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**Development and Deployment of Dynamic
Reconfiguration
Capabilities
in the Telecommunications Sector**

by

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the degree of Doctor of Philosophy

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Abstract

The telecommunications sector faces rapid technology changes, which require huge capital investment, changes in rules and regulations, changes in customer behaviour and increasing customer demand. This rapid development directs how the telecommunication service operators deploy their strategies and network infrastructure and continue to evolve their business models.

A unique requirement of the telecom industry is the need to manage and deploy planned, unplanned and emergency resources concurrently. The 'dynamic capabilities' (DC) approach can be used as a framework to respond to this critical requirement for both managers and researchers. This study has a particular focus on dynamic reconfiguration capabilities (DRC), as these play a critical role in the deployment of strategy. The current literature shows clear limitations regarding how DRC emerge and how they can be used to manage concurrent strategy approaches, which are relevant to the telecommunications sector.

Five case studies from a telecommunication service provider are used in this research. Three types of data were collected, namely: 23 interviews, 10 direct observations and over 120 documents. A two-stage coding process is conducted for each case, and causal network diagrams are used to extract findings. A cross-case analysis enabled the identification of the empirical practices relating to the research questions.

Findings from the case studies confirm the relevance of several practices previously highlighted in the literature. They also revealed additional practices that support the DRC lifecycle. The case studies are performing most of the practices outlined in the theory of the DRC lifecycle framework, with different degrees of emphasis, especially in the deployment phase.

This research extends the current theory by identifying the role of DRC in deploying concurrent strategic approaches. It extends the resource-based view (RBV) and agility theories, which fail to adequately address long-term plans, and collapse when the market is very dynamic. Furthermore, it contributes to the DC literature by identifying the organisational practices that support development, deployment and improvement in the telecommunication industry. Also, it addresses an important gap in the literature by providing organisational practices and evidence of the DRC role to support the concurrent approaches to strategy deployment in the telecommunication industry

Table of Contents

Copyright Statement	2
Publications and Conference Papers	3
Acknowledgements	4
Abstract	5
Table of Contents	6
List of Figures	9
List of Tables	10
Chapter 1. Introduction	11
1.1 Point of departure and author background.....	11
1.1.1 Telecommunication market in Oman	12
1.2 Theoretical background	14
1.3 Research gaps and questions.....	17
1.4 Research aims and objectives	18
1.5 Research process and thesis structure	18
1.6 Chapter summary.....	20
Chapter 2: Literature Review	21
2.1 Introduction.....	21
2.1.1 Research context: Telecommunications sector.....	21
2.2 Literature review methodology.....	24
2.2.1 Initial search.....	26
2.2.2 Identification of search boundaries.....	26
2.2.3 Process Outcomes	29
2.2.4 Analysis and critique	31
2.3 Conceptual framework.....	32
2.3.1 Resource Based View (RBV)	34
2.3.2 Supporting definitions and their relationships	35
2.3.3 Definitions of dynamic capabilities and roles.....	41
2.3.4 How do dynamic capabilities work?.....	53
2.3.5 Dynamic capabilities: challenges and limitations.....	54
2.3.6 Conceptual framework summary.....	57
2.4 Thematic framework.....	58
2.4.1 Learning and development	58
2.4.2 Knowledge management and absorptive capacity.....	60
2.4.3 Innovation.....	62
2.4.4 Path dependence, history and past experience.....	63
2.4.5 Position and complementary assets	65
2.4.6 Managerial and organisational processes	66
2.4.7 Management role, perception and skills	67
2.4.8 Modes of obtaining new dynamic capabilities	70
2.4.9 Organisational context, culture and social networking.....	73
2.4.10 Dynamic business environment.....	74
2.4.11 Value creation, cost and investment	74
2.4.12 Product development	76
2.4.13 Organisational strategy and roles of dynamic sensing, seizing and reconfiguration capabilities	76
2.4.14 Thematic framework summary	81
2.5 Framing the research questions for this study: Dynamic Reconfiguration Capabilities (DRC)	81

2.5.1 RQ1: How are dynamic reconfiguration capabilities (DRC) developed, deployed and improved?	83
2.5.2 RQ2: How do DRC support the concurrent approaches to strategy deployment?	86
2.6 Chapter summary	86
Chapter 3: Methodology.....	87
3.1 Introduction.....	87
3.2 Nature of the research	87
3.3 Philosophical assumptions	88
3.3.1 Ontology	88
3.3.2 Epistemology	88
3.3.3 Methodology.....	89
3.3.4 Methods and techniques	90
3.3.5 Selected paradigm.....	90
3.4 Methodology selected for this study	92
3.4.1 Case study methodology.....	92
3.4.2 Building theory from multiple case studies	94
3.4.3 Processes of building theory selected for this study	95
3.5 Validity, Reliability and Generalisability	108
3.6 Chapter Summary	109
Chapter 4: Within-Case Analysis and Empirical Findings.....	110
4.1 Within-case study analysis process.....	110
4.1.1 Coding	112
4.1.2 Causal network diagram	115
4.1.3 Researcher’s interpretation	115
4.2 Case Study 1: Human Resources Unit.....	115
4.2.1 Summary introduction	115
4.2.2 Coding results from Human Resource Unit.....	118
4.2.3 Causal network diagram	123
4.2.4 Researcher’s interpretation	132
4.2.5 Case study summary	138
4.3 Case Study 2: Regulatory Affairs Division	139
4.3.1 Summary introduction	139
4.3.2 Coding results from Regulatory Affairs Division.....	139
4.3.3 Causal network diagram	143
4.3.4 Researcher’s interpretation	145
4.3.5 Case study summary	151
4.4 Case Study 3: Corporate Strategy Unit.....	151
4.4.1 Summary introduction	151
4.4.2 Coding results from Corporate Strategy Unit	152
4.4.3 Causal network diagram	156
4.4.4 Researcher’s interpretation	158
4.4.5 Case study summary	165
4.5 Case Study 4: Corporate and Consumer Units	166
4.5.1 Summary introduction	166
4.5.2 Coding results from Corporate and Consumer Units.....	166
4.5.3 Causal network diagram	170
4.5.4 Researcher’s interpretation	172
4.5.5 Case study summary	181
4.6 Case Study 5: Integrated Network & Technology Unit.....	181
4.6.1 Summary introduction	181
4.6.2 Coding results from Integrated Network & Technology unit.....	182
4.6.3 Causal network diagram	186

