an offshore installation with approx 93M water depth, I suspect this instruction may be difficult to perform !! – could you advise if this section should be deleted, or provide alternative text to replace it?' [Participant P17] GasCo SAP Data Analyst

The ongoing need for rework was further exacerbated by the turnover of personnel and had resulted in a significant backlog. Some equipment had been installed in 2005 and yet in 2014, the maintenance instructions had yet to be created and handed over to the site as explained by one participant;

'… N25 & N27 are under modification by [Vendor] 11-C-5902 /[SITE]/CONSTRUCT, so [Vendor 1] should have created the necessary plans, but according to DocUK ([SITE]-AWP-00002-001) the job was completed in 2005. It looks like there has been an oversight in completing this Mod. If you could you raise the PMCR (only one required for the 3 wells) and I'll get them processed in SAP…' [Participant P17] GasCo SAP Data Analyst

In some cases, it would appear that some of the work had been abandoned part complete, possibly due to personnel leaving without arrangements to hand over the work. The PMCR routine was not complete until the maintenance had been scheduled - however some of maintenance plans had been created in 2009 and had not been scheduled by 2014 as explained by one of the SAP Data Analysts;

'…Plan 6020530 was created by [Vendor] circa 2009 and has not been scheduled – looking at the Plan there seems lots of things wrong with it! – it's aimed at a specific Equipment, the HAE Maintenance Item has no associated route, some of the maintenance is duplicated across other plans 6PT1107 is maintained on Plan 6027623, 6SDV1107 is maintained under Plan 6026152, 6026153 – [Participant P20]'s recent PMCR25953 refers…' [Participant P16] GasCo SAP Data Analyst

All of this was causing significant concern to key participants within the setting as exemplified by one of the participants venting his frustrations after reviewing some maintenance instructions;

'...This is a classic example where new equipment has been installed and the Work Order hasn't been updated accordingly by the project Team. There is a mix

> of old and new equipment on the PM with numerous items to be added or deleted. There are calibration settings missing and no maintenance instructions for some items. Also, from Chris's comments there are a number of items in the associated HAE PM that either cannot be located or have not been identified as Ex rated equipment. This is a constant problem after new equipment has been installed as part of a project...' Email [Participant P32] Vendor Instrument Team Leader

The issues with the incorrect maintenance instructions could have significant consequences for the organization overall as highlighted by one of the participants;

> '…It is obvious that the set up of the PM's is fundamentally incorrect. If we were audited by [Regulatory bodies] with regard to the SAP set up for these safety critical maintenance PM's, our current set up would leave us open to serious criticism. I'm unsure of where the responsibility lies onshore with regard to reviewing the current PM set up with a view to getting it correctly set up and aligned in SAP. However, I feel this is a priority issue that needs to be actioned to bring these safety critical PM's up to the correct standard. Can you therefore please direct this issue to the necessary person responsible to investigate and resolve the issues…' [Participant P38] GasCo Maintenance Superintendent

This in turn served to support ongoing efforts to achieve the intended outcomes of the new strategy. Generally, the pressures to eliminate rework served to support the intended outcomes primarily because these outcomes were seen as the solution to these issues. As explained by one of the Maintenance Superintendents;

> 'Historically, poor quality PM's that require time consuming corrections by the offshore teams are the norm for new projects. We need to get a system in place where we can ensure the quality of the PM's being handed over to us.' [Participant P38] GasCo Maintenance Superintendent

Once the change program had been defined new cases for rework served as a referent for diagnosis – they were evidence of what was wrong with the existing arrangements which would be addressed by the new. This ensured that the efforts to realize the intended outcomes from the new strategy were prioritized and could be used to overcome resistance to the proposed changes within the setting. Over time, evidence of the intended outcomes began to emerge primarily in the form of adaptation of parts of the new strategy and improvisations of the existing routine to meet the requirements of the new strategy while the new arrangements were being developed; and eventually synthesis of the existing routine with the new strategy when the new arrangements were in place. Details of this evolution are presented below.

4.4.3 Synthesis, Adaptation & Improvisation

The co-performation of the existing routine and the new strategy necessarily called for an ongoing amalgamation of the arrangements with the old – there was no specific breakpoint at which participants could stop performing the old routine and immediately start working to the new routine. This meant that participants had to consciously adapt to the new arrangements and unsurprisingly this opened up room for deviation from the intended outcomes of the new strategy. Top management support and the ongoing pressures to realize the new arrangements were key in dealing with and supporting felicitous conditions for performativity. Therefore, despite the patterns of infelicitous conditions that were manifest in the form of conflict, apathy and ambivalence; evidence of alignment with efforts to facilitate the realisation of some of the intended outcomes began to emerge. In particular, one of the requirements from the new strategy was to track the new PMCRs and determine their complexity and the amount of work required. This was in part to ensure that there was no duplication of effort and allow participants to highlight when multi-disciplinary reviews were required. A spreadsheet was developed for this purpose and initially kept by the SAP Administrator but was moved to a common location following the suggestion below from one of the participants;

> 'We could maybe consider locating this file in a common area, with facility to add comments (Is it the intention to update this document on a weekly basis?) For example the three [Site] PMCRs arrived this week but are “stalled” because the requests are incorrect – the originator has entered incorrect tags on the PMCR (Telecoms tags are System 88 so the tags should commence 8-TMI-8820

not 8-TMI-8220) – some of the tags have been incorrectly created by the originator in InspectEx too, which will need to be addressed. The tag errors wouldn't be apparent when the PMCR prioritisation was calculated, but completion time is likely to be 2 to 4 weeks, this perhaps influences the assigned priority on the PMCR. The Mustercom tags were created by Vendor but there's duplications of Equipment which needs resolving first – I've already emailed [Participant P45] and until we establish the correct tags & Equipment this PMCR can't proceed any further. I've already recorded these points within the PMCR comments so we could either replicate them in this sheet or provide a link back to the PMCR for further info? Note the tags covered within these three PMCRs have already been inspected in InspectEx so won't be due again until 2017 (so this probably influences the assigned PMCR priority too).' [Participant P16] GasCo SAP Data Analyst

As the implementation of the new strategy progressed with the installation of the Winshuttle software and the development of new templates to facilitate the articulation, codification and validation of data; further suggestions to enhance and adapt the new arrangements to the ongoing routine began to emerge from participants as acceptance grew. One of the most notable was that from a SAP Data Analyst proposing to create a new template that was better adapted to their requirements;

'Since a large number of load files for Measurement points concern HAE, I'm finding the existing MP template is rather cumbersome (One transaction to create the Measurement Point, and a second transaction to apply the relevant Characteristics, with considerable manual intervention to reconcile

> Measurement Point ID from the first worksheet to the second)….I've created a new transaction…By simply listing the Equipment numbers required in Column 'A'…, this transaction creates the six HAE Measurement Points with the necessary Classes/Characteristics in one go.' [Participant P16] GasCo SAP Data Analyst

The wider group was also taking a keen interest in how GasCo were using the Winshuttle tool; the Group's Head of Methods requested further information from Participant P2;

> 'One of the objectives was to understand where you are with Winshuttle concerning the PM data upload. This is why the proposal to attend the training middle of September is for us (mainly for the métier) a great opportunity. Hereafter you also mentioned the possibility to use Winshuttle for Material Master, for which kind of data, related to PM or Logistic?' [Participant P48] GasCo Group Head of Methods

The ongoing, negotiated progression of the realisation of the new strategy was necessary given the requirement to adapt and improvise to achieve the intended outcomes. The tensions between the patterns of aligning with the intended outcomes and the patterns of infelicitous conditions that sought to maintain the status quo or subvert these ongoing adjustments were resolved through negotiations, truces and accommodations detailed in the next section.

4.4.4 Truces, Accommodations & Negotiations

The realisation of the purposeful routinisation and coordination of activities through the co-performation of routines and strategy was essentially as a result of negotiations, truces and accommodations. To start off; agreeing and accepting the need for change was quite challenging for some participants within the setting and key protagonists emerged over time that were either for or against the changes. This resulted in ongoing disputes within the setting and there was the possibility that unresolved these could result in the implementation of the new strategy stalling or failing. A key element to this was the realisation by the majority of the participants of the need to change given the significant challenges faced. In particular after a meeting discussing the change options early on, one SAP Data Analyst offered a conciliatory way forward by stating;

> '...Looking forward to discussing further, it's clear we're all striving to improve things, and the best way to achieve that is by us all understanding the objectives and challenges of the whole team, including external Vendors…' [Participant P16] GasCo SAP Data Analyst

This was following a particularly heated session in which participants could not agree on the best way to address the issues. This paved the way for further discussions which overtime resulted in the definition of the new strategy. Further challenges emerged during the implementation stage which required the co-performation of existing routines with the new arrangements. As a result of the new strategy, budgets had to be adjusted to fit in with the new requirements and for some participants, the efforts to realize the new arrangements were only making the situation worse. This was particularly frustrating for the Project

Department who had to fund projects that appeared to be stalled. After a particularly heated discussion on the matter, the GasCo Project Manager expressed his position as follows;

'...Apologies, The call was me expressing my frustration with the MIE progress and lack of cost control - nothing personal! Perhaps the mail below will provide some background to my frustration, long before you or [Participant P9], were involved [Vendor] were requested raise estimate for

(1) MIE legacy – see below

(2) Cross asset maintenance review – something similar

The verbal instruction was issued by the then Maintenance Manager to up man for the work. Unfortunately the cost codes (or RO's) never materialised, nor did the project direction. As a result we have spent significant man hours without a budget. I now have the job or trying to retrospectively do something with it!

Why am I frustrated?

• It happed on my contract and I saw it coming!!!

• I still need to allocate costs and budgets are getting tighter

• [Vendor] should not take verbal instruction alone, if additional hours are required [GasCo] should approved this by approving the necessary paperwork (PASS / CR) – this is Key to managing our costs

• MIE Team at [Vendor] is spending more time looking back than forward.

> On reading the MOM last week, I just thought Oh no here we go again. More steps back + no budget + no project controls = deeper hole. My response is stop digging until I can understand where we are going! I fully appreciate you technical support for the MIE work with [Vendor] we would not be making the same progress without you. Unfortunately every request comes at an additional cost. This need to be quantified and agreed before we proceed – it is the rules we apply to ourselves on PJ and [Vendor] apply to themselves...' Email [Participant P26] GasCo Project Manager

Such discussions led to internal feuds with blame for non-performance traded between various departments. In the end, in an attempt to avoid further internal escalation of the issue the Project Manager proposed to raise a complaint against the Vendor providing the service stating;

> 'I (am) intending on raising a Customer Complaint / Non Conformance Report under the [Vendor] contract something along the lines as below. Any comments?
>
> "Timely Execution of Maintenance Engineering deliverables is currently insufficient to enable [GasCo] to maintain newly installed equipment. [Vendor] is requested to put in place a recovery plan for GasCo's review. Recovery Plan needs to demonstrate how (1) [Vendor] will clear the legacy / backlog of Maintenance Engineering activities and (2) manage the current Maintenance Engineering activities now and moving forward. [Vendor] to report monthly on progress against plan until backlog is cleared. Objective is to ensure [GasCo]

> Maintenance Dept have all the necessary information to maintain handed over Projects and Modifications' [Participant P26] GasCo Project Manager

To which [Participant P22] replied;

> '[Vendor A] only have 4 engineers at present to tackle the outstanding projects and any new work. Only 3 Projects are being worked on at present and I'm afraid the capacity is just not there to complete all the Projects.' [Participant P22] GasCo Senior Maintenance Engineer

This was driven by the realisation by [Participant P22] that the solution did not lie in apportioning blame to other parties but there was a need to come together to address common systemic problems within the setting. Such truces therefore helped support efforts towards the intended objectives.

In another particularly revealing interaction, [Participant P21] who had been hired as part of the MIE team presented his resignation letter and indicated that he wanted to move on due to personal commitments. However, it would appear that he had been asked by other participants to state that his reasons for wanting to leave were due to issues with [Participant P22]; as he explained in his correspondence sent to his management and subsequently shared with [Participant P22];

> 'Just a few of my thoughts now that I've got a clearer mind with the pressure of handing in my notice no longer an issue. I've said it before but just want to reiterate that [Participant P22] is not to be blamed for my decision to leave, yes there have been some communication issues but I am no saint in this area and that can be said for most people. My main reason for leaving is that the job is

not enough for me, I don't get the feeling of satisfaction of a job well done when (the high five if you like!) compared to a dynamic construction and commissioning environment. I have been given an opportunity to return to that environment and, with the experience of hindsight I should be able to control my exposure to the pressures which can come from running your own company and hopefully not feel the need for someone else to take the pressures of management. And that's the point here, it's the prospect of controlling my own destiny again and not having to answer to someone with whom I have a difference of opinion with or getting frustrated because 'I wouldn't do it like that'. [Participant P22]'s heart is in the right place, I genuinely think he cares about the direction in which the department is going and what it represents, I am proud to have been associated with the team because between us we have turned its reputation around and are getting some genuine hard earned respect from departments out with our own. That does not happen without an element of good leadership, hopefully you are getting my point. I will be sad to leave, it's been a privilege to work with some really good people, I think that's part of what the problem has been for me, stuck between a rock and a hard place. Time will tell if I've made the right decision' [Participant P21] GasCo MIE Engineer

Notwithstanding all this, a dynamic of acceptance began to emerge over time where participants were willing to accommodate perceived shortcomings. Initially, all errors within the templates were highlighted as a major issue and used as an example of why the changes should not have happened. As explained by one of the participants after receiving a completed template for processing;

> ‘Attached final load file highlighting the few errors which I believe we can overlook as they relate to instances where a characteristic value has been specified against an object (Functional Location or Equipment), where the corresponding characteristic isn’t associated with that particular object type Class’ [Participant P18] GasCo SAP Data Analyst

Generally, the efforts to balance the ongoing existing routine with the new strategy required negotiation prior to acceptance. It was only when participants had the opportunity to evaluate the new arrangements fully that significant progress was made. As explained by one of the participants after testing the new PMCR workflow system;

> 'I think that went well. You see things work better if people have a chance to test drive. Just a little bit of hand holding helps!' [Participant P14] GasCo Senior SAP Data Analyst

Overall, the negotiations, truces and accommodations combined with pressures from ambiguity and the need to minimize rework generally resulted in the alignment with and orientation towards the intended outcomes as defined by the new strategy. However, where the negotiations were unsuccessful or when participants were not accepting of the new strategy, there were explicit patterns of misalignment and divergence which created infelicitous conditions for performativity as detailed in the following section.

4.5 Infelicitous conditions for the co-performation of routines and strategy

The co-performation of routines and strategy to realize the coordination and routinisation of new activities resulted in two dominant patterns: first the alignment with and orientation towards the intended outcomes which provided evidence for felicitous conditions for performativity and second; patterns of divergence from the intended outcomes which sought to maintain the status quo or subvert ongoing efforts creating infelicitous conditions for performativity. In particular, the new strategy had a significant effect on the daily performances of the SAP team; their daily activities had to be reconfigured significantly and they had to detail a lot of their knowledge so that it could be codified into templates. Therefore, there was a possibility that some participants wanted to maintain the status quo or subvert the intended outcomes of the new strategy as they may have felt particularly vulnerable especially in the prevailing harsh economic environment at the time. In addition, for some participants similar efforts had not turned out well in the past and they were not willing to risk a similar experience again. The outcome of this was patterns of divergence through either attempting to attenuate the controversial aspects of the new strategy or offering tepid support. These patterns of divergence were evident in the form of creating new uncertainty, apathy, ambivalence, conflict, antagonism and contradictions; details of which are provided in the sections that follow.

4.5.1 Creating new uncertainty

The creation of new uncertainty contributed to patterns of activities that sought divergence from the intended outcomes. Whilst participants facing ambiguity sought clarity; some participants generated new uncertainties that challenged the planned change strategy model. Notably, a large part of the workshops was devoted to reviewing the existing organizational capabilities, which included all the software tools that were available. It was established that that the existing suite of software tools which included a simple data upload tool (Quadrate) and another, internally developed, slightly more complex LSMW based tool (DFSP) were not capable of fulfilling the requirements for the business needs as detailed. A decision was then taken to investigate alternative tools available in the market which could fulfill the complexity associated with the PMCR routine. It was at this point that Winshuttle was identified as a potential solution and an evaluation was agreed – a typical use case was developed against which all the tools would be tested.

The development of the use case raised questions around how benefits to be realized would be measured. Some participants argued that there was no benefit to be realised from the introduction of a new tool – the manual data entry time would be merely transferred to 'engineering time'. In particular, [Participant P6] believed that there was no overall benefit – the introduction of the templates to facilitate automatic data entry meant that we were merely shifting the time taken by the Sap Data Analyst to the Engineers. This issue is illustrated in the diagram below;

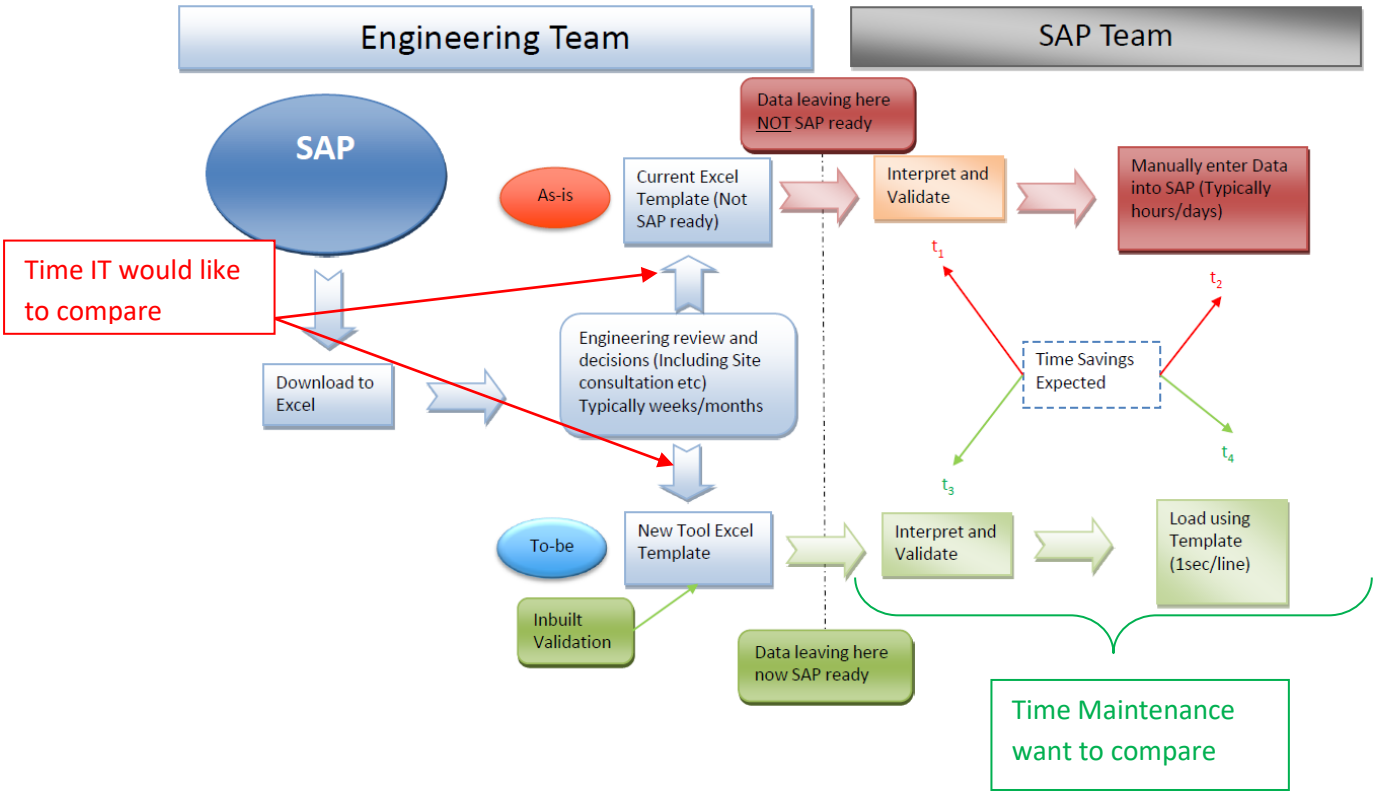

Figure 18: Evaluation of Time Savings

As one participant summarised the issue;

> '…. the main issue is that [IT Department] would like to include the time taken to load existing templates which is indicated by the red arrows below in the evaluation; whereas [Maintenance Department] are saying that as far as we are concerned this is engineering time. We concede that there may be a steep learning curve at the start in terms of getting used to the templates but with time as people start getting used to the templates the time difference will be negligible and hence we believe this is irrelevant to our discussion. We have therefore proposed that the time we consider is the time indicated in green below which for us is where most value will be gained. Therefore, the intention

of the meeting tomorrow is to agree on what time is measured in terms of selecting a suitable tool.

For reference, our concerns with including the time you want to include are (Indicative – not exhaustive);

1.That time taken to populate a template is contingent upon the availability of data – as outlined we use various sources for the data (drawings, codes, SAP etc)

2.We would not be able to get templates from all vendors to make this a fair comparison.

3.The time taken will vary with experience in using the template.

4.This time is something that is to be managed internally and not anything any tool can help us with.

5.As far as we are concerned this can be put under engineering time – although we concede that some of this time is being moved from the Methods Team time i.e. time taken to manually enter data into SAP can be considered in light of someone taking time to locate the right tab spreadsheet to compile the template but under the existing scenario this is done twice (i.e. Engineer takes data from source and adds to current template - SAP Analyst then takes data from a current template and manually types it into SAP). In the new scenario, this would be done only once (i.e. Engineer takes data from source and adds to current template - SAP Analyst validates data and automatically uploads to SAP with no need for manual typing)

Therefore, in our view the only time we should be considering is the time as shown by the green bracket but we can discuss further tomorrow.' [Participant P22] GasCo Senior Maintenance Engineer

Other participants however disagreed with this assessment stating;

'I've just had a conversation with [Participant P2] and [Participant P4] and they have reiterated my earlier concerns about not including the full process in the analysis, namely the preparation stage. In order to fully examine each option, it is necessary to start from the beginning and work all the way through to the end. This is not just for a clear estimation of the time spent on each process, but also to ensure that the templates that we are using are fit for purpose and don't cause any unforeseen issues… These two times are very important as firstly they will point out any flaws in the template system I've initially proposed, and secondly they may demonstrate a real need for Round Tripping if Quadrate cannot completely handle requirements. What will also become clear is whether there is any difference related to the format of the spreadsheet which may be a bigger issue than I initially thought' [Participant P3] GasCo IT Developer

However [Participant P22] disagreed, explaining;

'...The main reason is the engineering time takes as long as it takes, depending on where you are getting data from (common sources include P&IDs, Group Rules, Company Level 2 Documents, International Standards, OEM Manuals etc) (as I explained and [Participant P49] helpfully contributed). As outlined, once an engineer gets the required data from whatever source, putting it into a set

> template (be it a Quadrate template or Winshuttle) may have some time differences but these are probably negligible. So measuring how long it takes me to get this data is of no relevance here.' [Participant P22] GasCo Senior Maintenance Engineer

A test protocol was finally agreed where the total time taken from start to finish was measured. Tests were carried out against the three software tools Winshuttle, Quadrate and DFSP; and as expected Quadrate and DFSP were unable to handle the complex transactions that required multi-screen interaction, round-tripping data and conditional looping. It was agreed therefore that Winshuttle provided a superior solution and a business case was put together for senior management approval. However, prior to the delivery of the business case participants from the IT department advised that they could develop a solution based on Quadrate which would be very similar to the Winshuttle solution but at a fraction of the cost. As [Participant P3] explained the trade-offs;

> 'Quadrate struggles changing Classes/Characteristics and Task Lists (Work arounds exist). Winshuttle handles this but requires some programming on the side of the template before loading' [Participant P3] GasCo IT Developer

Following this, it was agreed to develop and implement the Quadrate solution at the earliest opportunity. Months later, participants were still awaiting the solution despite assurances that it would be deployed. This led to questions on why the solution could not be deployed;

> 'From our assessment and provided a full suite of templates is deployed; a Quadrate solution can provide what we require even though this may not be ideal. Given the cost of £150/year; we believe that it may be solution that may

be well suited to the environment; as the additional cost of other products for 'nice-to-haves' such as transaction linking, Custom Query Generation etc will be difficult to justify. Therefore, please advise if there is any reason why Quadrate cannot be deployed to the Methods Teams and selected vendor personnel if required as this would be the preferred solution? This answer could be prioritised to stop us wasting Vendor time etc' [Participant P22] GasCo Senior Maintenance Engineer

At this stage, IT questioned the use case – indicating that historical records from the vendor indicated that their activities were primarily focused on creating new functional location and changes to equipment characteristics. As [Participant P2] explained;

'The data would suggest to focus on functional location and equipment changes only as automating update on less than 10 items in probably not cost efficient. Is it purely based on these volumes and automating these changes we see the reduction from 6 to 2 Vendor people.' [Participant P2] GasCo Head of IT

This would have meant that the PMCR routine effectively remained as was. As Participant P22 clarified;

'As has already been discussed at various forums, the data delivered by [Vendor] to date is not reflective of what we expect them to be producing now or in future given the workload that we have. There are constraints associated with the above figures and the solution proposed is one of the ways in which we seek to improve that performance. In addition, there will be an additional vendor as already highlighted.' [Participant P22] GasCo Senior Maintenance Engineer

In spite of having defined and agreed the issues at start of the Project – questions on whether the planned changes were addressing the 'real' problem were raised. As one participant put it;

> 'Is the quality of the data the bigger issue and having the validation prior to the data appearing in the SAP Production system or is it equally important to reduce the head count mentioned within [Vendor]. The reason being there could be other ways/tools to ensure better engineering data quality' [Participant P2] GasCo Head of IT

To which Participant P22 clarified;

> 'I would say its a balance – reducing non value adding activities is key to ensuring that we are not wasting company resources and at the same time we have to ensure that we are not creating problems by altering the balance between data quality and cost savings. Therefore a solution that provides an optimum balance would be ideal' [Participant P22] GasCo Senior Maintenance Engineer

All this led to frustrations from participants that the IT department were merely seeking to delay the change; and this was raised as a discussion point. As Participant P22 clarified;

> 'To reiterate, the main point I would like to stress though is we are not looking to block the process or are against Winshuttle but want to ensure the investment it is worth doing and as yet it's not obvious from the analysis so far that the Winshuttle functions will automatically give us the savings and that

current tools could not maybe deliver a significant proportion of those same savings (or that there are potentially better alternatives to also be considered)' Participant P2] GasCo Head of IT

To which Participant P22 replied;

'I do believe that we all want a robust solution and as such questioning the need for the tool is very valid. However, the only concern is that we are not making any progress i.e. we keep being asked the same questions and giving the same answers. From my perspective, we need a clear answer as to whether the zero cost option meets the business requirements as per my email – if not, we should then look to identify solutions that do' [Participant P22] GasCo Senior Maintenance Engineer

In answer, it was agreed that Winshuttle did provide a better solution and we needed to proceed with the business case. At this stage an alternative tool was identified; DSP and it was agreed that the vendor would go through the use case that had been used to test the other software tools. Despite assurances from the vendor that they would go through a demo of the use case; on the day the vendor instead only spoke about how the software would fulfill the business case citing technical difficulties with going through the full demonstration. This meant that a key part of the business case – which was the realisation of time savings from manual to automatic data entry could not be demonstrated. In spite of this, participants from the IT department were willing to accept that DSP would fulfill the business requirements based on the explanation. This caused significant concerns within the setting, as one participant summarised;

> ‘My understanding was that a big part of the time saving is due to the ability to ‘roundtrip’ data being modified. This was not demonstrated by DSP as far as I am aware – only an explanation with a process flow diagram was shown and a verbal explanation given. My understanding was that DSP did not have the facility within their demo system to show this. However, we asked Winshuttle to fully demo their system which is when the ‘difficulty’ was identified. In addition, the PM module was not shown and although we specifically requested Winshuttle to demo the PM module (as the MM demo they had initially given was deemed not good enough). Therefore any decision on this aspect is being made on trust and not on something that we have actually seen.’ [Participant P22] GasCo Senior Maintenance Engineer

It was unclear what basis participants from the IT department were using to determine that DSP was suitable for the business use – a review of the vendor’s Case Studies and other material indicated that their solution was focused on data governance and data cleansing which would not necessarily address the problem. To compound matters, the IT department advised that they had become aware that Winshuttle had Sharepoint integration issues. Despite several requests for details on the challenges that this would cause, a clear answer was not forthcoming. As one participant enquired;

> ‘[Participant P6] had indicated that there may be issues that may arise in seeking to integrate Winshuttle onto the Company’s existing Sharepoint platform. My understanding was that the next step was to review the specifics of Winshuttle’s Sharepoint requirements and assess any potential concerns that may arise and advise what these are. Thats what my question relates to. Has this been done

and if so, what are the issues?' [Participant P22] GasCo Senior Maintenance Engineer

This was never directly addressed. Further meetings were held to develop the business case and despite the promised Quadrate solution not being delivered participants from the IT Department wanted it included as one of the final solutions for consideration. As [Participant P2] argued;

'… really not comfortable with removing the figures for Quadrate from savings. We believe they are as reliable as the other options. It is your slide and IS would recommend they are included but its your call. Would also like this line below removed as we don't agree with it: "Quadrate costs very difficult to quantify, however consensus is it provides a basic solution only and cannot handle complex tasks (Therefore Quadrate savings not stated as they are very difficult to demonstrate/justify)#2. Instead replaced with: "Consensus is the Quadrate will only meet the immediate need as applied to the Vendor scenario but will be very limited / not suitable for complex tasks when expanding the use beyond the current business case"' [Participant P2] GasCo Head of IT

In addition, questions around the suitability of DSP remained – [Participant P22] continued to query the suitability of DSP to the application despite assurances from IT that the business case would indeed be addressed;

'[DSP]..did not demonstrate the PM module nor the complex scenario as they said they did not have the facilities to do this despite several requests (please note that this is contrary to what was agreed at the start of this Project – my