4.6.4 Researcher’s interpretation	188
4.6.5 Case study summary	195
4.7 Chapter summary	196
Chapter 5: Cross-Case Analysis and Empirical Findings	197
5.1 Cross-case analysis results	197
5.1.1 Answers to Research Question 1: How are DRC developed, deployed and improved?	197
5.1.2 Answers to Research Question 2: How do DRC support the concurrent approaches to strategy deployment?	205
5.2 Chapter summary	208
Chapter 6: Discussion	209
6.1 Theoretical contributions related to DRC development, deployment and improvement	209
6.1.1 Findings confirming previous literature	210
6.1.2 Findings extending previous literature	214
6.1.3 New insights not explicitly deliberated in previous literature	216
6.2 Theoretical contributions related to concurrent approaches to support strategy deployment	217
6.2.1 Planned approaches	218
6.2.2 Unplanned approaches	220
6.2.3 Emergency approaches	221
6.4 Chapter summary	223
Chapter 7: Conclusion	224
7.1 Contribution to knowledge	224
7.1.1 RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?	224
7.1.2 RQ2: How do DRC support the concurrent approaches to strategy deployment?	226
7.2 Managerial implications	229
7.2.1 Specific recommendations for the company	230
7.3 Quality of the research assessment	231
7.4 Research limitations	233
7.5 Future work	234
7.6 Personal reflections	237
References	239
Appendices	245

List of Figures

Figure 2.1 Deliberate and Emergent strategies, adapted from Mintzberg	23
Figure 2.2 Systematic Literature Review Methodology	25
Figure 2.4 Synthesising the literature of dynamic capabilities	33
Figure 2.3 Definitions' hierarchy and relationship	40
Figure 2.4: Thematic framework	58
Figure 2.5 Dynamic reconfiguration capabilities lifecycle framework.....	84
Figure 3.1 Research Methodology design: map for this research	91
Figure 4.1 Within-case analysis processes.....	111
Figure 4.2 Within-case analysis processes.....	117
Figure: 4.3. Snapshot of level-1 data analysis	119
Figure 4.4: Snapshot of data analysis.....	121
Figure 4.5: Frequency of practices per DRC lifecycle phase.....	122
Figure 4.6: Frequency of interrelations between theoretical and empirical practices.....	122
Figure 4.7: Human Resource Unit causal network diagram	131
Figure 4.8: Frequency of C2-PE per DRC lifecycle phase	142
Figure 4.9: Frequency of interrelations between theoretical and empirical practices.....	142
Figure 4.10: Regulatory affairs division causal network diagram	144
Figure 4.11: Frequency of C3-PE per DRC lifecycle phase	155
Figure 4.12: Frequency of interrelations between theoretical and empirical practices.....	155
Figure 4.13: Corporate Strategy Unit causal network diagram.....	165
Figure 4.14: Frequency of C4-PE per DRC lifecycle phase	169
Figure 4.15: Frequency of interrelations between theoretical and empirical practices.....	170
Figure 4.16: Corporate and consumer units' causal network diagram.....	171
Figure 4.17: Frequency of practices per DRC lifecycle phase.....	185
Figure 4.18: Frequency of interrelations between theoretical and empirical practices.....	186
Figure 4.19: Integrated Network & Technology Unit causal network diagram.....	187
Figure 5.1: Empirical practices emphasis on DRC Lifecycle phases	198
Figure 5.2: Empirical practices emphasis on practices	198
Figure 7.1: Organisational practices supporting DRC development, deployment, and improvement	225
Figure 7.2: Organisational practices supporting concurrent approaches to strategy deployment.....	227

List of Tables

Table 2.1: Different types of business continuity	22
Table 2.2: List of journal titles, database and impact factors.....	30
Table 2.3: Inclusion / exclusion criteria of journal papers.....	31
Table 2.4: Differences between ordinary and dynamic capabilities	38
Table 2.5 Dynamic capabilities: core definitions.....	41
Table 2.6: Transformation examples	46
Table 2.7: Capabilities' hierarchy and structure	48
Table 2.8: Link between dynamic capabilities roles and organisational strategy	82
Table 3.1: Matching research purposes with case study types	93
Table 3.2: Process of building theory from case studies.....	96
Table 3.3: Selected case studies for this research and reason for inclusion.....	98
Table 3.4: Six sources of evidence from case studies.....	101
Table 3.5: A brief description of collected data.....	104
Table 3.6: Research design viewpoints related to research quality	109
Table 4.1: Level-1 code list	112
Table 4.2: Level-2 code list	114
Table 4.3: 31 Practices from empirical work C1-PE	120
Table 4.4: Research question 1	124
Table 4.5: Research question 2	128
Table 4.6: 29 Practices from empirical work C2-PE	140
Table 4.7: 21 Practices from empirical work C3-PE	153
Table 4.8: 29 Practices from empirical work (C4-PE).....	168
Table 4.9: 23 Practices from empirical work C5-PE	184
Table 5.1: Practice emphasis on DRC LC: within-case analysis	200
Table 5.2: New themes emerging from within-case analysis	201
Table 7.3 Summary of evaluation of research quality criteria	232
Table 7.4 Process of building theory from case studies	233
Table 7.5 Questions arisen from the literature review.....	236

Chapter 1. Introduction

1.1 Point of departure and author background

Today, the telecommunications sector faces rapid technology changes, which require huge capital investment, and increasing customer demand for various services, including speed of service delivery, reliability and quality. Also, there is a mass adoption of connected digital technologies and applications by consumers, corporates and governments. This is particularly apparent with the integration of telephone and internet. This rapid development directs how the telecommunication service operators deploy their network infrastructure and exploding data traffic, enhance newly required capabilities, develop new products and services, improve customer experience and continue to develop their business models.

Previously, telecommunication service providers offered traditional voice and SMS services with the device as a bundle. These traditional revenues from voice, SMS and intentional roaming are falling dramatically, however, despite the number of subscribers increasing. PricewaterhouseCoopers (PwC, www.pwc.co.uk) quoted a survey conducted by International Data Corporation (IDC) in their PwC Communication Review December report (2014, p.1) stating: 'There's no denying that mobile phones aren't just phones anymore. In a survey conducted by IDC, respondents indicated that while on their mobiles they spend a mere 16% of their time on phone calls and the other 84% on activities like browsing the web, communicating by email, using social apps, watching videos or TV, gaming, etc. That breakdown of use corresponds to the explosion of mobile data traffic globally in recent years.' Over-the-top (OTT) players, such as Skype, Google, WhatsApp, Netflix, Amazon and eBay shopping, are gaining in number and popularity. These applications are taking charge of the telecommunication sector, which has forced many telecommunication operators to reduce their prices, even though the building infrastructure cost remains high.

Although the telecommunications companies acknowledge this business dynamism, and are moving forward to match these changes, the complex legacy of networks, systems, products and services obstructs their way, slowing their advancement. Accordingly, they face a gap between the cost of deploying, maintaining their legacy, and upgrading the networks necessary for traffic growth and the expected revenues generated from that traffic. It is even more challenging in emerging markets because the average revenue per user is low. Furthermore, telecommunication services, especially for corporate customers, e.g. banks,

require a higher level of security and privacy protection. Therefore, the telecom companies need to obtain a comprehensive understanding of the telecom environment, including customer behaviours and developing or obtaining the capabilities required to deploy telecom strategies.

To sum up the competition between telecom operators and telecom equipment suppliers in terms of sharing core capabilities, there is continuous movement of resources between them. Rapid technological change, customer demands and competition, and rules and regulations are the main drivers of the dynamic environment that require skilled resources with different capabilities and different financial feasibility approaches and business models.