> records indicate that it was explicitly agreed that all packages would need to demonstrate how they would handle a complex scenario step by step). However, IT are convinced that the product would be able to handle all scenarios and I am happy to go on their technical judgement' [Participant P22] GasCo Senior Maintenance Engineer

Furthermore, questions on reported Sharepoint issues were left unanswered despite several requests to clarify the issues;

> 'Sharepoint and plug-in issues for Winshuttle have been spoken about without actually going into detail as to what these are. Would it be possible to detail what these issues are and challenge Winshuttle on this and see if they have solutions?' [Participant P22] GasCo Senior Maintenance Engineer

For Participant P22, in order to progress the business case these two issues had to be addressed. As he explained;

> 'Therefore, for me if we confirm that DSP can handle complex operations without introducing too much complexity; then final choice is based on the higher cost for DSP compared to the Sharepoint concerns.' [Participant P22] GasCo Senior Maintenance Engineer

This questioning led to participants from IT accusing [Participant P22] of commenting on highly technical issues that he was not qualified to comment on. In defense, [Participant P22] clarified that these questions were relevant and justified, explaining;

'…, from my layperson's view and understanding the user experience of creating characteristics within the two products would be therefore very similar (Please note that my comments only refer to the process of manipulating the data within an Excel spreadsheet/template during the Engineering process and not how this data would be subsequently processed into SAP).I personally see the above comments as non-technical (as far as IT aspects are concerned) and more from an end-user perspective. I am not querying the technical codes behind each product or how each would achieve the task of getting this data into SAP but merely commenting on how a user will interact with the product to complete a required task (In the same way I could comment on how I would create a chart in Word/Excel for example without going into the technical detail behind it). Therefore, I am entirely comfortable with the above comments as I feel they are well within my remit to make as an end-user. I am also happy to be corrected if I have misunderstood any of the points above and as such would like to propose that we hold a quick conference call with each of the vendors this morning to confirm the above points if they are still in doubt' [Participant P22] GasCo Senior Maintenance Engineer

Following this, a meeting was held with key participants from IT and the Maintenance Department. In the meeting, IT stated that their preferred choice would be the DSP solution and the business case should reflect this. However, this did not go down well with [Participant P22], who queried this with his line manager [Participant P9], the Head of the Department. [Participant P9] reiterated that the business case had to be in line with what was agreed at the meeting as a common position was required;

'My understanding taken from last week's meeting is that we agreed to push for DSP. At this moment in time we need to mutual support and focus on getting the business case watertight as we also agreed last week. [Participant P2] mentioned padding and to an extend we need to prevent this , but highlight that there will be more gains in :

- Governance
- Potentials to x it towards methods (optimization PMCR flow)
- MM and other business users.

In no way we can sell our choice by referring that there are uncertainties in the data / comments we present, taking another round with both DSP & Winshuttle. Will put question marks back to IT . This is to be prevented now we have agreed at least one of the tools.' [Participant P9] GasCo Head of Methods

This however was not supported by the findings from the process agreed to evaluate all the options as [Participant P22] explained;

'…I am happy to support the decision to go with DSP but felt that it should be based on facts (and what has actually been witnessed). My comments relate to the fact that we are recommending DSP only on partial information and some of the statements made to support DSP have no basis on what we have actually seen nor is it a fair comparison with Winshuttle. Furthermore, DSP case studies on their website also do not show that they have clients actively using the PM module; and if the decision is made to do with DSP it should be clear that the project may take longer than anticipated or bring up problems later that we

> haven't evaluated. Based on my involvement with the evaluation process I can certainly say that the rigour with which we evaluated Winshuttle has not been applied to DSP (as per my email below)...' [Participant P22] GasCo Senior Maintenance Engineer

The business case was put together recommending DSP as the most suitable solution and with Winshuttle as the next preferred solution. However, despite all the input from the IT department to the business case, their department management stated that the final recommendation should be from the business department and should not include any reference to the IT department making specific recommendations;

> '[Participant P47] and [Participant P2] were clear the business case and the recommendation should be coming from the Business departments not [IT Department] so we will need to remove that reference' [Participant P2] GasCo Head of IT

This opened up the discussion on who would take ownership of the final recommendation given the concerns expressed by [Participant P22] on the suitability of DSP to fulfill the business case requirements. It was finally agreed that since [Participant P22] was responsible for the final deliverable, the recommendation would come from him – leading to the acquisition of the Winshuttle tool. This was an example of some of the contradictions and tensions within the setting – more examples are discussed in the section that follows.

4.5.2 Contradictions & Tensions

Tensions and contradictions were closely related to the uncertainty and ambiguity which was prevalent within the setting. This was exemplified when one of the new requirements for the new strategy challenged the new strategy overall. A key issue that emerged during the implementation of the strategy was the determination of who could attach new documents to the PMCR workflow system; the initial proposal had been to allow initiators to upload their own attachments. Under the existing system, the initiators had to email all attachments to the SAP Administrator who would then attach the documents to the appropriate PMCR resulting in a considerable burden. This suggestion however was not well received within the setting as one of the participants argued;

> 'Giving originators free reign to create and up-rev attachments in DocUK could have serious impacts, as attachments could then be changed during or after the original request has been undertaken without the knowledge of the person completing the PMCR. If we go down this route we would need some way of validating that the document version attached to the PMCR doesn't post-date the date stamp at each stage, and prompt the user when this situation is detected – unless there's some way that originator documents could be loaded to a specific location in DocUK and then moved to a final (indelible) format at PMCR approval stage.' [Participant P16] GasCo SAP Data Analyst

Initial efforts to address the issue as suggested proved problematic; there was no common location that could permit participants to place the attachments due to user permissions – there was need to retain the system open to any party to initiate a PMCR. On the other

hand, the burden for the SAP Administrator was unsustainable and processing PMCRs through the SAP Administrator had been identified as a particular pinch point. Given this, this key issue had to be addressed to the satisfaction of all parties; otherwise the changes would have been superficial. In the end, it was agreed to retain the rights for the initiators to upload attachments as required but these would be reviewed and finalized by the appropriate SAP Data Analyst who would save them in a specified folder that the SAP Team had access to.

The requirement to attach documents was a challenging one. This also could have been solved easily by the use of an inbuilt SAP transaction Z6, which allows users to create notifications at functional location level where the anomaly would have been identified. This solution would have reduced the likelihood of duplicating PMCRs as the user would be notified of outstanding notifications at that level before they created a new notification – and could also attach files. When this solution was suggested during discussions, [Participant P14] was adamant that the solution would not be implemented stating;

> 'You can have my resignation letter if that is the way you decide to go. This would put unfair burden on offshore personnel and is against everything we are here for' [Participant P14] GasCo Senior Sap Data Analyst

However, this was not supported by the fact that Initiators offshore had to go through the same process in any case when raising the request within the PMCR workflow form. It was unclear why this suggestion was controversial, perhaps that would have been too big a leap from the existing process. In the end the proposal was abandoned.

There were also tensions introduced through the realisation that some of the roles were duplicated across the vendor organization. During the RACI definition process, organizational charts from vendor organizations were shared with the GasCo participants and one participant expressed his surprise at the number of participants from the vendor companies;

> '...Blimey ! – there's loads of them !! I note the bottom tier of the [Vendor] Organisation chart are labelled as SAP Data Analysts - we need to ensure those positions aren't confused with the roles of [Participant P17], [Participant P21] & myself ?? ' [Participant P18] GasCo SAP Data Analyst

This was a reflection that some of the participants were unaware of the full scale of the PMCR routine. Arguably, the workshops had helped shed light on the scale and scope of the routine although the revelations only added to further uncertainty given that the solution to role duplication was unclear. The existence of underlying tensions was underlined by comments from one participant, a Sap Data Analyst. He decided to take early retirement citing that there was too much change for his liking; and in his farewell remarks, he pointed out the changes as the reason for retiring saying;

> 'Thanks to [Participant P22], his team and Winshuttle; they have convinced me that its time to retire' [Participant P17] GasCo Sap Analyst

There was also a lack of clarity on how the responsibility for the rework would be apportioned - as explained by one of the Technical Administrators;

> '…Basically maintenance plans were proposed by us [Vendor], accepted by [GasCo], put into the system and scheduled. As per normal procedure. However

> once the Work order kicked off on site, they realised that this was not going to work for them – see the first email below. In essence plan 6024791 need to be split further to spread the hours of work out. Electrical = 356 man hours; Switchgear = 55 man hours; Instrument = 58 hours; Mechanical – 40.5 hours. Total hours for the technical aspect of this plan only is 509.5 hours. [Engineer] and I have had an initial look however [Engineer] is going to have to now pull all the technical drawings out and work out the best way to break the plans down into manageable chunks of work…' [Participant P30] Vendor Technical Coordinator

Given that the work had been completed and approved by GasCo, additional costs had to be incurred to address the new changes. This led to ongoing challenges within the setting to efforts to address the rework – GasCo had to identify instances of poor quality work prior to approving PMCRs raised by the vendors; as approval of the PMCR was seen to mean that the vendor's task was complete. Furthermore, despite the vendor companies and the Projects department within GasCo expressing support for the ongoing changes the key performance indicators for the vendors remained unchanged. This meant that vendors had to complete new work while working to address the rework and backlog for no income – a situation which threatened the project's viability. This was resolved through senior management availing additional funds to support the project, although the tensions and contradictions had resulted in episodes of apathy and ambivalence as detailed in the next section.

4.5.3 Apathy & Ambivalence

"The differing reasons men give for their actions are not themselves without reasons" — (Wright, 1940)

Apathy and ambivalence are notably problematic concepts to define (Ashforth et al., 2014; Piderit, 2000; Randall and Procter, 2008). Within this context, apathy is to be understood as "lack of interest, enthusiasm, or concern" (Oxford Dictionary, 2017a) and ambivalence is to be understood as "having contradictory ideas about something" (Oxford Dictionary, 2017b). Within the setting, there was evidence of participants expressing a lack of interest in undertaking specific activities due to unfavorable outcomes from previous efforts. As explained by a GasCo manager who was tasked with supporting the program but was initially not willing to support all the changes required to fully revise the PMCR routine;

> 'I have had my fingers burned trying to undertake the full optimisation and I am not willing to take the chance again' [Participant P9] GasCo Manager

Further discussions were held with the manager and eventually an agreement was reached to progress the changes. As the co-performation of the strategy and routines progressed, there was contradictory information discussed amongst participants within the setting. Despite the fact that there was a single Project Manager assigned to oversee the changes and was authorized to communicate on the status, participants would nevertheless take decisions based on informal discussions and rumours. As one of the participants put it;

> 'I was helping [Participant P15] with a PMCR the other day and he told me that there is meant to be a presentation on the new workflow to clarify things? I am getting the impression that the workflow is still not firmly established and understood by everyone involved if it requires this further discussion. As you can

> imagine, it is difficult for me to justify spending further development time on implementing changes if the core of these changes are still being finalised, as it may result in the work that I put in being unused or discarded.' [Participant P5] GasCo IT Developer

The ongoing changes also meant that there was contradictory guidance, which resulted in considerable frustrations for participants. In one instance, participants selected to abandon their tasks altogether rather than continue to try to work to address the poor quality of the work that was produced as part of the existing routine. As the GasCo Senior Materials Analyst put it;

> 'We have been reviewing all DPUR created by [Vendor]. In general the quality of these are poor and do not meet the requirements of the guideline, see below comments. We have stopped checking any further Material Number for now. Can I ask that you request [Vendor] to review all DPUR created this year for quality and to ensure they meet the requirements of the guideline. I also sat with [Vendor] earlier in the year and reviewed the Material Master creation process with them so they should be fully aware of the requirements.' [Participant P44] GasCo Senior Materials Analyst

This issue was subsequently resolved – however it served to underline the challenges presented by the co-performation of routines and strategy. In another telling incident, [Participant P22] was instructed to ignore a request to pick up actions on the PMCR routine arising from a meeting held in the absence of key members of the MIE team. In response to a discussion on how best to proceed, the participant's line manager advised;

> ‘Officially and unofficially it seems there is quite some discussion ongoing on PMCR flow ? and HAE solutions and Vendor? On both I am not aware and will act accordingly, the one line by [Participant P51] that you are copied since there is some overlap. Discard this note and act like we are not aware .If one is not in a meeting one cannot be given an action (or statement : if not clear come back to me?) If people tend to discuss our controlled processes and workflow without any attendance that can make decisions or pick up actions then fine .They deal with it them self’s’ [Participant P9] GasCo Head of Methods

The actions in question called for [Participant P22] to justify ongoing changes to the PMCR workflow despite previous discussions and workshops. All this was causing concerns within management and the wider organisation. As one senior manager remarked in an email to [Participant P9] on the ongoing situation;

> ‘… Our inefficiency to support other entities is becoming a serious concern…’ [Participant P50] GasCo Senior Manager

In some instances, participants abandoned passively deviating from the intended outcomes through ambivalence and apathy through episodes of open conflict and antagonism detailed in the next section.

4.5.4 Conflict & Antagonism

For Le & Jarzabkowski (2015), conflict arises as a result of goal, process and relationship incompatibility, and can affect organizational performance significantly in both positive and negative ways (Le and Jarzabkowski, 2015). Over the course of the project, deep divisions began to emerge across the department and the wider organizations; resulting in open conflict and antagonism. Most controversial was the introduction of the Winshuttle software – some participants argued that it would lead to significant changes that could not be justified by the cost. During a meeting to discuss the matter one of the GasCo Site Managers' argued against the introduction of the software stating;

> 'We cannot have someone coming over here and changing things that have worked for over 10 years and have him move on after 3 years' [Participant P36] GasCo Site Manager

This was in reference to the fact that the manager leading the change was an expatriate who was posted on a 3-year rotational basis; an example of 'churn' (Buchanan et al., 2007; Hayes, 2014; Kotter and Cohen, 2012). As such, any changes that would be implemented which may have detrimental effects would not affect the expatriate manager and it would be up to the 'locals' to deal with the fall out. This was only resolved through the intervention of senior management. In another episode, one of the vendor companies offered to hand over their tasks to another vendor company; an offer which was flatly refused by the GasCo manager who stated unequivocally;

'…Disagree with [Participant P28], from his perspective this would be easy, drop the work and walk away. That will leave us with the problems, since we have nothing in place to go forward on for the long term. Secondly [Vendor B] and us will struggle getting information from their organization, So overall we are to reply - NO. He will have to go through the exercise with us and I agree that we should target the shortest period to get things up and running and in place…' [Participant P9] GasCo Manager

This would have hampered efforts to realize the new PMCR routine as the vendor company provided services to develop maintenance instructions for new projects. A possible reason for why the vendor company wanted to hand over their tasks was the challenge of dealing with the co-performation of routines and strategy. The additional demands to adapt to the new arrangements meant retraining of staff at a cost to the company which was not reimbursable under the then existing arrangements. In addition, there were ongoing challenges to budgets for the vendors with requests to 'copy and paste' maintenance from similar systems; an approach that the vendor company disagreed with;

'We disagree with the proposal that SAP costs can be saved by "cutting and pasting" from a previous flowline. While the individual items may be broadly the same, there will be detailed variations from flowline to flowline such as number of items, length of cable, material specification etc. In our experience, editing data that has been "copied and pasted" requires as much effort as inputting the specific data directly into the database. Furthermore as the "copied and pasted" data inevitably contains information that is not appropriate to the new flowline, there is an increased risk that incorrect data will be adopted

into SAP. Please be aware that, in the estimating process, the MIE hours were thoroughly challenged. The estimate adopted, based on factoring a recently completed flowline, represents less than half of an estimate based on known deliverables and established norms. We consider that the proposed budget of 570 manhours represents an ambitious target; we do not consider that this work can be completed in 400 manhours.' [Participant P43] Senior Vendor Manager

There was conflict in reporting the actual savings to management with disagreement on whether the savings should be measured against the Internal Approved Limit (IAL) or the budget for the year. As Participant P26 explained;

'IAL is an IAL not a budget; A Commitment is a commitment is not a budget. So how can we conclude a budget saving when comparing an IAL and a commitment….Measuring Apples / oranges and bananas come to mind.' [Participant P26] GasCo Project Manager

To which [Participant P49] replied;

'Not sure I understand what are the apples and what are the oranges and bananas, it is my understanding that we envisaged the approved work performed by Vendor would cost all of the approved IAL , we saved against the approved IAL, perhaps the wording below should read 73% below approved IAL , apples for apples?' [Participant P49] GasCo Senior Contracts Engineer

Managing relationships within key participants was critical to the realization of the intended outcomes as outlined in the new strategy. Conflict and antagonism could only serve to support efforts to subvert or attenuate the intended outcomes – resulting in a situation that

did not address the issues that had led to the development of the new strategy. The observation of the interplay between the two dominant patterns also led to some interesting findings which are detailed in the section that follows.

4.6 Performative Struggles: Patterns of Shaping & Reshaping the Strategy

The threat to resign from [Participant P14], statement from [Participant P17] that he was retiring due to the introduction of the new tool, the creation of new ambiguity through the introduction of multiple solutions and creating doubts about the proposed solution, frustrations from the wider organization on perceived lack of support on the tagging issue all combined to challenge the model's viability and suitability as a solution. Above all, the recognition of the proposed model as a solution, the accommodations of known errors, and the adaptation to the new arrangements drove support for the change and supported efforts to make the setting more like the model. The apathy and ambivalence, reluctance to commit to the new solution, the effect of churn all put pressure towards maintaining the status quo.

The disparate patterns detailed in the preceding sections emerged as two divergent dominant patterns: some patterns strongly favoured alignment/orientation to the stated goals providing support felicitous conditions; on the other hand there were distinct patterns that sought to maintain the status quo or subvert the program of ongoing change supporting infelicitous conditions. Combined; the interplay between the two patterns exhibit episodes of shaping and reshaping the planned change process. One of the stated goals of the change program emerging from the workshops was to introduce the Winshuttle tool to facilitate automatic data upload which would improve the data quality through data validation. However, fuelled by fears of what the introduction of the new software might imply given the codification of closely held knowledge into templates, efforts to challenge the requirement for the software emerged. One of the initial suggestions to challenge the

requirement for the software was an alternative solution from a software company that provided data governance capabilities – however the software capability fell short of the defined business case as it was not possible to codify data entry in a template using the software particularly for the more complex transactions for maintenance plans and measurement points. This alternative solution was therefore discarded on the basis that it could not fulfill the business case requirements.

Subsequent efforts sought to challenge the suitability of the software through arguing that it was very complicated to use as a solution. As one of the key participants explained;

> 'As a point following on from the meeting, I've got in touch with [Company] to check how they have done Material creation in the past with Winshuttle and this is the response I received:
>
> "We used it in a project for Client X to load up material masters. Reason there was that the customer actually was only trained and was responsible himself to load data (to cut costs). The problem is if you need to load up different material types it really gets complex and you need a template for each material type as well since config for material types drives which tabs and fields appear on the screen or are mandatory. I am not a fan of that… it's fine for a one-off migration, but rubbish as a permanent solution. You got the same problem if you use batch input on tx MM01 in LSMW, again, I would deter any customer from that."
>
> This is what [Participant P6] mentioned on Monday, in that there is a lot of ABAP built into the DFSP scripts in order to manage all material types through the 1 set of scripts. Without this work, you would need multiple templates, further

complicating the process. It may be possible to build a part solution with “IF” statements in Winshuttle however this would result in a very complicated solution for a problem that has already been solved with DFSP. As a note, it took over a month for [Company] to build the full MM01 solution (several sets of templates) for the project described above.’ [Participant P3] GasCo IT Developer

This was essentially unverified hearsay that was invalidated through requesting Winshuttle to demonstrate how the software would fulfill GasCo’s requirements. Therefore, despite these efforts the software was eventually purchased and deployed thereby overcoming efforts to subvert the intended outcomes of the strategy. There were however other efforts ongoing to reshape the intended outcomes of the strategy. Despite agreement with senior management to establish the MIE team – Site Managers contested the requirement for the team and their contribution. As a result, at the end of 2015 it was announced that there would be no further funding for the additional resources within the MIE team – as one Senior Site Manager explained in response to the request for funding;

‘…If [Maintenance Engineer] PAF [Purchase Order] was only to end of year - Then he shouldn't still be here - Who authorised his extension beyond October - He doesn't report to me and this contract is just a mechanism to bring him in for MIE work - You'll have to discuss with [P21] and [P8] to justify anything beyond October …’ [Participant P40] GasCo Senior Site Manager

To which another participant, also a Senior Manager replied;

‘…Don’t see any need for or have any budget for these guys from [Vendor]. They’re not in the new GMOC organization or scope approved by CMC, and

> therefore to my mind finish at year end. Im confident we can manage this optimization using the Lean team, and have more control that way…' [Participant P39] GasCo Senior Manager

This was met with disbelief and annoyance by the GasCo Site Manager who lamented;

> 'Great savings and good news if we now consider that all modifications MIEC and optimisation are done by LEAN team only … Thanks for that news' [Participant P8] GasCo Maintenance Manager

Although the efforts to subvert the acquisition and deployment of the software tool were unsuccessful - efforts to undermine the organizational structure setup for the MIE team were successful. This meant that the envisaged intended outcomes of the strategy were not fully realized as intended – in the end the realized outcomes differed significantly from the intended outcomes as the work was now to be undertaken by a different team altogether. The full dynamics of how this came about will never be known but evidence drawn from the ongoing interactions and observations support this finding which implies that efforts to reshape the strategy persisted in the background. Perhaps this can be best described as politics, which is "the observable, but often covert, actions by which executives enhance their power to influence decisions" (Eisenhardt and Bourgeois, 1988, p. 737).

There are several reasons for this observation. First, throughout the period of the co-performation of routines and strategy – deep divisions had emerged between participants mainly based along team lines; the Sap Team generally stuck together and spoke with one voice and on the other hand the Department management and the MIE team shared a common position. A number of the Sap Team had been with the company for a long time,

had helped setup the PMCR routine at its inception, and were very reluctant to accept changes to the activities that they had grown very familiar with over time. They had built a network of relationships with Sites and GasCo personnel, some of whom had since moved into senior managerial roles and it was interesting to observe Site Management expressing similar points of view to the Sap Team despite some of the management not being directly involved in the day to day activities of the PMCR routine. Second, there were ongoing feuds between GasCo Site management and the Maintenance support team management – generally related to the quality of maintenance support provided to sites. This was observable during planning meetings and other interactions whereby offshore teams sought to pass blame for equipment breakdowns to onshore teams and vice versa.

Therefore, it is likely that the activities of the MIE team eventually served as a site to settle some of these ongoing feuds and the truces, accommodations and negotiations only provide a partial picture. Third, the perceived 'deskilling' of the Sap Team through inscription (Akrich, 1992; Latour, 2005; Sarker et al., 2006) was particularly contentious and the success of the templates had led to considerable uncertainty within the Sap Team in GasCo. The implementation of the templates had already resulted in vendors significantly reducing their Sap teams while increasing productivity – a situation that was likely to lead to questions about the structure and size of the internal Sap team. In sum, the interplay of the dominant patterns of alignment and divergence during the co-performation of routines and strategy gave rise to performative struggles within the setting as evidenced by ongoing efforts to shape and reshape the strategy as explained above.

5 Discussion & Conclusion

This thesis set out to examine the conditions that support performativity and the extent of the performativity of a planned strategy change model in the context of a complex boundary-spanning, technology-mediated professional service routine that integrates work across functional boundaries. Through this work, I make four main contributions: First, through an analysis of the performativity space that emerges within the setting; I add to the list of known felicity and infelicity conditions alongside Aggeri (2017) and Ligonie (2017) for performativity within organizations. Through further analysis of the dynamic interplay of the felicity and infelicity conditions; I build on (Brisset, 2016, 2017)'s view that social institutions restrict performativity and propose a framework for the planned strategy change model's empirical limits to performativity. The framework outlines the extent of a model's performativity and demarcates the space for 'performativity struggles' and provides a basis for the analysis of 'performativity failures' for new strategy. Practitioners can focus on the performativity space to produce felicity conditions and tackle infelicity conditions in order to achieve the purposeful routinisation and coordination of organizational activities.

Second, building up on D'Adderio (2008, 2010) and D'Adderio & Pollock (2014), I then develop a model for the co-performation of routines and strategy, which accounts for framings, overflows and reframings through an analysis of the performativity space defined. Emerging from the setting and recognized in the model are two types of adaptation: adaptation due to strict performativity and adaptation due to outcomes from performativity struggles or overflows. Recognizing both forms of adaptation will lead to practitioners recognizing the progression and diffusion of the planned strategy change model despite

intended outcomes not being fully realized. The model represents a significant departure from traditional planned strategy change models and offers a new way to understand and plan for strategy change.

Third, alongside with (Burgelman et al., 2018; Cacciatori, 2008, 2012, D'Adderio, 2008, 2010; Dionysiou and Tsoukas, 2012; Jarzabkowski et al., 2015; Jarzabkowski and Kaplan, 2015), this work emphasizes the potential agency of material artifacts through detailing their role in enabling and constraining performativity while facilitating mutual constitution between the performative and ostensive aspects (Feldman, 2015). Findings from the study show that the introduction of templates that codified activities undertaken by the SAP Method Analysts resulted in a significant change to the role. Through adopting a sociomaterial view, which recognizes the sociomaterial assemblage or *agencement* that privileges neither the human actor nor material objects; the inherent agency in all organizational participants – including artifacts, emerges from the setting. The significant changes to participants roles due to the introduction of templates and technology is an example of this.

Finally, this thesis addresses the role of performativity within strategy praxis; a prominent but neglected phenomenon within the strategy-as-practice approach. Thus, I respond to calls to connect strategy-as-practice with other streams of work (Golsorkhi et al., 2015b) through detailing its linkages to routines theory and sociomateriality alongside other scholars (Balogun et al., 2014; Cecez-Kecmanovic et al., 2014; Feldman and Orlikowski, 2011; Jones, 2013; Orlikowski, 2007; Orlikowski and Scott, 2008; de Vaujany and Mitev, 2013, Feldman, 2015) and emphasizing the centrality of performativity theory to the field. Next I examine each of these contributions in turn.

5.1 The Performativity Space: Patterns of the Co-performation of Routines and Strategy

In response to the research question of: To what extent and under what conditions can a model be performative during the co-performation of routines and strategy – this work has detailed the organizational responses to the co-performation of strategy and routines to produce the routinisation and coordination of activities over a period of time (see Chapter 4). In so doing, felicity and infelicity conditions for the planned strategy change model are identified which serve to demarcate the performativity space within the setting (See Fig 5, p. 92). This recognition of the felicity and infelicity conditions presents a new platform for theorizing on the performativity of a planned strategy change model: a major omission from Callonian Performativity Theory (Brisset, 2016, 2017). I now proceed to introduce an analysis of the performativity space within the setting and develop a framework for the planned strategy change model's empirical limits to performativity; building up on (Brisset, 2016, 2017)'s view that social institutions restrict performativity.

The planned strategy change model was developed and implemented through a consensus seeking consultation process; and the challenges that the planned strategy change model sought to address and the positive outcomes that could be realized through the implementation of the model were articulated. The study investigated efforts to implement changes within the setting on multiple fronts; some aspects of the change that were realized include the introduction of new technology in the form of a software tool; the development of templates to codify key data; introduction of a new workflow process and the setup of a new organizational structure. Emerging from the data were two coincident patterns in response to co-performation of strategy and routines; first, there were distinct patterns of

felicitous conditions for performativity which were evidenced by adaptation, improvisation, rework and seeking clarity when faced with ambiguity; second, infelicitous conditions were evident in the form of dynamic patterns of apathy, ambivalence, as well as undeclared and at times insidious episodes of conflict, antagonism and contradictions. Examination of the interplay between the two patterns revealed episodes of performative struggles with ongoing efforts of shaping and reshaping the planned change model, which resulted in the realized outcomes being significantly different from the intended outcomes. Ambiguity and uncertainty were found to work in two ways; first participants seeking clarity found the solution in the proposed strategy and adapted to new practices to address the uncertainty, second participants created new uncertainty and ambiguity in some cases to support patterns of divergence from the intended outcomes.

In line with Aggeri (2017), this study finds that the felicity and infelicity conditions are by no means pre-given – "they are produced through a series of prior interventions" (Aggeri, 2017, p. 46). These prior interventions were the consensus seeking consultation processes that participants within the setting engaged in. The 'framing' or the intended outcomes were clearly defined from the outset and the deployment of the software and templates as well as the department restructuring were evidence of successful framing. When Participant [P16] took the initiative to adapt the templates to suit his requirements because he found the template introduced as part of the framing process cumbersome, this was evidence of adaptation and mutual constitution. On the other hand, overflows within the setting inevitably occurred; setting the scene for the participants' entanglement and challenging the framing resulting in unintended outcomes and disrupting the envisioned goals. For example, when Participant [P3] sought external experiences on the use of the software tool,

he introduced an overflow that challenged the framing proposed within the setting; supporting D'Adderio & Pollock (2014)'s finding "that overflows may be at least partially constituted outside the frame, from a theory's interactions with other theories operating within and beyond the organizational context" (D'Adderio and Pollock, 2014, p. 1837). The net effect of the overflows within the setting was that the realized outcomes differed significantly from the intended outcomes. Another example of this is when Participant [P31] resigned; this was not an intended outcome at the start of the process and the eventual dissolution of the MIE team with their work being taken on by the LEAN team was an unintended but realized outcome due to overflows within the setting. The introduction of alternative tools that served other purposes; the threat to resign from Participant [P14] and the statement from Participant [P17] that he was retiring due to the introduction of the new tool served to destabilize the framing.

A key finding from this work is that practitioners can focus on the performativity space to produce felicity conditions and tackle infelicity conditions in order to achieve the purposeful routinisation and coordination of organizational activities. This is in line with Gherardi (2012), who introduces the notion of an *equipped context,* which can be used to demonstrate how contexts are not simply neutral *containers* apathetic to ongoing actions that happen within them, "but rather contexts are treated as a prepared environment that makes it easier to accomplish tasks because the context is equipped so as to elicit their habitual use" (Gherardi, 2012, p. 98). Aggeri (2017) finds that the failure of a strategy change project is linked to the inability to produce felicity conditions for the process; emphasizing the importance of felicity conditions to the performativity of planned strategy change. In a similar way, this work finds that the prevalence of infelicity conditions leads to

performativity failures – although this work goes further through introducing an empirical link between the presence of overflows and the emergence of infelicity conditions.