The author works for a Telecommunication Company in Oman as a Senior Manager in the Network Planning Department, and is a technical mentor in the networks unit. In his role, he faces many challenges that require his attention, such as the following:

- How to manage the operations of rapid change within the organisation's capabilities?
- How to transform these dynamic environments to fit stakeholder interests, including Government requirements, and to meet sophisticated customer demands?
- How the external expertise deals with internal organisational capabilities to change and reconfigure the existing resource to obtain and sustain a competitive advantage?

Also, the author has conducted strategic change management research, with his employer as a case study, as part of his MBA final year project (2009). This study influenced and inspired the researcher to further explore how the organisation manages change while maintaining businesses continuity and continuing to grow? Also, how do they change and reconfigure their resources to support strategy deployment?

1.1.1 Telecommunication market in Oman

The Sultanate of Oman is located in the Middle East. Its area is almost twice as large as the UK, with various geographical terrain. It has a population of 4,414,051 according to the National Centre for Statistics and Information in 2016 (www.ncsi.gov.om). The population is scattered across areas such as urban, mountains and deserts.

Oman is committed to liberalising the telecom market to meet the policy objectives to fulfil the World Trade Organization (WTO) requirements (2003). Therefore, the Telecommunication Regulatory Authority (TRA), which presents the Government,

liberalised the mobile telecom market by issuing a licence to Qatar Mobile Telecommunication Company (Ooredoo) in 2005. In 2005, the incumbent Oman Telecommunication Company (Omantel) launched an Initial Public Offering (IPO). Following the successful sale of shares to the public, it was listed on the Muscat Security Market (MSM). It is 51% owned by the Government, and 49% owned by public shareholders. In 2009, the TRA liberalised fixed communication by issuing a second licence to Qatar Mobile Telecommunication Company (Ooredoo). The licence owner has a right to be an internet service provider (ISP), and to provide mobile and fixed telecommunication services.

The telecom market in Oman requires a huge investment to build a network infrastructure across a country with a low population density. This is considered a high entry barrier to new entrants, as mentioned by Porter (2007). When the new operator (Ooredoo) entered the market in Oman, it was limited to using the incumbent (Omantel) network infrastructure by leasing the interconnection and bandwidth. The TRA does not allow the incumbent to increase the entry barriers. Therefore, the TRA regulates the market by introducing the point of interconnections and setting up bandwidth leasing tariffs.

Through the TRA, the Government has a strategy of providing telecommunication services across the country, regardless of the negative feasibility studies provided by the operators to serve particular areas. The Government has a vision of removing the digital divide across the country, which requires telecom infrastructure across the country that will deliver the required services. Operators, however, make losses by providing services in these areas. Moreover, rapid technology change and the development of capabilities to cope with the pace of such change is a major challenge in the telecommunication sector. In addition, managing other stakeholder interests, including shareholders and customer expectations, and sustaining competitive advantages, impact on operations management in a very dynamic environment. Therefore, this type of business requires many categories of capabilities, which need to be very dynamic due to the rapid change in the telecommunication environment. As a result, operational strategies of these capabilities are a requirement in the Omani telecommunication sector. On the other hand, telecommunication operators are required to focus on producing value from their existing networks in a highly dynamic situation. This means that new products need to be launched on the market swiftly. Nevertheless, these new product improvements or added-value services are very sophisticated.

1.2 Theoretical background

The telecommunication service providers are responsible for sustaining telecommunication business continuity. They manage their resources to deploy long-term planning and maintain routine network operations, such as developing new products, maintaining service level agreement (SLA), designing and implementing network expansion, and building new network projects.

In the telecommunication business, some activities are considered ‘unplanned activities’, which means they were unknown or not anticipated at the planning stage. These unplanned activities could be long- or short-term. These activities could be triggered, for example, by change in customer behaviour, new customised solution requests, a change of rules and regulations, governmental development and corporate plans for new sea ports, a new airport, a new residential area, or new tourism facilities and hotels. These could lead to great business opportunities or could mitigate market threats. In the case of unplanned actions using the same resources as the planned activities, these will need to be reconfigured and stretched to deploy these unplanned approaches to seize business opportunities or mitigate threats.

Emergency events affect the telecommunication networks and systems. Crises (force majeure) could happen anytime, and require immediate action and decisions, e.g. major network failures that are not part of the prevention maintenance, cyber-attack (recent one in May 2017 infected computers in 150 countries), natural disasters (floods, earthquake and storms), and other unpredicted events. In the case of an emergency, the same resources used to deploy planned and unplanned approaches are reconfigured to respond to the emergency events. Therefore, these resources are stretched even further to normalise the network with minimum effect on the currently running services.

Based on the above, the strategic operation management in the telecommunication sector is unique, with special capability requirements for the business continuity. Hence, a requirement of this sector is the need to manage and deploy planned, unplanned and emergency strategic approaches concurrently. Therefore, they require capabilities to deploy these concurrent strategic approaches for business continuity in the dynamic business environment. These capabilities must be dynamic, not static, to match the business dynamism, and require continuous improvement to avoid capability rigidity or become irrelevant to the current market conditions. Therefore, the ‘**dynamic capabilities**’ (DC)

approach can be used as a framework to respond to this critical query for both managers and researchers.

Dynamic Capabilities are ‘the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments’ (Teece et al. 1997). It deals with moderate- and high market dynamism, addresses modern business environment requirements and is linked with long-term strategy. Since the early 1990s, DC have attracted many researchers in the field of management, especially in strategic management, and it continues to attract more attention to the management literature (e.g. Ellonen et al. 2009; Di Stefano et al. 2014; Schilke, 2014; Barreto, 2010; Barrales-Molina et al. 2012; Schreyögg and Kliesch-Eberl, 2007; Ambrosini and Bowman, 2009; Parente et al. 2011). This interest led to a link between environmental states and organisational strategy literature (Barreto, 2010). Teece et al. (1997) developed the first explicit definition of DC, and many authors agreed with this statement, such as Barrales-Molina et al. (2012 and Barreto (2010). It is the most notable approach towards a theory of DC, and the leading one of various attempts at **inbuilt flexibility** (Schreyögg and Kliesch-Eberl, 2007). Subsequently, many authors have proposed and suggested an alternative. Augier and Teece (2009) argue that the foundational concept of DC existed much earlier than the 1990s, and its background originated from the Carnegie School in the 1950s. These concepts have been mixed with modern ideas about business strategy, technological change and innovation. It is undisputable that firms before 1990 faced the same challenges and changes in the business environment as today's firms, but perhaps at a slower pace. Therefore, different approaches and models were established and practised to survive such challenges.

Different academic fields address the abovementioned challenges in the telecommunication sector. The following illustrates these theoretical views:

Agility is defined as, ‘A system that shifts quickly among product models/lines, ideally in real time to respond to customer needs’ by a group of researchers from the Iacocca Institute, Lehigh University in 1991 (Ganguly et al. 2009). This concept was originally developed by studies of flexibility in economics, and many other authors have built on it (Doz and Kosonen, 2008; Doz and Kosonen, 2010; Dove, 1994). They further highlighted some paradoxes and limitations: the agility approach constrains the speed to capture opportunities, cost and performance of short-term planning and operations unless bounded by strategy. It is not embedded in processes for long-term performance. Ventures or agility teams may work in isolation, and their rapid ventures may not be in the core business or part of the long-term

vision. These issues may create chaos or distortion because the organisation cannot make a long-term commitment, and they require more effort from the top management to integrate agility ventures with strategy. It is also very costly to maintain agility ventures (Teece et al. 2016).

A core competency view is ‘a harmonised combination of multiple resources and skills that distinguish a firm in the marketplace’ (Prahalad and Hamel, 1990). Core competencies are a specific set of skills or production techniques that allow firms to access different markets with additional value and different products from their competitors. This approach focuses more on product development and maintaining a market edge in the competitive market.

The resource-based view (RBV) concept explains ways of achieving competitive advantages and how to maintain those advantages over time (Eisenhardt and Martin, 2000; Teece et al. 1997; Barney, 1991; Peng et al. 2008). Many other authors, including Bowman and Ambrosini (2003), Barney (1991) and Eisenhardt and Martin (2000) further explain the RBV: if firms’ resources are valuable, rare, inimitable and non-substitutable (VRIN), then they can generate more profit, such as lower unit costs, which leads to tremendous normal profits and sustains competitive advantages by applying newly created strategies that are difficult for competitors to imitate. The RBV fails to explain, however, how and why competitive advantages in some firms are highly maintained while business environments are rapidly changing and very dynamic (Teece et al. 1997). Therefore, it breaks down when the market is in high velocity, when the strategic aim is to sustain competitive advantages (Eisenhardt and Martin, 2000). It has been criticised for ignoring the negative impact of assets and capabilities on firm profits (Vogel and Güttel, 2012). Further details are explained in the conceptual framework (see Chapter 2).

The **DC** approach is more comprehensive and different from the views mentioned above because it is bounded with long-term strategy and vision, embedded in processes, will neither guarantee success nor fail the firms. Furthermore, several researchers (e.g. Zott, 2003; Teece et al. 1997; Zollo and Winter, 2002; Winter, 2003 Eisenhardt and Martin, 2000) propose the DC framework to fill RBV gaps. Barreto (2010), Ambrosini et al. (2009), Vogel and Güttel (2012) and Teece (2014a) agree with this. Thus, they consider DC an extension of the RBV that can address modern business environment requirements.

In 2007, Teece segregated DC into sense, seize and reconfiguration micro-foundations. He further explained that, after identifying opportunities or threats by dynamic sensing capabilities, the dynamic seizing capabilities set plans on how to tackle them with the required supports, such as technological aspects and financial commitments. The seizing capabilities are closely linked with **dynamic reconfiguration capabilities (DRC)** to manage strategic transformation deployment towards these plans. Moreover, DRC main role is to reconfigure resources and organisational structures as a firm grows to compete in dynamic business environments, which is considered the main strategic role for the management team (Teece et al. 2016; Girod and Whittington, 2016). Hence, for the purposes of this study, DRC includes seizing roles, because both are directly related to strategy deployment (Teece, 2007, 2014a, 2014b).

1.3 Research gaps and questions

The literature provides a general description of DC but lacks focus on the particular micro-foundations of the DC of sensing, seizing and reconfiguration. Few empirical studies have analysed the specific roles of DRC in different contexts. Even though DRC is about resource deployment and configuration, there remains no clear understanding of how DRC support the deployment of different types of strategy. This is an important aspect for some sectors, such as telecommunication sectors, which must deal continuously with different strategic approaches. A requirement of the telecom industry is the need to manage and deploy planned, unplanned and emergency strategic approaches concurrently. The review of the literature shows a lack of DC research in this context, and a clear need for empirical studies to advance this field.

The systematic literature review clearly indicates that the literature is limited regarding how DRC emerge and how these can be used to manage concurrent strategy approaches, which are relevant to the telecommunication sector. Therefore, this research investigates the research gaps, in an exploratory manner, by answering the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

RQ2: How do dynamic reconfiguration capabilities support the concurrent approaches to strategy deployment?

1.4 Research aims and objectives

Few empirical studies have analysed the specific roles of DRC in different contexts. This study contributes to explaining this important research gap, which is a lack of empirical studies of DRC roles in the telecommunication sector. As a result, the main aim of this research is to identify and explain organisational practices that contribute to DRC development, improvement and deployment to support the concurrent deployment of strategic approaches in the telecommunication sector.

To understand the different factors within organisational settings, and to draw conclusions based on real situations, five case studies from within a telecommunication company were conducted. The case study in-depth investigations identify and explain organisational practices that contribute to the DRC development, deployment and improvement to support the concurrent strategic approaches to strategy deployment. The following are the objectives to be completed by the end of this research project:

- To identify organisational practices that contribute to the development, deployment and improvement of DRC
- To explain organisational practices that support the development, deployment and improvement of DRC
- To explain practices of DRC that support planned, unplanned and emergency approaches concurrently to strategy deployment

1.5 Research process and thesis structure

Chapter 2: Literature review

The aim of this section is to develop a comprehensive conceptual and thematic framework of DC, and to inform the current state of DC literature. These frameworks lead to identifying gaps in the current literature. They also show how the research questions arose and have been modified during the literature review, and to what extent the current literature can provide answers to these questions. Finally, it demonstrates the DRC lifecycle framework and finalises the research questions.

Chapter 3: Methodology

This chapter evaluates the methodological approaches available to management researchers. It explains how the selected methodology was chosen to link the empirical work with the research questions. Furthermore, it justifies the choice of critical realism as the most

appropriate paradigm for this research project. It also explains why this research project is qualitative, which deploys multi-case studies as the most appropriate method to conduct an exploratory investigation into theory building. Five case studies from a telecommunication service provider company were selected, and each case study followed the same pre-designed protocol.

Chapter 4: Within-case analysis and empirical findings

This chapter aims to explain the in-depth qualitative data processes used to analyse within-case studies. It covers the different type of qualitative data from the five case studies investigated in this research project. The analysis began with a coding technique to organise and eliminate unrelated data, and identified a list of DRC empirical strategic practices per case. Additionally, a causal network diagram was used to identify patterns and the strategic relationship between DRC empirical strategic practices. The analysis also identified new themes that emerged from the within-case analysis that are not addressed or explicitly explained in the DC literature review. Finally, the researcher's interpretation is used to report on and articulate the case study findings.

Chapter 5: Cross-case analysis and empirical findings

This chapter aims to explain the cross-case analysis processes used to investigate this research project. Its main objective is to search for cross-case patterns, because they are essential for enhancing the generalisability of conclusions drawn from the cases. The analysis led to the identification of a definitive list of practices from empirical works (PE) that impact on the DRC development, deployment and improvement (answer to research question 1). Also, it shows that all case studies have a similar pattern across DRC lifecycle phases, and some of the practices are not phase specific. Finally, all five cases deploy planned, unplanned and emergency approaches concurrently to support strategy deployment with different empirical practices (PE) based on their core functions (answer to research question 2).