5.1.1 Empirical Limits to Performativity

I now proceed to introduce an analysis of the performativity space within the setting and develop a framework for the planned strategy change model's empirical limits to performativity. Within this section, I build on (Brisset, 2016, 2017)'s view that social institutions restrict performativity and argue for the limits to performativity. However, it is worth emphasizing that limits for social concepts are esoteric and difficult to define. This is because these limits are multifarious and can be defined in a number of ways – they can be temporal, reflecting time-bound nature of the phenomenon; they can also be spatial, encapsulating the space-boundedness of the phenomenon or they can reflect the bounds of capacity (Abrahamsson and Simpson, 2011). Elsewhere, others argue that the relational nature within complex systems can make it difficult to demarcate a boundary and one must be careful not to overemphasize the closure of a boundary (Cilliers, 2005). This work focuses primarily on capacity limits; more specifically the delimitation of the purposive, distributed, agentic dimensions (Battilana and D'Aunno, 2009) for performativity. These capacity limits are in essence the limits to progression and diffusion of the planned strategy change model's performativity during the co-performation of routines and strategy to achieve the purposeful routinisation and coordination of organizational activities. In this sense, the limit separates and excludes – it demarcates the space for performativity and brings about a more singular understanding of the concept of performativity. However, there is always the possibility that this limit can be understood as a threshold to be challenged or pushed.

Drawing on the performativity space developed in Fig 5 [Page 92], and building up on dynamic interplay of the felicity and infelicity conditions, I now introduce a framework for the empirical limits to performativity; which demarcates the space for performativity struggles while accounting for performativity failures. The framework is shown in the figure below.

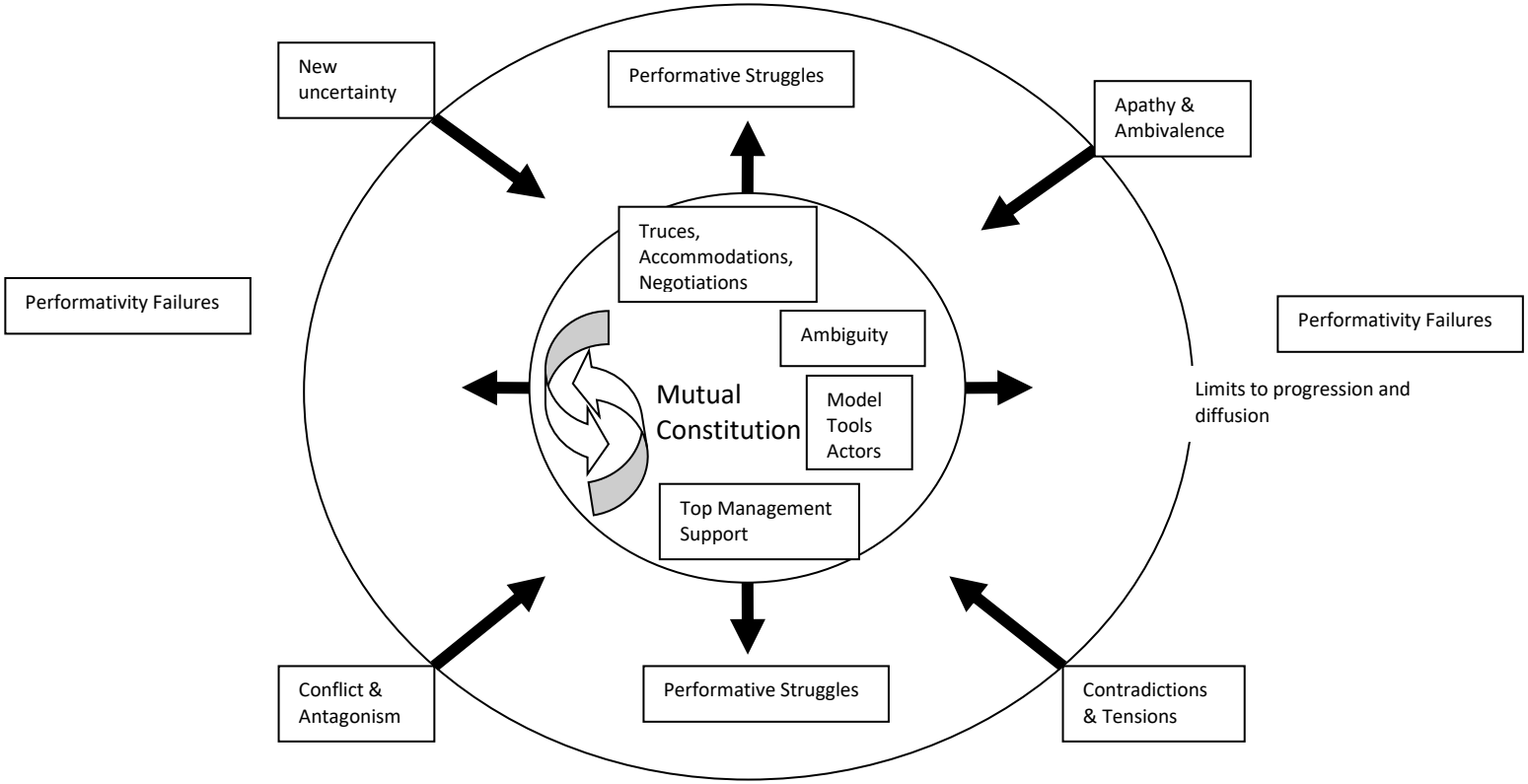

Figure 19: A framework for the Limits to Performativity

At the core of this framework, the dynamic interplay between the planned change model and the felicity conditions results in mutual constitution – which is best illustrated in Escher's 1948 lithograph "Drawing Hands"—where the left hand is depicted drawing the right hand, and vice versa (Feldman and Orlikowski, 2011). Within this zone where conditions of felicity are predominant; the verisimilitude (Callon, 2007) of the model increases and practices become more like the model. Immediately beyond this is the zone in which performative struggles which shape and reshape the model; with the possibility of performativity failures where infelicitous conditions are predominant. This space is temporary and fragile – a feature which is perhaps best expressed by Ligonie (2017); who argues that the realization of performativity "means that theoretical concepts and their associated social features must travel together across time and space to reach their audience and must be made relevant and felicitous in settings that are different from the ones in which they were enunciated" (Ligonie, 2017, p. 13).

Beyond this space, the dynamic interplay between the felicity and infelicity conditions gives rise to an interstitial space that can be characterised as the domain for performative struggles – alternative competing models constrain performativity through supporting apathy, ambivalence and conflict. As D'Adderio & Pollock (2014) argue, multiple theories and their ordering systems coexist within organizations; some in competition while others are complementary and serve to configure the organization (D'Adderio and Pollock, 2014). Competition between theories is manifest as "confrontations between multiple competing ordering systems (the theories, their rules and the array of sociomaterial elements that support them)"

(D'Adderio and Pollock, 2014, p. 1835). The success and trajectory of the model is dependent on the outcome of these battles – after all, for D'Adderio & Pollock (2014), "the effect of a theory [or model] can only be decided in *relation* to other theories [or models]" (D'Adderio and Pollock, 2014, p. 1816 Emphasis original).

Performativity failures lie outside this zone – they are the outcomes of unsuccessful performative battles. Key to understanding the performativity failure is the notion of performative agency, which arises from the sociomaterial *agencement.* In this relational ontology, capabilities and inherent properties are acquired through their constitutive entanglement (Callon, 2009; Orlikowski and Scott, 2008). Practices in this sense shape the possibilities for action and "[a]gencies are not attributes [of either humans or nonhumans] but ongoing reconfigurations of the world" (Barad, 2003, p. 818). The morphology of relations is not pre-given or fixed, but enacted in practice (Orlikowski and Scott, 2008). Therefore, performative agency is contingent on the success or failure to enact the morphology of relations, which is predicated on the dynamic interplay between the felicity and infelicity conditions.

5.2 A Model for the Co-performation of Routines and Strategy

I now draw my findings together into a conceptual model that explains the co-performation of strategy and routines to achieve the purposeful coordination and routinisation of everyday performances. Drawing on the previous section, where through analysis of the dynamic interplay between the felicity and infelicity conditions for the performativity of a planned change model I define the performativity space and theorise on the empirical limits to performativity – I now use the key concepts emerging from the data to develop a model for the co-performation of routines and strategy. Through positing the implementation of planned strategy change as the co-performation of routines and strategy, the performativity (MacKenzie, 2006) of planned strategy change emerges. The application of Performativity Theory in this study focuses on how 'theories shape realities' (Barnes, 1983; Callon, 1998a; Gond et al., 2015; Mackenzie and Millo, 2003; Pickering, 1995). According to Healy (2015), under Barnesian performativity "the model or theory must bring participants into line with its picture of the world" (Healy, 2015, p. 179) whereas the participants picture of the world being less like the model under counter-performativity (D'Adderio, 2008). Evidence of this is found in the interplay between the patterns of felicitous conditions that supported performativity and patterns of infelicitous conditions: the interplay between the two revealed performative struggles in the form of episodes of attempts of shaping and reshaping the strategy.

Despite the planned strategy change model being developed and implemented through a consensus seeking consultation process; with constant emphasis on the challenges that the planned strategy change model sought to address and articulation of the positive outcomes that could be realized through the implementation of the model; overflows inevitably occur - setting the scene for the participants' entanglement and challenging the framing resulting in unintended outcomes and disrupting the envisioned goals. Findings from this study show that intended outcomes and the realized outcomes lie in a spectrum; the zone between non-performativity – where there is no adoption whatsoever and full performativity (D'Adderio, 2008, 2010). In instances where the intended outcomes are realized, strict performativity is observed: which D'Adderio (2008, 2010) refers to as 'full prescription' (D'Adderio, 2008, 2010). As D'Adderio (2008) explains;

> "[f]ull prescription thus corresponds to 'fiat lux et lux fuit', as in the case of an automatically reproduced sequence of computer algorithms. At this extreme, which corresponds to the 'framing view' in Performativity Theory, there is very little adaptation as models are automatically reproduced. At the other extreme, there is the full demise or disuse of a model or tool, corresponding to the 'overflowing view' in Performativity Theory: the influence of the model is so weak that it is disused or rejected, and therefore not enacted in practice. One way to explain the demise of a tool or procedure, of course, is that individual agents have made the conscious choice to reject the model. Performativity, however, while not denying this possibility, affords us a more interesting

> explanation: the model as statement has not been able to put into motion a world in which it can function. In other words, the statement or formula has not been able to produce a successful socio-technical agencement" (D'Adderio, 2008, p. 776).

Also emerging from the study are performative struggles; which are a result of the battles between competing theories and models- and a direct result of the inevitable overflows that arise from any framing attempt (D'Adderio, 2008, 2010). These overflows were found to be constant; and continual reframing was required. The dynamic effect of these battles is to seek to shape and reshape the planned strategy change model; with the final realized outcome differing from the intended goal. For D'Adderio & Pollock (2014) the outcomes of such confrontations can only ever be emergent due to temporal and contextual variations over time within the setting (D'Adderio and Pollock, 2014). This meant that strict performativity in itself was temporary and fragile, forever being threatened by future overflows and the continual reconfiguration within the setting - for D'Adderio & Pollock (2014), the outcomes are iterative cycles of framing, overflows and reframing (D'Adderio and Pollock, 2014). Within the model, reality is an accomplishment from the multiple organizational theories and models being performed by multiple agents within a setting (Callon, 2007). The model is represented graphically below;

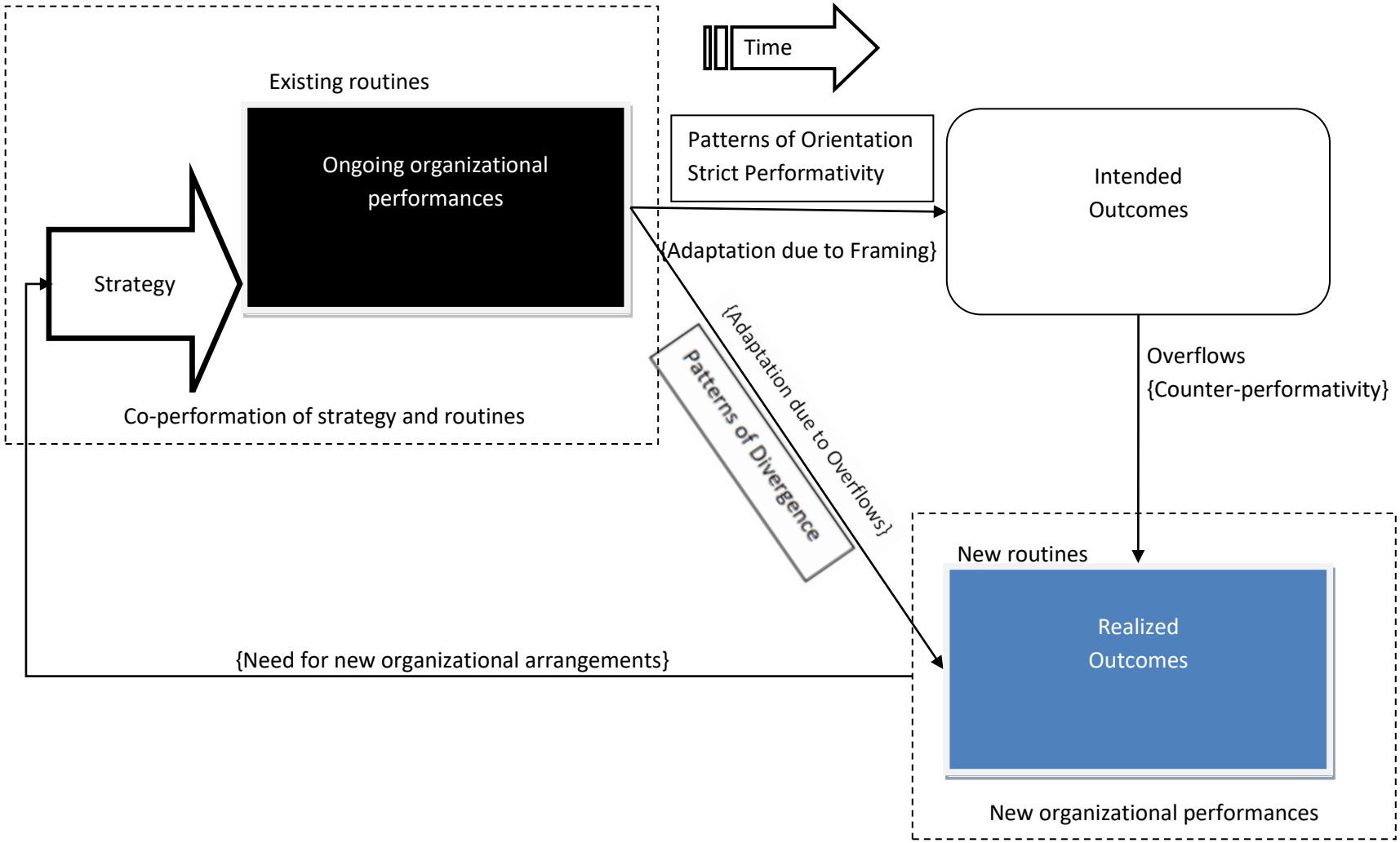

Figure 20: The Co-performation of Routines & Strategy Model

The model outlines two types of adaptation: adaptation due to strict performativity and adaptation due to outcomes from performativity struggles or overflows. Recognizing both forms of adaptation will lead to practitioners recognizing the progression and diffusion of the planned strategy change model despite intended outcomes not being fully realized. This model also inherently recognizes the agency of all organizational participants, not least of all that of material artifacts – there are no powerless pawns (Hayes, 2014). Participants within the setting have the capacity to change the trajectory in ways that are significant and make a difference. This view is particularly pertinent to the strategy-as-practice approach, which argues that all organizational participants contribute to strategy activities. Strict performativity is an outcome of successful framing whereas the degree of departure from the intended outcomes is an outcome from the process of entanglement-disentanglement of the agents as overflows occur within the setting (Callon, 2007).

The definition of success of a change program is at best a contested one; and this one was no different. A suitable data upload tool was identified and purchased which allowed specific templates to be developed and deployed such that the MIE team and the vendors were using standard templates with inbuilt business rules. As a result, direct access to the database was removed for the MIE vendors, allowing GasCo to exercise greater control over its CMMS. In addition, as data was being uploaded automatically, more time was spent validating the data prior to upload and there was been a marked improvement in data quality. Arguably, the new strategy defined within the MIE department at GasCo had resulted in an improvement in measurable metrics within the setting. Despite this, decisions were taken to

discontinue the funding for some key members of the team – observations and data from the study indicate that this was because of persistent efforts to reshape the strategy.

The model presented here accounts for the contested, iterative nature of planned strategy change. It recognizes the tension arising from defining a future state based on knowledge that is necessarily partial and accommodates the flexibility that is required and necessary to understand the ongoing dynamics during the implementation of planned change *viz* the co-performation of routines and strategy. Change practitioners need to be aware and indeed be prepared and have the freedom to revise the planned change trajectory in light of new knowledge. This fragility of the planned change model is particularly relevant in this new era on incessant and relentless change to the macro and microenvironment. After all, change efforts should be sustained "for as long as it is beneficial to do so" (Hayes, 2014, p. 34).

Interestingly, prior research has inadvertently accounted for the performativity of strategy: for example, Quinn & Kimberly (1984) noted;

> "Transitions are themselves transitional. As they evolve, different emphases on a different combination of values and assumptions may be required. When a change is initiated, existing patterns are disrupted and this results in a period of uncertainty and conflict. If key people accept and support the change, novelty turns to confirmation and eventually the innovation is routinised. As the process unfolds, practitioners are

> required to take on different orientations and styles" (Quinn and Kimberly, 1984, p. 303)

In the same vein, Denis et al. (2011) make reference to the concept of 'escalating indecision' whereby "*escalating indecision arises when participants become trapped in a set of practices and constraints that promote a particular project while at the same time preventing its implementation or stabilization*" (Denis et al., 2011, p. 241 Emphasis original). They found that practitioners are involved in a perpetual decision-making cycle without ever reaching a sense of stability. Recently, Le & Jarzabkowski (2015) found that;

> "Practitioners iterate back and forth between strategy process and strategy content issues, as they experience and respond to both process and task conflict. This iteration is critical, as actors cannot define all strategy content and process in advance and must follow an incremental, process-based feedback loop, identifying and resolving problems as these emerge during implementation" (Le and Jarzabkowski, 2015, p. 440).

The scale and magnitude of the problems identified by Le & Jarzabkowski (2015) and their role in shaping and reshaping the strategy perhaps varies with context but the ongoing challenge to the indended outcomes cannot be disputed. This is a view supported by Isabella (1990), who states "as change unfolds, different assumptions and orientations are required at different times in the process" (Isabella, 1990, p. 8)

and by Graetz & Smith (2010) who state “change is a natural phenomenon which is intimately entwined with continuity” (Graetz and Smith, 2010, p. 136).

This instability of change has however not been fully recognized as or linked to the performativity in previous work organizational change work that has been reviewed as part of this study. This work builds on D’Adderio (2008)’s work who recognized the performativity of standard operating procedures (SOPs) – she convincingly argued that SOPs do not merely prescribe or describe but are performed (D’Adderio, 2008). In contrast, the evidence here details patterns of behaviour that participants adopted within the setting as they grappled with the co-performation of routines and strategy to realize the purposeful coordination and routinisation of new activities and provides support for the performativity (MacKenzie, 2006) of planned organizational change: the patterns of shaping and reshaping the strategy are evidence of Barnesian performativity and counter-performativity as advanced by Mackenzie (2006). This is reflected in the model, which attempts to articulate the negotiated and complex activities of achieving purposeful reconfiguration of organizational activities through the co-performation of routines and strategy.

5.3 The Agency of Material Artifacts

For Spee et al. (2016), "[t]he relative neglect of the role of material artifacts – those things that are part of the everyday doing of strategy – in strategy research is in part due to inconsistent and overly broad definitions and theoretical conceptualizations of strategy practices, in which actors, objects and intentions are interwoven in a complex bundle of practices" (Spee et al., 2016, p. 41). This view is echoed by Chapman et al. (2015) who argue; "much current research associates strategy with the agency of people. Limiting agency to only intentional human actors limits what we can understand about strategy as practice; a more sophisticated concept of agency is of value [within the strategy-as-practice approach]" (Chapman et al., 2015, p. 665). As such, this work only seeks to highlight key areas in which the effects of the sociomaterial assemblage were most obvious. Therefore, shifting the implementation of planned strategy change from a 'process' view to a practice view that presents its implementation as the co-performation of the strategy and routines has provided a new platform to study this concept; the concept of sociomateriality allows for a clear and consistent view of material artifacts.

The practice based view of organizations is that they are "a bundle of practices and material arrangements" (Schatzki, 2006, p. 1863). Within this view, Orlikowski & Scott (2008) propose a "sociomaterial assemblage" view; away from "discrete entities of people and technology" to "agencies that have so thoroughly saturated each other that previously taken-for-granted boundaries are dissolved" (Orlikowski & Scott 2008, p.455). As such, within this view, "networks are a heterogeneous chain

of associations made up of multidimensional and evolving entanglements of human, non-human or collective actors (all are actants)" (Mutzel, 2009, p. 876). In this sense, for Law (1991) cited in Whittle & Spicer (2008), organizations can be understood as "networks of heterogeneous actors—social, technical, textual, naturally occurring etc—brought together into more or less stable associations or alliances" (Whittle and Spicer, 2008, p. 612). Through adopting a sociomaterial view which recognizes the sociomaterial assemblage or *agencement* that privileges neither the human actor nor material objects; the inherent agency in all organizational participants – including artifacts emerges from the setting.

At the core of this approach is organizational routines theory, and in particular routine dynamics – our understanding of organizational routines significantly changed with Feldman & Pentland (2003)'s seminal work. In this regard, materiality was very dominant within the setting. Although this may not be explicit in participants' statements and archival data; agency, technology and humans are all conceived as one – as an assemblage (Latour, 2005; Law, 2008; Orlikowski and Scott, 2008). As such, when participants within the setting use statements such as 'but according to DocUK' or 'I have to choose whether they go for on-shore review' such statements refer to entities which include technology and people in enabling or constraining the actions implicit or explicit in the statement. In this way, "everyday practice is *configured and reconfigured* by the multiple meanings and materialities that are fused together" (Orlikowski and Scott, 2008, p. 460 Emphasis mine). The sociomaterial assemblage enables or constrains performative agency within the setting and as Callon (1998) describes it; "[t]he capacity of an agent to make

autonomous choices, that is to say, to make decisions which do not merely fall in line with the decisions made by other agents, is not inscribed in her nature; it coincides with the morphology of her relationships" (Callon, 1998a, p. 9).

The cornerstone of the new strategy was the introduction of artifacts in the form of templates that codified key knowledge within the setting and unlocked a black box within the PMCR routine. Therefore, technology acted as agent for change within the setting (Mackenzie, 1998) and in particular the introduction of the new tools was legitimized by positioning them as technically necessary (Mackenzie, 1998). In this way, technology defined roles for people (Kallinikos, 2011); after all, "artefacts embody occupational knowledge and assumptions, and the expertise of those developing them" (Cacciatori, 2012, p. 1581). During the definition of the RACI (Responsible, Accountable, Consulted and Informed) chart, the assignment of activities was primarily determined by individual skills – whose requirements were defined by the technology in use. For example, the task of determining equipment characteristics was assigned to the engineers; who had the requisite skills to read and interpret technical drawings. On the other hand, assigning these characteristics to a specific functional location or equipment was assigned to the SAP Methods Analyst who had the skills to interrogate SAP and append the data within the appropriate screens.

Inscription (Akrich, 1992; Latour, 2005; Sarker et al., 2006) of this knowledge which was facilitated by the introduction of the new software tool changed this balance significantly as engineers could now assign this data in an Excel template to a specific functional location and/or equipment. In a similar way Cacciatori (2008) found that

Excel spreadsheets worked "as both memories storing experience about a specific product across projects and as boundary objects across different occupational and organizational groups" (Cacciatori, 2008, p. 1600). The templates facilitated standardizing (March and Simon, 1958) through codifying of all required combinations of various parameters for the asset data – reducing variation in parameters for similar equipment across the different sites. This resulted in a significant change to the role of the SAP Method Analyst with significant repercussions as already outlined: after all, for Kallinikos (2011); "Artefacts qua means are never neutral - they make some things possible and exclude others. Artefacts embody values or 'have politics' ..." (Kallinikos, 2011, p. 2). Such a sociomaterial view of planned strategy change is missing from prevailing models for the management of planned strategy change in extant literature (Boje et al., 2012; Burke et al., 2009; Burnes, 2009, 2014, Cameron and Green, 2009, 2015; Dawson, 2003b; Dawson and Andriopoulos, 2014; Grieves, 2010; Hayes, 2014; Jabri, 2012, 2016; Kotter and Cohen, 2012). The model presented in Fig 17 therefore goes some way in addressing this gap, although further work is required to explore the contextual dependence of the phenomenon. Through this new understanding, change practitioners can be better prepared to deal with the micro-dynamics of planned strategy change and can account for its performativity through constantly resetting and adjusting the intended outcomes based on the trajectory of the change.

Nevertheless, the agency of material artifacts (Battilana and D'Aunno, 2009; Cacciatori, 2008, 2012; Callon, 2005; Miller, 2002, 2005; Vaara and Whittington,

2012) is the subject of much debate and would benefit from further investigation. For some, seeking to extricate and define a separate agency for sociomateriality is futile; as Callon (2007) argues, *"[a]gencement* has the same root as agency: *agencements* are arrangements endowed with the capacity of acting in different ways depending on their configuration. This means that there is nothing left outside *agencements:* there is no need for further explanation, because the construction of its meaning is part of an *agencement*: A sociotechnical *agencement* includes the statement(s) pointing to it, and it is because the former includes the latter that the *agencement* acts in line with the statement, just as the operating instructions are part of the device and participate in making it work" (Callon, 2007, p. 320).

5.4 Implications for Strategy-as-Practice

Within the strategy-as-practice approach, strategy is defined "as a situated, socially accomplished activity, while strategizing comprises those actions, interactions and negotiations of multiple actors and the situated practices that they draw upon in accomplishing that activity" (Jarzabkowski and Spee, 2009, p. 70). Within this view of strategy, strategy-as-practice is "concerned with the doing of strategy; who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy" (Jarzabkowski and Spee, 2009, p. 69). Within this view, strategy is seen as an activity for all organizational participants in contrast to the prevailing 'process' view of strategy (Jarzabkowski and Spee, 2009; Whittington, 2007). The process view of strategy holds that strategy is preserve of top management (Jarzabkowski et al., 2007; Jarzabkowski and Spee, 2009; Whittington, 2007); the gap between these two views is perhaps succinctly articulated by Quinn (1978) who cites an interviewee in his paper that characterises strategic change as 'Logical Incrementalism' who stated;

> "When I was younger I always conceived a room where all these [strategic] concepts were worked out for the whole company. Later, I didn't find any such room … The strategy [of the company] may not even exist in the mind of one man. I certainly don't know where it is written down. It is simply transmitted in the series of decisions made" (Quinn, 1978, p. 7)

This statement captures the core argument of the strategy-as-practice approach and provides the foundation for the approach adopted here; that is the implementation of planned strategy change is in fact the co-performation of routines and strategy to realize the purposeful routinisation and coordination of new organizational activities. This study is therefore particularly pertinent to the study of strategy given that strategy and organizational change are virtually inseparable (Burnes, 2014; Hendry, 2000; Langley et al., 1995; Laroche, 1995; Mintzberg et al., 1990; Quinn, 1978; Sminia, 2009). This approach allows for particular attention to strategy praxis, a core concept within the strategy-as-practice approach. For Whittington (2006), strategy praxis is about the activities of strategy; for instance planning, issue selling and decision-making, done formally or through ad hoc meetings and offline attempts at influence" (Whittington, 2007, p. 1578).

As this work has demonstrated, "the locus of strategizing is dispersed (for anyone participating in the organization has the potential to engage in strategizing) and the instantiation of strategy may follow a complex, non-linear and less determinate trajectory involving the interplay of multiple conflicting logics" (Chapman et al., 2015, p. 664). Therefore, the findings from this study have significant implications for the strategy-as-practice approach – they support the view that the practice of strategy is certainly not the preserve of top management; various organizational participants have the capacity to influence the trajectory of the organization through various means. Previous studies have documented shifts towards a new strategy (Golsorkhi et al., 2015a; Seidl and Whittington, 2014; Vaara and Whittington, 2012), although "they have not always connected the (micro)practices of strategizing to the

broader macro-social institution of strategy" (Gond et al., 2017, p. 3). This study partially addresses this gap through detailing the micro practices related to strategy praxis, including their relationship with the broader strategy through articulating the performativity of the phenomenon.

A key criticism of the strategy-as-practice approach has been that extant studies have focused on describing observable patterns of behaviour rather than focusing on how these patterns come to exist (Chapman et al., 2015; Rasche and Chia, 2009). Performativity Theory presents a means to address this gap. For example, when, Denis et al. (2011) make reference to the notion of 'escalating indecision', in reference to a continuous process of making, unmaking and remaking decisions without appearing to reach closure within their setting (Denis et al., 2011) – they are in effect uncovering the performativity of the strategy concept outlined here. As such, the model for the co-performation of routines and strategy presented here would have been useful in unraveling the activities within their setting; in particular viewing the continuous process of making, unmaking and remaking decisions as attempted framings and the challenges to these decisions as inevitable overflows that lead to performative battles would have helped shape participants expectations and allow them to comprehend the situation.