Chapter 6: Discussion

This chapter discusses the findings that emerged from the empirical data, and explains them according to the various themes. Also, it gives an overview of the literature to relate these findings to current knowledge. It reveals contributions to knowledge by identifying and explaining 18 organisational practices that contribute to the DRC development, deployment and improvement. It also identifies and explains 13 organisational practices that support concurrent strategic approaches to strategy deployment. These practices confirm and extend

the current knowledge explicitly mentioned, or not, in the DC literature review. Additionally, it shows a lack of integration of the DC literature with other management fields.

Chapter 7: Conclusion

This chapter demonstrates the contributions and managerial implications of this thesis. It also assesses the quality of the research, discusses limitations and makes suggestions for further work.

1.6 Chapter summary

This chapter provided a brief introduction to the DCR, and focused on DRC roles in the telecommunication sector. It also explained why the research in this field is of particular significance to both managers and researchers. Furthermore, it illustrates the author's background and the motives for conducting this particular research project. Finally, it demonstrates the overall theme of this research and the specific research aims and objectives.

Chapter 2: Literature Review

This chapter is divided into three sections: literature review methodology; conceptual framework; and thematic framework. It will show how the research questions arose and were modified, and to what extent the literature can provide answers to these questions. Finally, it will demonstrate the dynamic reconfiguration capabilities (DRC) lifecycle framework and finalise the research questions.

2.1 Introduction

Global competition and the rapidly changing consumer, social, technology, and regulatory environment has led to the need for an extended model which can demonstrate **how firms can successfully address these challenges and how to sustain competitive advantage** (Barreto, 2010, Teece et al., 1997, O'Reilly and Tushman, 2008). Ignoring these changes can negatively impact on firms' performance. The 'dynamic capabilities' approach provides an important response to this critical question for managers and researchers, even though most scholars emphasise the need for further explanation and practical studies (Kuo-Feng et al., 2012, Barreto, 2010, Schreyögg and Kliesch-Eberl, 2007). This theoretical approach emphasises a firm's ability to respond to internal and external dynamics and Schumpeterian 'creative destruction' (Parente et al., 2011), by creating new sources and ways to sustain competitive advantage (Teece et al., 1997).

2.1.1 Research context: Telecommunications sector

Why is the telecommunication service sector different from other sectors?

Telecommunications service providers are responsible for sustaining business continuity in the sector. Key in achieving this is network infrastructure design and deployment, which involve backup power, network protection, system backups, and fibre cable multi-routes (www.teleconvergence.com). Strategic operation management in the telecommunications service sector has special dynamic reconfiguration requirements, and has to balance planned, unplanned and emergency business continuity plans. Table 2.1 below explains different types of business continuity.

Table 2.1: Different types of business continuity

Business continuity plans	Description
Planned activities	The strategic activities and actions are planned at the planning stage. All actions are required to be planned based on long or short-term planning, including product development, network expansion, OPEX saving, etc. It addresses not just normal conditions, but plans for operating under extraordinary circumstances as well. These activities are considered as deliberate or intended strategies (Mintzberg, 2000)
Unplanned activities	Strategic activities and actions which are not planned at the planning stage. These actions are not known or not anticipated at the planning stage. Some of these could involve long- or short-term planning. For example, customer behaviour, new customised solution requests, change of rules and regulations, governmental development and corporate plans for new seaports, new airports, new residential areas, new tourism facilities and hotels. These could help seize business opportunities or mitigate market threats. These activities are pointedly focused on telecommunications continuity, although they may be dramatically different from day-to-day operations. According to Mintzberg (2000), they are emergent strategies which act on the business environment.
Emergency activities	Crises happen and required immediate action and decisions. For example: major network failures which are not part of prevention maintenance, natural disasters (force majeure), and other unpredicted events. These actions help build emergent strategies to deal with uncertainties and emergencies (Mintzberg, 2000).

According to Mintzberg (2000, p.24), the strategies can be divided into two categories, as shown in Figure 2.1. The first type is a deliberate or intended strategy developed from, for example, organisational experiences, learning, and other internal and external factors. The second type is an emergent strategy: whereby the strategic pattern was not expressly intended, and the market environment (uncertainties) drive the decision-making process.

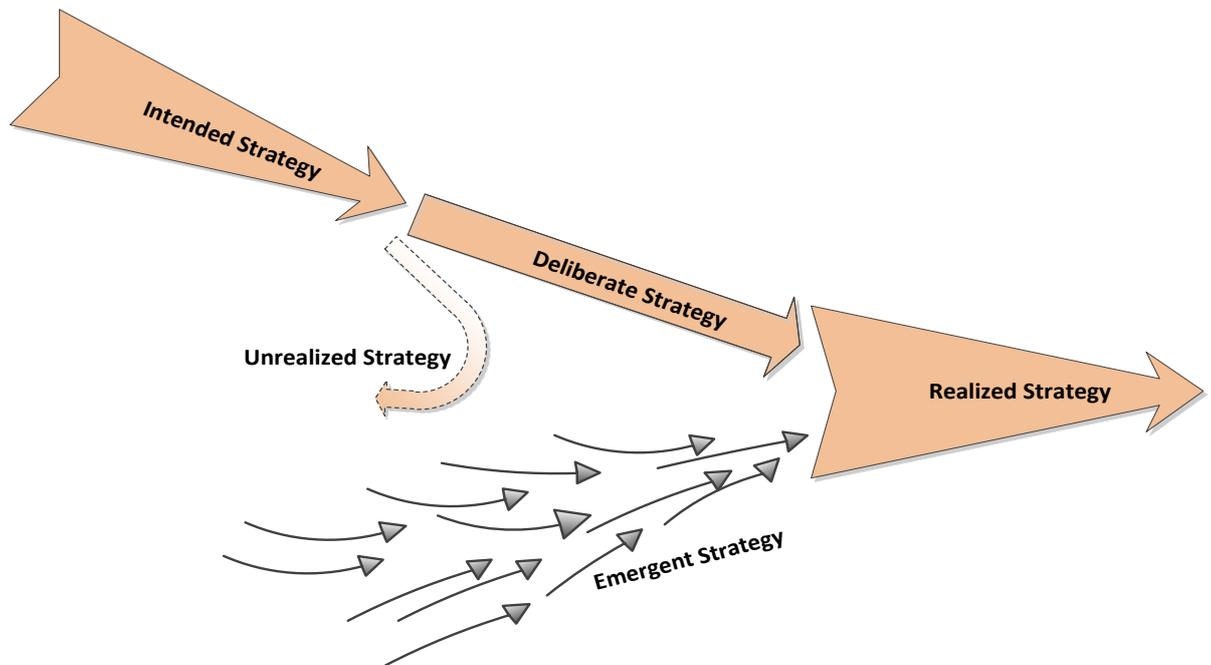


Figure 2.1 Deliberate and Emergent strategies, adapted from Mintzberg (2000, p.24)

Telecommunications service operators manage their resources for daily network operations, such as maintaining service level agreements (SLA), planning, designing and implement network expansion, and building new network projects. Telecommunication resources can be categorised as intangible (skills, experiences, loyalty, culture, etc.); and tangible (infrastructure, financial resources, customer base, market share, etc.). These operate in a comfort mode, and vary between different service providers as per their regulatory licenses. In the case of unplanned actions, the same resources will be reconfigured and stretched.