Drawing on routines theory (D'Adderio, 2008, 2010, Feldman and Pentland, 2003, 2008; Feldman, 2000; Feldman et al., 2016) to illuminate the strategy-as-practice approach (Feldman, 2015; Golsorkhi et al., 2015a; Jarzabkowski and Spee, 2009) I adopt the concept of co-performation which shifts the analytic focus of planned strategy change as a stepwise process advocated by many models (Boje et al., 2012;

Burnes, 2009, 2014, Cameron and Green, 2009, 2015; Dawson and Andriopoulos, 2014; Grieves, 2010; Hayes, 2014) to a view of organizational change as a social practice (Nicolini, 2012; Schatzki, 2001). By establishing links to routines theory and performativity theory, this work contributes to the call to strengthen the strategy-as-practice approach by tying it to other sub-disciplines. This work has sought to detail the dynamic organizational responses to the implementation of a planned strategy change model in line with practice theory; for Cecez-Kecmanovic et al. (2014), "[t]he objective [of practice theory] is to develop an appreciation and articulate the dynamics of practice by observing and experiencing from different angles and perspectives how entities, people and technologies, their boundaries, properties and identities, are continuously performed, what the consequences are and for whom" (Cecez-Kecmanovic, Galliers, et al., 2014, p. 13). After all; "[o]ne of the key challenges for the future [for strategy-as-practice] is to strengthen, both on theoretical and on empirical fronts, its linkages to other important sub-fields in strategy" to reduce the risk of it being an isolated research approach (Golsorkhi et al., 2015b, p. 83).

5.5 Boundary Conditions

This work has argued for the performativity of planned strategy change from a situated context – a relatively small department within a large multi-national company and in so doing, the study has also made the inevitable choices for inclusion and exclusion. The context dependence of this concept requires further investigation; a study on smaller organizations or larger teams may exhibit different outcomes. For example, Ates (2017) advocates for management in SMEs to adopt participatory and open approach to strategy creation and change which may address "short termism and firefighting" (Ates, n.d., p. 8). In addition, this is a firsthand study of the concept from a boundary-spanning, professional service routine that is relevant to physical asset intensive organizations; further exploration of the concept across a wider audience in different sectors may yield evidence that corroborates or contradicts findings from this study. The agency of organizational participants in the modern organization has also been subject to debate (Latour, 2005; Law, 2008; Orlikowski and Scott, 2008) and further work is required to explicate in full the agency that can be delegated to material artifacts.

The study contributes to our understanding on organizing within modern organizations in answer to the call by Orlikowski & Scott (2008) to "study and understand the multiple, emergent, and dynamic sociomaterial configurations that constitute contemporary organizational practices." (Orlikowski and Scott, 2008, p. 434). Further work however, is required to explore the relationships, dichotomies and polarization that was manifest in the setting; potentially through a review of dialectical theory (Benson, 1977). The patterns depicting the dynamics at play here

could perhaps be described as dialectics: defined as “interdependent opposites aligned with forces that push-pull on each other like a rubber band and exist in an ongoing dynamic interplay as the poles implicate each other” (Putnam et al., 2016, p. 71). These aspects require an assessment of the cognitive aspects of human behavior which is beyond the scope of this work; which maintains a focus on action and observable behavior.

Further work can also explore the perlocutionary aspects of performativity, which is seen as causal (Maki, 2013). For Austin (1962), the perlocutionary aspect pertains to the “consequential effects upon the feelings, thoughts or actions of the audience, or of the speaker, or of other persons” (Austin, 1962, p. 101). For Boldyrev and Svetlova (2016), “perlocution is not about speaking under given, already institutionalized conditions of felicity, but about the creation of those conditions through persuasion and ‘making believe” (Boldyrev and Svetlova, 2016, p. 16).

5.6 Conclusion

To conclude, this work sought to achieve two objectives. First, this work has sought to establish conditions under which a model can be performative during the co-performation of routines and strategy. Second, I have sought to establish the extent of the performativity of a planned strategy change model; and thereby demarcate the empirical limits to the performativity for a planned strategy change model. In so doing, this work makes a contribution in a number of ways in addition to providing a rare (Denis et al., 2011), firsthand empirical account of the formulation and implementation of a strategic initiative that explicitly argues for the performativity of planned strategy change (Spee and Jarzabkowski, 2017). First, through an analysis of the performativity space that emerges within the setting; I add to the list of known felicity and infelicity conditions alongside Aggeri (2017) and Ligonie (2017) for performativity within organizations. Through an analysis of the dynamic interplay of the felicity and infelicity conditions; I build on (Brisset, 2016, 2017)'s view that social institutions restrict performativity and propose a framework for the planned strategy change model's empirical limits to performativity. The framework outlines the extent of a model's performativity and demarcates the space for 'performativity struggles' and provides a basis for the analysis of 'performativity failures' for new strategy. Practitioners can focus on the performativity space to produce felicity conditions and tackle infelicity conditions in order to achieve the purposeful routinisation and coordination of organizational activities.

Second, building up on D'Adderio (2008, 2010) and D'Adderio & Pollock (2014), I then develop a model for the co-performation of routines and strategy, which

accounts for framing, overflows and reframings through an analysis of the performativity space defined. Emerging from the setting and recognized in the model are two types of adaptation: adaptation due to strict performativity and adaptation due to outcomes from performativity struggles or overflows. Recognizing both forms of adaptation will lead to practitioners recognizing the progression and diffusion of the planned strategy change model despite intended outcomes not being fully realized. The model represents a significant departure from traditional planned strategy change models and offers a new way to understand and plan for strategy change. Third, alongside with (Burgelman et al., 2018; D'Adderio, 2008, 2010; Dionysiou and Tsoukas, 2012; Jarzabkowski et al., 2015; Jarzabkowski and Kaplan, 2015), this work emphasizes the potential agency of material artifacts through detailing their role in enabling and constraining performativity while facilitating mutual constitution between the performative and ostensive aspects (Feldman, 2015). Through adopting a sociomaterial view which recognizes the sociomaterial assemblage or *agencement* that privileges neither the human actor nor material objects; the inherent agency in all organizational participants – including artifacts, emerges from the setting. The significant changes to participants roles due to the introduction of templates and technology is an example of this.

Finally, this thesis addresses the role of performativity within strategy praxis; a prominent but neglected phenomenon within the strategy-as-practice approach. Thus, I respond to calls to connect strategy-as-practice with other streams of work (Golsorkhi et al., 2015b) through detailing its linkages to routines theory and sociomateriality alongside other scholars (Balogun et al., 2014; Cecez-Kecmanovic et

al., 2014; Feldman and Orlikowski, 2011; Jones, 2013; Orlikowski, 2007; Orlikowski and Scott, 2008; de Vaujany and Mitev, 2013, Feldman, 2015) and emphasizing the centrality of performativity theory to the field.

In sum, this study makes a significant contribution to strategy-as-practice. Aside from the empirical contribution of establishing the performativity space, which demarcates the limits for performativity, the study also foregrounds the dynamics at play as participants within the setting grappled with the co-performation of routines and strategy to realize the purposeful coordination and routinisation of new activities. This work has established the production, existence and persistence of felicity conditions for the performativity of a planned change model and detailed how these felicity conditions are limited or bounded. By so doing, I establish key performativity factors that influence the progression and diffusion of a model within an organizational setting and thereby define the boundary for performativity. In this context, the limit sets a delimitation for the purposive, distributed, agentic dimensions (Battilana and D'Aunno, 2009) of performativity; key to eliciting its contextual applicability. Defining the performativity space contributes to the study of how organizations are sites and outcomes of performative struggles, as called for by Gond et al. (2015) (Gond et al., 2015). I also provide important conceptual contribution in the form of the Model for the Co-performation of Strategy and Routines that practitioners can use to better plan for planned strategy change allowing for performativity as outlined in the model. This will go in some way to contributing to the strategy-as-practice's goal of achieving "a societal shift towards

better everyday strategizing praxis, empowered by more effective practices and a deeper pool of skilled practitioners" (Whittington, 2006, p. 629).

6 Implications for Managerial Practice

This work has provided a rich case study which establishes the *production, existence and persistence* of felicitous conditions for the co-performation of routines and strategy: I find that pressures from ambiguity; pressures of rework/inefficiencies; synthesis, adaptation & improvisation and truces, accommodations & negotiations support the operational model that seeks to successfully transform the setting in order to meet intended objectives. On the other hand, I also identify infelicitous conditions: conditions that result in the failure of the strategy to progress in the form of creating new uncertainty; contradictions and tensions; apathy and ambivalence as well as conflict and antagonism. Furthermore, I find that Performative Struggles consists of patterns shaping and reshaping the strategy.

Building on these findings, I propose a **Framework for the Empirical Limits to Performativity** for a planned strategy change model. The framework outlines the extent of a model's performativity and demarcates the space for performativity struggles and performativity failures. I also propose a **Model for the Co-performation of Routines and Strategy**. The model outlines two forms of adaptation, adaptation due to strict performativity and adaptation due to performativity struggles and accounts for performativity failures. The model allows for recognition of progression despite intended outcomes not being fully realised and inherently recognises the agency of all organizational participants and also accounts for the *fragility* of *strict performativity*; it is forever being threatened by

future overflows. Next, I discuss how these findings can be used by practitioners to support the progression of a planned strategy change model.

6.1 Affordances from Felicitous Conditions

This work argues that practitioners can focus on *interventions* within the performativity space to produce felicity conditions; in line with Aggeri (2017), who also contends that the felicity conditions are by no means pre-given – "they are produced through a series of prior interventions" (Aggeri, 2017, p. 46). For a practitioner, being aware of felicity and infelicity conditions provides opportunities to modify the social agencements within the setting to take advantage of the affordances they offer: that is they invite specific uses, can shape and at the same time constrain those uses (Jarzabkowski and Kaplan, 2015). Building on Gherardi (2012)'s concept of an "equipped context" which details how contexts are not simply neutral "containers" indifferent to ongoing actions that happen within them; but rather contexts are treated as a prepared environment that makes it easier to accomplish tasks because the context is "equipped" so as to elicit their habitual use (Gherardi, 2012, p. 98): practitioners can focus on the *morphology* of the social agencements within the setting to facilitate their objectives. Adopting a sociomaterial view recognises the presence of sociomaterial assemblages or agencements; this view privileges neither the human actor nor material objects. The setting can be understood as relations that are enacted and emergent; with action predicated on the morphology of those relationships (Callon, 2009).

Building on Jarzabkowski & Kaplan (2015)'s concept of strategy tools, which are recognised here as part of a sociomaterial agencement, I join Jarzabkowski & Kaplan (2015) in urging practitioners to make appropriate use of strategy tools but also

caution managers against using strategy tools to justify or support their political interests (Jarzabkowski and Kaplan, 2015). An awareness of pressures from ambiguity; pressures of rework/inefficiencies; synthesis, adaptation & improvisation and truces, accommodations & negotiations within the setting presents a practitioner with an opportunity to enhance the progression of the model through offering the new agencements as a solution to the challenges. This also presents practitioners with an opportunity to adapt the morphology of the agencement within the "equipped context" to deliver the intended objectives of the planned strategy change model. Next I investigate how practitioners can deal with infelicitous conditions to support the progression of the planned strategy change model.

6.2 Mitigating Infelicitous Conditions

There were conditions that challenged the planned strategy change models' progression: creating new uncertainty; contradictions and tensions; apathy and ambivalence as well as conflict and antagonism all proved infelicitous for the progression of the model. Giving rise to the infelicitous conditions were some dynamics that were within the capacity of the organizations' influence; for example, the issue of churn resulted in animosity – newcomers with no knowledge attempting to destroy an established order. To address this, practitioners can empower established participants within the "equipped context" to lead the progression of the model. However, this does not mean that these challenges disappear through seeking to manage them; after all the paradox of planned strategy change is that "the very attempts to order, control and align human subjects are inevitably unsuccessful in eliminating uncertainty and ambivalence"; in most cases they "end up increasing the very ambiguity and ambivalence that they sought to purge" (Badham et al., 2012, p. 515).

Therefore, practitioners have to remain vigilant to the possibility of infelicitous conditions and be ready to adapt the "equipped context" to facilitate and foster the presence of felicitous conditions. Evidence suggests that performativity struggles can result in the models' progression via adaptation or performativity failures; if practitioners are alert to the presence of performativity struggles they can take the opportunity to reframe any overflows to support the models' progression. For example, regular meetings with all stakeholders, team building activities during the

implementation of a model of planned strategy change, anonymous surveys can help ensure that stakeholders are engaged in the model's progression. Next, I examine how the Model of the Co-performation of Routines and Strategy changes the traditional view of planned strategy change.

6.3 Managing Expectations

The Model of the Co-performation of Routines and Strategy presents a new way to plan for and manage planned strategy change. Despite extant literature being replete with models of how best to manage change (Boje et al., 2012; Burnes, 2009, 2014, Cameron and Green, 2009, 2015; Dawson and Andriopoulos, 2014; Grieves, 2010; Hayes, 2014), dealing with and implementing organizational change is far from trivial. Change remains a fundamental managerial challenge and has proved to be a perennial problem to scholars and practitioners alike. In many instances, change has been implemented with unforeseen consequences or in unanticipated ways - disrupting the understood everyday performances (Balogun, 2005; Balogun et al., 2015; Burnes, 2014; Grieves, 2010; Hayes, 2014).

Traditional models of planned strategy change typically assume a linear, finite and predictable phenomenon have proven inadequate as a toolkit for managing planned change (Graetz and Smith, 2010). This work highlights the temporal fragility of any stability that is achieved. Given this, the nature of planned change within a setting must therefore never be taken as fixed or stabilized – contextual factors will continue to shape the model resulting in a changed model from the one premised at the outset. As such, outcomes of the change program should be considered in light of the changed model as the setting is continuously in flux (Burnes, 2009; Dawson and Andriopoulos, 2014; Feldman, 2000; Orlikowski, 1996; Weick and Quinn, 1999).

There are significant implications for planned change to be derived from these findings. Planned strategy change models are typically considered fixed within a

setting and their success measured against objectives and measures defined at the outset of the planned change project. This is in fact a denial of the inherent dynamics at play within the setting – which are themselves are in a state of continuous flux as detailed above – while the model is itself is continuously being shaped by the setting as it is shaping it as outlined by the concept of Barnesian performativity. As such, the measures and objectives for the success of the planned change implementation should also be changing as the model changes to account for the revised model. Such an understanding allows practitioners to maintain their integrity in the face of challenging circumstances which arise from being an agent of change; and they can point to successes they were able to achieve along the way even though the overall objectives are not realized. Given this, the reported failure of planned change models may need to be reviewed in light of this evidence.

7 References

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8 Appendix 1: Database Screenshots

A	B	C	D
First-Order Themes (Codes)	Comment	Name	Dat
Rework Improvisations Tensions	'...Basically maintenance plans were proposed by us, accepted by [redacted] put into the system and scheduled. As per normal procedure. However once the Work order kicked off on site, they realised that this was not going to work for them – see the first email below. In essence plan 6024791 need to be split further to spread the hours of work out. Electrical = 356 man hours; Switchgear = 55 man hours; Instrument = 58 hours; Mechanical – 40.5 hours. Total hours for the technical aspect of this plan only is 509.5 hours. [redacted] and I have had an initial look however [redacted] is going to have to re-write all the technical drawings out and work out the best way to break the plans down into manageable chunks of work...'	[redacted]	30/10/2013
Ambiguity Actors within networks Tensions	'...PMCRs numbers 11746 11747 11748 11749 11750 11751 11752 11754 11755 111745 11748 11749 11760 11761 11762 11763 and 11764 - Are all [redacted] bench, raised by [redacted] they are all just waiting endorsement. If I endorse them they will move from me to someone else. They are all for Modification 24_8294 [redacted] have to choose whether they go for on-shore review, no technical review required or technically reviewed at site – which do I go for? And who will get them depending on what I select? I want to pre-warn you that these are going to land straight to someone else, as it is a lot in one go!..' [redacted]	[redacted]	14/11/2013
Model building	'...I would like to organise a Workshop in the New Year to go through the MIE [redacted] process with all relevant stakeholders to ensure that we have consensus ad idem on what we are doing. The plan is to have a half-day workshop with the following parties involved; [redacted] MEC team (Engineers + TAs), GSOC Team, • SAP Team We will get presentations from various parties on all the Workpacks along with the deliverables and make sure all parties understand what we will be delivering. I also plan to ask the following parties to make presentations on their expectations; • SCE Team (WP9), • Materials Team (WP6), • Inspection Team (WP5), • SAP Team (WP8) Other parties e.g. Projects etc can also be invited if required. We are looking at about 22 people in total involved so it may be that we will need to book a function room maybe at the [redacted] would be grateful if you could let me know your thoughts on this...' [redacted]	[redacted]	21/11/2013
Improvisations Ambiguity	'...Our Engineer [redacted] raised PMCR 21434, however he picked [redacted] as the person to endorse it instead of me, is there anyone you can re-direct it to my work bench for endorsing? Also can [redacted] names be taken off the list to ensure that other PMCRs do not get sent to the wrong person?..' [redacted]	[redacted]	28/11/2013
Ambiguity	'...Basically I can create the tags no problem, what I am concerned with is where in the system to hang it, and I am not confident of putting items straight into your live system. Also who would be responsible for the metadata for the valves?' [redacted]	[redacted]	03/12/2013
Model building	'...Fully supportive to this session. From my part there are some points that should be the guideline for the workshop: Like mentioned by yourselves "work packs ". Others would be : • DFSP • EMCR • Owner / responsible / ideal set up for workflow – out of the box . • Some examples but not limited to these ones. Furthermore the drive should be to explore the Procedures and workflows that we have in place , interconnection s between different parties . Do we have closed loops and feedback build into workflow etc , experience change out . There are quite some topics to be addressed and it might take a full day to have sufficient time to work out comments etc. Please prepare agenda for the day and expectations from different parties so we can discuss with [redacted]'	[redacted]	08/01/2014
Ambiguity Actors within networks Tensions	content either hasn't been reviewed in detail, or the reviewers didn't realise that the content of this instruction will appear on EVERY Electrical Work Order we issue. E-1-000 appears to be a hybrid of random instructions, and the result is simply a mix of confusing statements which will not be applicable to the majority of Work Orders on which they appear – I note many of the "generic" instructions – such as checking wiring, earthing, Anti-condensation heater etc are repeated on the equipment specific standard tests anyway, which negates their requirement on the generic header. I know you weren't responsible for authoring this test, or for proposing the introduction of a generic test. Based on my comments attached, I think we should seriously consider abandoning the use of E-1-000 as a generic standard test – it adds no value and will undermine the confidence of the end user in the overall Work Order content ..'	[redacted]	20/01/2014
Improvisations (completed 2005 - processed 2014) Ambiguity	'...N28 & N27 are under modification by [redacted] should have created the necessary plans, but according to DocUK (t [redacted] the job was completed in 2006. It looks like [redacted] oversight in completing this Mod. If you could you raise the PMCR (only one required for the 3 wells) and I'll get them processed in SAP...' [redacted]	[redacted]	20/01/2014
Ambiguity	3 - "Measure 20 meters from the electrode to be tested and drive the first test spike 30 centimetres in to the ground. This is the mid spike or the potential electrode. Measure another 20 meters and drive a second test spike in to the ground. This is the last spike or the current electrode. The electrode and the two test spike must be on a straight line as much as possible" 4 – Connect mid spike to terminal P2 and last spike to terminal C2 5 – Take measurement 6 – Take two more readings with the mid spike moved about 3 meters from the mid point (ie 17 and 23 meters from the electrode test) Since [redacted] an offshore installation with approx 93M water depth, I suspect this instruction may be difficult to perform !! – could you advise if this section should be deleted, or provide alternative text to replace it? [redacted]	[redacted]	20/01/2014
	Meeting [redacted] Backlog report to include all work - no exclusions Revision codes/ GSOC KPIs	Observation - Notes	20/01/2014
Improvisations raised 2010 aproved 2014	...As per our discussion, on monda [redacted] ding the PMCRs you have raised back in 2010 (PMCR11989 and 11999). I have reviewed and approved them, they are now awaiting implementation by the SAP team...' [redacted]	[redacted]	22/01/2014
Improvisations	PMCR may take a while to complete but it has been found that a number of the DB's listed have not been receiving regular scheduled maintenance...' [redacted] [Example of direct requests from site]	[redacted]	23/01/2014
	[redacted] Backlog Meeting • Can't do same as other sites Work based on monthly plan, weekly plan would not work	Observation - Notes	24/01/2014
	[redacted] Standard Tests Meeting [redacted] Developing own Standard Text Existing test deemed incoherent and declined to interrogate SAP as part of build DFSP to be used for the build However DFSP not fully developed and ability to review Maintenance Plans or export plans not available	Observation - Notes	29/01/2014
Emotion [redacted]	[redacted] Target workload for GSOC is 40000hrs Backlog target increased from 10k to 15k although fabric maintenance & Inspection still excluded On average 3-6 deferrals accepted per month Projects and Modifications completions contributing to backlog Delivery of spare parts list 2 months prior to commissioning [redacted] [redacted] Manager) - 'we cannot have someone coming over here and changing things that have worked for over 10 years and have him move on after 2 years' He disagreed that no-one has seen the figures outwith maintenance' [redacted] [redacted] were 62 35 of these had been closed giving 56% completion REVIEW following meeting - only 13 completed, 19% of KPI element	Observation - Notes	31/01/2014
	Meeting [redacted] Way forward Reluctance to change existing operating model, other affiliates within the Group incorporate MIEC within EPCC Management happy to consider alternatives particularly Group Partners like [redacted] [redacted] anted to piggyback software upgrade project onto optimisation project	Observation - Notes	10/02/2014
Ambiguity	"Please can you provide some guidance to how I should go about ensuring WGPSN are using the correct structure of alarm tagging structure. We will be replacing th [redacted] Caterpelle generators with two MTU diesel driven alternator sets. During recent FAT testing we found the alarm tags to be in accordance with MTUs standard tag allocation. Can you advise any procedures or who I need to discuss it [redacted] to discuss whenever is convenient for you..' [redacted]	[redacted]	10/02/2014
	KPI's contribute 12.5% of overall score - how useful is this as a measure? Targets were elimination of backlog legacy by 2013	Observation - Notes	11/02/2014
	Observations on discussions regarding [redacted] maintenance MIE Dept 'Bemused observers' - no-one seemed to be taking any notice of approval process not being followed Std Text was to be put through to SAP without being reviewed		

	A	B	C	D
		Meeting with [redacted] Additional to 15 hours spent on 05/01 Indicates that he has clear understanding of process after discussing with [redacted] Not happy that time spent engineering the data for the template is not included (not sure why this would be his concern/role)		
55	Resistance		Observation - Notes	06/09/2015
56	Truces	*Business Case clearly justified investment for a tool to improve efficiency of the process [redacted]	[redacted]	16/01/2015
57	Truces	*With the amount of savings/improvements available, it may justify the use of Winshuttle just for the Wood Group high volume/simple tasks while completing further analysis of how best to utilise it for internal PMCR process* [redacted]	[redacted]	16/01/2015
58		DSP presentation (Alternative to Winshuttle) Unable to demonstrate PM module, will only demo materials module	Observation - Notes	20/01/2015
59	Improvisations	*..A decision was taken many years ago to minimize the number of characteristics assigned...(The concept being that any technical information could be retrieved from associated documents/datasheets) [redacted]	[redacted]	24/03/2015
60	Ambiguity	*...For example the the [redacted] PMCRs arrived this week but are *stalled* because the requests are incorrect – the originator has entered incorrect tags on the PMCR ....some of the tags have been incorrectly created by the originator in InspectEX too, which will need to be addressed. The tag errors wouldn't be apparent when the PMCR prioritisation was calculated, but completion time is likely to be 2 to 4 weeks, this perhaps influences the assigned priority of the PMCR [redacted]	[redacted]	08/04/2015
61		[redacted]	[redacted]	24/04/2015
62		[redacted]	[redacted]	24/04/2015
63		[redacted]	[redacted]	24/04/2015
64		*... This opportunity [redacted] have been lost if the veracity of the information provided had not been established and steps taken to ensure that we had a balanced view of all the tools [redacted]	[redacted]	25/04/2015
65	Resistance	workflow is still not fully [redacted] and understood by everyone involved if it requires this further discussion. As you can imagine, it is difficult for me to justify spending further development time on implementing changes if the core of these changes are still being finalized, as it may result in the work that I put in being unused or discarded [redacted]	[redacted]	29/04/2015
66		[redacted]	[redacted]	06/05/2015
67		[redacted] Thanks to [redacted] his team and Winshuttle, they have convinced me that it's time to retire*	Observation - Notes	05/06/2015
68	Resistance	Meeting w[redacted] [redacted]keen to limit scope for Winshuttle, [redacted] supports this view Do not want Winshuttle used for more complex work Different view from Naje given discussions we had Personally finding it very difficult to explain same issue over and over again	Observation - Notes	09/06/2015
69	Adaptation	[redacted] reported that training with Sandra at Foss went well [redacted] how to take ownership from [redacted]	Observation - Notes	15/06/2015
70		*... I received the above PMCR which has highlighted instances of potentially duplicate maintenance [redacted] maintenance build has applied separate standard tests for Valve & Actuator maintenance.* [redacted]	[redacted]	23/06/2015
71		The exercise to create the BOMs from the SPLs in DOCUK will take several weeks because of the need to cross check and compile the data. [redacted] keen to explore any options to speed up the process and asked me to follow this up. If we had the original spreadsheets, then whilst still a sizeable task, it would reduce the time required to complete the exercise. One thought I had was to see if we could dig up the original, or preferably the revised, electronic versions of the spreadsheets for the SPLs. Would the original or revised spreadsheets be available, or will we have to settle for what is in DocUK [redacted]	[redacted]	19/08/2015
72	Improvisations	[redacted]	[redacted]	28/07/2015
73	Ambiguity	[redacted] approved but [redacted] pending	[redacted]	11/09/2015
74	Ambiguity	*... [redacted] a budget, a commitment is a commitment is not a budget, so how can we conclude a budget saving when comparing an IAL and a commitment [redacted]	[redacted]	11/09/2015
75		*... [redacted] CLF24997 was finally approved 7th September and reached me for action 11th September – this has taken approx 6 months to reach approval stage... [redacted]	[redacted]	15/09/2015
76	Resistance	*...Can I intervene here please! I am not aware of any agreement/solution that would allow the SCE flag to be applied to inspection PM's. Can you please advise if this agreement/solution has been agreed with the relevant parties [redacted]	[redacted]	24/09/2015
77		*...As discussed, at the moment there are gaps in our understanding [redacted] ment/direction to move forward for such WOs where there are requirements for performance standard measuring points to be filled in SAP...*	[redacted]	24/09/2015
78		date (this could have NI CAT B notifications). 04 ST Equipment under temporary repair/DLR. Would be interesting to understand ... how the SCE Pass/Fail criteria relates to the inspection equipment status. Has there been any previous agreement with Inspection department for how the inspection equipment status relates to SCE pass / all criteria?...* [redacted]	[redacted]	24/09/2015
79		[redacted]	[redacted]	28/09/2015
80		*...To estab[redacted] would recc[redacted] need is two [redacted] SAP, then agree a date of [redacted]	[redacted]	05/10/2015
81	Resistance	*...Disagree with [redacted] from his perspective this would be crazy, [redacted] that will leave us with the problems, since we have nothing in place to go forward on for the long term. Secondly Aker and us will struggle getting information from their organization. So overall we are to reply - NO . He will have to go through the exercise with us and I agree that we should target the shortest period to get things up and running and in place... [redacted]	[redacted]	06/10/2015
82	Improvisations	*...Please note that this is not the normal process for approving [redacted] ME work. Normally, [redacted] ME engineers will get in touch with us to discuss and review this prior to submission via a PMCR...* [redacted]	[redacted]	13/10/2015
83	Resistance	[redacted] quest [redacted]	[redacted]	15/10/2015
84	Adaptation	*If we go do[redacted] that the document version attached [redacted] [redacted]	[redacted]	15/10/2015
85	Ambiguity	*... [redacted] [redacted]	[redacted]	21/10/2015
86		*...There has historically been issues with the quality of drawings attached to PMCRs, which usually stems from [redacted] drawings. Often these drawings are scanned copies of a scanned copy – meaning that the tag numbers and vital information is not always legible... [redacted]	[redacted]	23/10/2015
87		*...We don't have any secondary generator PM's within SAP. Again we find ourselves with new equipment in service and no PM's aligned to carry out work in essential equipment. We have retained one of the Crepelle PM's to carry out the test runs for now. When are the PM's for the generators due to be released within SAP? Also, are the old Crepelle PM's due to be delet[redacted]	[redacted]	01/11/2015
88	Improvisations	*Attached final load list highlighting the PM errors which I believe we can overlook as they relate to instances where a characteristic value has been specified against an object (Functional Location or Equipment), where the corresponding characteristic isn't associated with that particular object [redacted]	[redacted]	09/11/2015
89		*[redacted] e directly affec[redacted] maintenance [redacted] MEF, will which was commissioned in 2013. I have been to the [redacted] an who co[redacted] intenance plans exist for [redacted] which was previously N26 which h[redacted] maintenance was [redacted] for this is back tomorrow. Appare[redacted] he details for well maintenance so [redacted]	[redacted]	12/11/2015
90		[redacted]	[redacted] - Notes	16/11/2015
91	Adaptation	*Since a large number of load [redacted] RE, I'm finding the existing MP template is rather cumbersome (One transaction to create the Measurement Point, and a second transaction to apply the relevant Characteristics, with considerable manual intervention to reconcile Measurement Point ID from the first worksheet to the second)...I've created a new transaction...By simply [redacted] mbers required in Column *A*..., this transaction creates the six HAE Measurement Points with the necessary Classes/Characteristics in one go.* [redacted]	[redacted]	19/11/2015
92		[redacted]	Observation - Notes	23/11/2015
93		*[redacted] as only to end of year - Then he shouldn't still be here...Who [redacted] his extension beyond October - He doesn't report to me and this contract is [redacted] mechanism to bring him in for MIEC work - You'll have to discuss with [redacted] to justify anything beyond October [redacted]	[redacted]	05/12/2015
94		Chat with Aidan - 'believes that most PMCRs are operational and single discipline hence change not required'. Wants samples of equipment that could be multi-discipline	Observation - Notes	07/12/2015