Telecommunication service providers are very much affected by emergency events. The same resources must therefore be reconfigured and respond to any emergency events. This means these resources are stretched further: normalising the networks with minimal effect. These emergency events are categorised into:

- Natural disasters (force majeure): floods, earthquakes and storms are the main disasters which directly affect network infrastructure: causing fibre cable cuts, antenna towers to collapse, submarine cable cuts, water in equipment rooms, fire, etc.
- Technology disasters: major network failures which are not part of prevention maintenance, such as cyber-attack, backup failures, human error, etc.

The business should continue as normal regardless of the reshuffling of resources necessary to address these challenges. The same resources used for daily network operations will be used for unplanned and emergency events.

Service providers mitigate risk by allocating additional budgets; however, this is not always sufficient, as many priorities are not financially-oriented as much as dynamic reconfiguration capability-oriented. The question is more about how rapidly opportunities can be seized or services restored, without compromising existing services. ‘Strategic planning isn’t strategic thinking. One is analysis, and the other is synthesis’ (Mintzberg, 1994, p.107). These capabilities are the key to enabling the organisation to deal with different strategic priority plans to sustain telecommunication business continuity.

In light of the above, to start the research journey, two guiding questions emerged. According to O’Connor (2008), ‘highly dynamic environments seem to be a necessary condition for an organisation to generate dynamic capabilities’ (Barrales-Molina et al., 2012, p.5). This raises the first question:

How are dynamic capabilities developed and deployed?

‘Technological innovation and changing customer tastes are in the landscape against which strategic decisions are made’ (Augier and Teece, 2008, p. 1188). This raises the second question:

How do dynamic capabilities support strategy deployment?

Answers to these questions will be sought via a systematic literature review. The questions will be extended and modified during the literature review process. Their final form will be discussed at the end of this chapter, thanks to comprehensive insights from the literature.

2.2 Literature review methodology

A systematic literature review methodology is adopted (Tranfield et al., 2003), and divided into four coherent steps, with search boundaries. Figure 2.2 demonstrates these steps in detail:

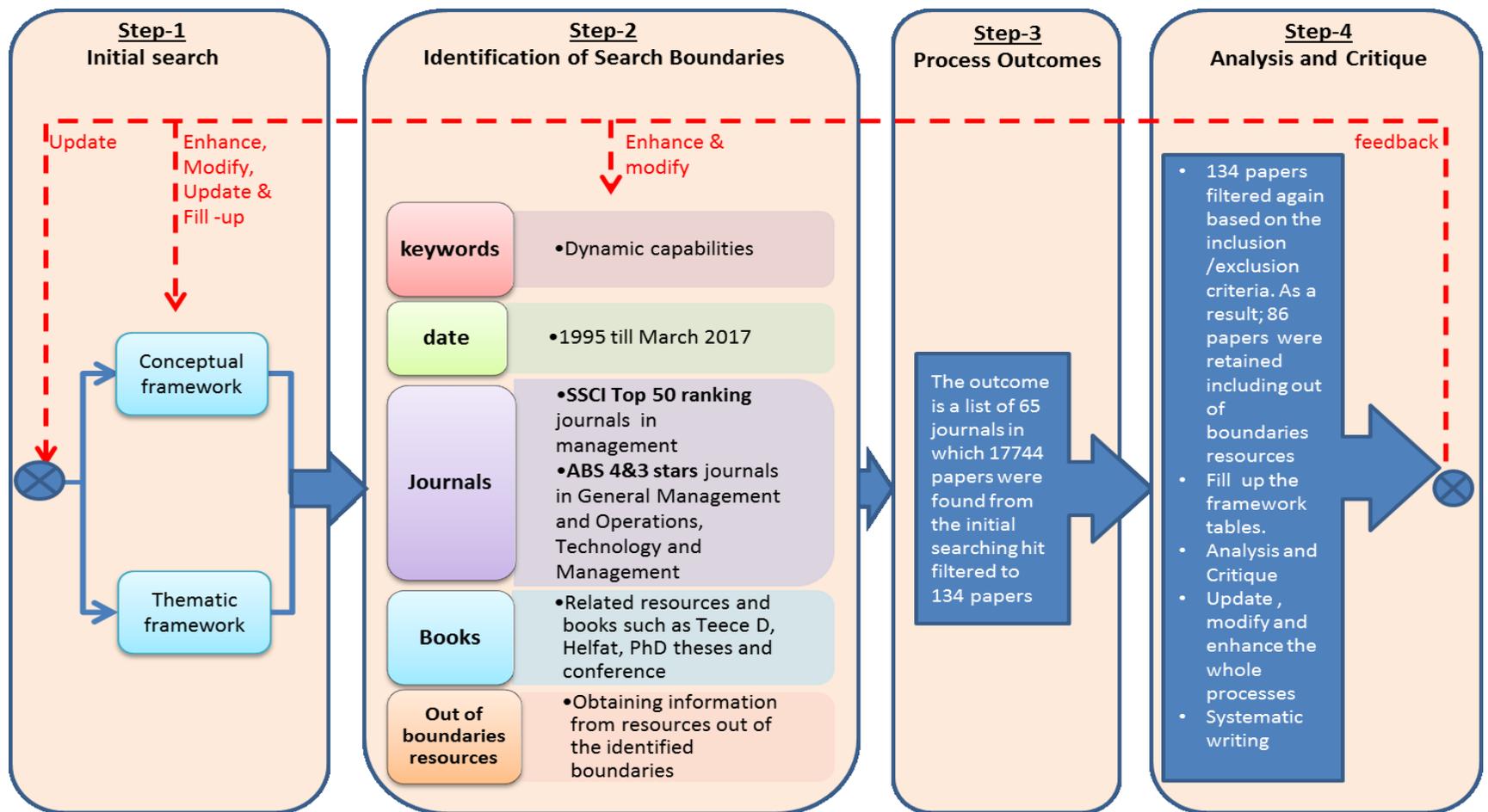


Figure 2.2 Systematic Literature Review Methodology

2.2.1 Initial search

An initial, unstructured search was conducted to grasp basic information about dynamic capabilities and related vocabulary. It was based on a ProQuest ABI/INFORM and Scopus database search, selecting the most cited papers; and advice from senior colleagues in the department.

This information was used to plan, assess the relevance, and form further steps of the literature review. Tranfield et al. (2003) argue that in the management field, it is necessary to conduct initial scoping studies to shape the literature research. Moreover, the initial findings indicate the lack of a universal definition of dynamic capabilities; it overlaps with many other management fields such as innovation, human resources, management roles, operations and strategic management. Many authors drive and influence the dynamic capabilities field (Helfat et al., Eisenhardt et al., Zollo and Winter).

To overcome these initial issues, the author created two frameworks:

- Conceptual framework: this will address definitions, vocabulary and dynamic capabilities' inter-related definitions. It starts with answers to general questions about dynamic capabilities: including what are dynamic capabilities, how do they function, and what their relationships with competency and routines are. This framework will develop as the research progresses.
- Thematic framework: this will address factors that influence the development and deployment of dynamic capabilities, and how these relate to other management fields. It starts by clustering information, based on initial understanding. Tranfield et al. (2003) argue that clustered findings should be reported in the form of a thematic analysis. These clusters formed the first five general themes: development and learning, knowledge management, competition, business environment, and organisational strategy. These themes are extended gradually and more sub-themes developed as the research progresses.

2.2.2 Identification of search boundaries

It is necessary to generate explicit, reproducible and comprehensive inclusion/exclusion criteria for selecting articles for review, which should be validated by pilot testing (Tranfield et al., 2003, Randolph, 2009). To validate the selection criteria of this thesis, considerable trial and error was conducted: which resulted in modifying and re-tuning the initial criteria.

The structured literature review therefore features the following boundaries designed to facilitate a systematic review process, avoid endless searching and overcome the issues mentioned earlier.

2.2.2.1 Start and end research dates

The dynamic capabilities concept started to develop during the 1990s. In 1997, Teece et al. developed the first explicit definition of dynamic capabilities (Barrales-Molina et al., 2012). This definition has led attempts at building organisational flexibility, and been followed by others since (Schreyögg and Kliesch-Eberl, 2007). The literature search should therefore start at **1995**, which allows two extra years before Teece et al. first published a paper in 1997. The end date is **March 2017**, the due date for completing the writing up of this thesis.

2.2.2.2 Keywords and search fields

Keywords and search fields are essential elements in the systematic literature review and must be identified in the scoping stage (Tranfield et al., 2003). Keywords should be carefully selected to generate enough outcomes to provide a critical mass of results which cover all practices as far as possible (Leseure et al., 2004).

Initial trials were conducted to decide which search keywords should be used. For example, should ‘capabilities’ be used alone, or as part of ‘dynamic capabilities’; and would the title or keyword search fields be used? By combining both terms in the search fields, the outcome of these trials was acceptable in terms of the relevance and number of retained papers. Thus the search terms of ‘dynamic capability’ or ‘dynamic capabilities’ were selected as keywords, and used in the search fields of title, abstract and keywords. The selected keywords are in line with Vogel and Güttel (2012)’s suggestion that Teece et al. were first to use the term ‘dynamic capabilities’ in the academic literature. Thereafter, it has become a technical term in strategic management studies.

2.2.2.3 Resources

According to Tranfield et al. (2003), the research criteria used in the systematic literature review should be based on the best quality evidence. Management researchers often use journal quality rating systems, such as Social Science Citation Index (SSCI) or the Association of Business Schools (ABS), rather than applying any quality selection criteria. According to the ABS (2010) website, the academic quality ranking system labels each journal at a particular level, based on a blend of peer review, statistical citation and editorial judgment. Higher quality papers are ranked with a higher number of stars; these papers are

‘readable and worth reading’. Likewise, the SSCI ranking system ‘offers a systematic, objective means to critically evaluate the world's leading journals, with quantifiable, statistical information based on citation data’, which helps quantify research influence and impact at journal and category level (SSCI, 2010).

Accordingly, the journal ranking system will form part of the search boundaries of the systematic literature review. Although the SSCI ranking system sorts journals by category and ranking, whereas ABS sorts by ranking alone, the author decided to use both, for the following reasons:

- **SSCI top 50 ranking journals in management:** the rationale behind this selection is that the top 50 are the most cited, so much so that journals lower than the top 50 most likely quote information from the top 50 or build on them. Moreover, dynamic capabilities are considered part of the management field – and thus the top 50 selected journals were in this field.
- **ABS 4 & 3 star journals in General Management and Operations, Technology and Management:** the rationale behind this selection is to complement the SSCI top 50 ranked journals and not miss any key information. 4 & 3 star journals are the most cited; with information in 2 & 1 star journals mostly extracted from the former. Dynamic capabilities deal with organisational ability to change; thus general management and operations, technology and management fields represented the most suitable journals for our research.

The total from both sections is 65 journals, as some ABS 4 & 3 star journals are part of the SSCI top 50. Table 2.1 shows this cross-reference between two different ranking systems, which help review alternative opinions between similarly weighed journals. Although the table shows that 28 journals have no relevant papers or dynamic capabilities were not a central topic of the articles in question, these are included to demonstrate the variety of journals reviewed.

2.2.2.4 Out of boundaries

To make the search process and boundaries more flexible as the research progresses, and not miss any key information, these boundaries can be crossed in special cases: such as tracing key authors cited, and information quoted or referred to in the papers. Tranfield et al. (2003) suggest that management reviews are a process of exploration, investigation and development. A flexible approach is required so that modifications can be made throughout

the research, and a rationale provided for these changes - instead of a statistically planned approach. This stage allows key information beyond the identified boundaries to be complemented: including key authors' books and publications from before 1995. This helps compensate for the rigidity of 'mechanistic' searches (Leseure et al., 2004, p.172).

2.2.3 Process Outcomes

The systematic literature review identified all papers related to dynamic capabilities terms from the designated journals, with a total of 17744 papers from the initial search hit. This wide range of papers also allowed us to provide a broad, deep analysis of the subject area; however, only 134 papers were retained by reading the article titles. The rationale here is that these papers demonstrate dynamic capabilities as the main topic or have some understanding/contributions related to dynamic capability theories. Many of these papers referred to 'dynamic capabilities' without any intention of mentioning strategic management; or used the term in engineering experiments. This outcome proves that the keywords resulted in papers strongly relevant to our research.

Table 2.2 demonstrates these outcomes in terms of the journal title, database used, SSCI impact factor, ABS star rating, the number of papers in the initial search, and retained papers count.

Table 2.2: List of journal titles, database and impact factors

s.n	Journal Title	Database	SSCI Ranking		ABS Ranking grade	No. of Articles (1995- March 2017)	
			Total Cites	Impact Factor		Initial	Final
1	The Academy of Management review	Highwire Press	16559	6.169	4	314	4
2	Academy of Management journal	JSTOR Arts, Highwire, Sciences	17848	5.608	4	451	0
3	Academy of Management learning & education	Highwire Press	938	4.8	3	230	0
4	JOURNAL OF MANAGEMENT	SAGE Premier	7653	4.595	4	319	5
5	Academy of Management Annals	EBSCOhost	360	4.48	N/A	98	1
6	MIS QUARTERLY	JSTOR Arts and Sciences	6761	4.447	4	127	0
7	Journal of Operations Management	ScienceDirect	4107	4.382	4	355	3
8	ORGANIZATION SCIENCE	Highwire Press	9377	4.338	4	420	9
9	JOURNAL OF APPLIED PSYCHOLOGY	EBSCOhost	19647	4.308	4	106	0
10	JOURNAL OF MANAGEMENT STUDIES	Wiley	5026	4.255	4	425	5
11	ADMINISTRATIVE SCIENCE QUARTERLY	ProQuest ABI, SAGE Premier	11438	4.212	4	181	0
12	JOURNAL OF ORGANIZATIONAL BEHAVIOR	Wiley	4976	3.854	4	118	0
13	STRATEGIC MANAGEMENT JOURNAL	Wiley	16174	3.783	4	931	26
14	Academy of Management Perspectives	EBSCOhost,Highwire Press	456	3.75	3	158	3
15	INTERNATIONAL JOURNAL OF MANAGEMENT REVIEWS	Wiley	753	3.581	3	173	5
16	JOURNAL OF INTERNATIONAL BUSINESS STUDIES	ProQuest ABI,Palgrave	6467	3.406	4	812	2
17	OMEGA- INTERNATIONAL JOURNAL OF MANAGEMENT SCIENCE	Elsevier ScienceDirect	3103	3.338	3	182	0
18	TECHNOVATION	Elsevier ScienceDirect	2165	3.287	3	602	3
19	ORGANIZATIONAL RESEARCH METHODS	SAGE Premier	1956	3.257	3	34	0
20	ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES	Elsevier ScienceDirect	6804	3.129	4	38	0
21	Asia Pacific Journal of Management	ProQuest ABI	835	3.062	2	274	1
22	PERSONNEL PSYCHOLOGY	Wiley	4244	2.926	4	118	0
23	LEADERSHIP QUARTERLY	ScienceDirect	3338	2.705	4	189	0
24	Journal of Supply Chain Management	ProQuest ABI	672	2.65	1	160	1
25	TOURISM MANAGEMENT	ScienceDirect	4391	2.597	4	268	1
26	SERVICE INDUSTRIES JOURNAL	Taylor & Francis, ProQuest	1466	2.579	2	97	0
27	RESEARCH POLICY	ScienceDirect	7774	2.52	4	966	0
28	R & D MANAGEMENT	Wiley	1378	2.507	4	321	3
29	Management and Organization Review	Wiley	379	2.441	N/A	91	1
30	GROUP & ORGANIZATION MANAGEMENT	ProQuest ABI,SAGE Premier	1106	2.429	3	49	0
31	HUMAN RESOURCE MANAGEMENT REVIEW	ScienceDirec	191	2.375	2	105	1
32	Journal of Business Logistics	ProQuest ABI,Wiley	1252	2.352	2	156	0
33	ORGANIZATION STUDIES	SAGE Premier	3457	2.328	4	243	3
34	JOURNAL OF INFORMATION TECHNOLOGY	ProQuest ABI	967	2.321	3	323	3
35	INFORMATION & MANAGEMENT	ScienceDirect	3282	2.214	3	277	2
36	LONG RANGE PLANNING	ScienceDirec	1324	2.197	3	394	6
37	INFORMATION SYSTEMS RESEARCH	Highwire Press	3286	2.146	4	226	2
38	Decision Analysis	ProQuest ABI	349	2.143	N/A	104	0
39	JOURNAL OF PRODUCT INNOVATION MANAGEMENT	Wiley	2836	2.109	4	370	6
40	Research in Organizational Behaviour	ScienceDirec	2011	2.056	3	27	1
41	Strategic Entrepreneurship Journal	Wiley	283	2.053	3	109	1
42	European Journal of Work and Organizational Psychology	Taylor & Francis	1056	1.962	2	58	0
43	Business Strategy and the Environment	Wiley	961	1.96	2	168	2
44	JOURNAL OF OCCUPATIONAL AND ORGANIZATIONAL PSYCHOLOGY	ProQuest ABI	1757	1.939	4	38	0
45	CORPORATE GOVERNANCE-AN INTERNATIONAL REVIEW	Wiley	733	1.897	3	65	0
46	International Journal of Shipping and Transport Logistics	Inderscience Publishers	95	1.844	N/A	0	0
47	MIS Quarterly Executive	EBSCOhost	234	1.743	N/A	6	0
48	MANAGEMENT SCIENCE	ProQuest ABI	17261	1.733	4	516	1
49	HUMAN RELATIONS	SAGE Premier ProQuest ABI	4117	1.729	4	99	1
50	Journal of International Management	ScienceDirec	545	1.698	2	236	2
51	Production and Operations Management	ProQuest	1504	1.301	3	584	0
52	International Journal of Production Economics	ScienceDirect	6611	1.76	3	1027	4
53	International Journal of Operations and Production Management	ProQuest,Emerald	N/A	N/A	3	675	6
54	Supply Chain Management: An International Journal	Emerald	N/A	N/A	3	185	2
55	Reliability Engineering and System Safety	ScienceDirect	3994	1.77	3	370	0
56	Manufacturing and Service Operations Management	ProQuest	926	1.475	3	60	0
57	IEEE Transactions on Engineering Management	IEEE.org	1594	0.958	3	135	2
58	Journal of Scheduling	ProQuest	581	1.051	3	52	0
59	International Journal of Production Research	Taylor & Francis	6654	1.115	3	1315	2
60	Production Planning and Control	Taylor & Francis	933	0.725	3	619	1
61	Harvard Business Review	EBSCOhost	N/A	N/A	4	9	0
62	British Journal of Management	Wiley	N/A	N/A	4	236	12
63	California Management Review	ProQuest	N/A	N/A	3	113	1
64	MIT Sloan Management Review	ProQuest	N/A	N/A	3	160	0
65	Journal of Management Inquiry	Sage Premier	N/A	N/A	3	77	0
Total No. of Articles						17744	134

NOTE: some journals' papers were gathered from more than one database due to volume distribution.

2.2.4 Analysis and critique

To identify the core and influential papers, and maximise the relevance of papers without error or bias, the author created Table 2.3: an inclusion/exclusion criteria table.

Table 2.3: Inclusion / exclusion criteria of journal papers

Impact factor	1	2	3	4	5
Article Description	Vague information about the subject and not related to the research.	Address a theme in a very general statement	Address 1 or 2 themes and some general information on the subject	Identifies new theme, address 2 themes or less, core information and some statements can be cited from	Identifies new theme, address more than 2 themes, core information on the subject and many statements can be cited from.

The first list of 134 retained papers was processed again based on the above criteria. The article titles and abstracts were read and rated, based on an impact factor of 1 to 5. Any article with an impact factor of 3 and above was retained. A total of 77 of 134 papers were retained which scored 3 and above.

Many techniques were tried out in analysing the final listed papers, including NVivo, Endnote, MS Access, and the traditional way of highlighting key information on a printed paper with a pen. The author chose a mix of those techniques which are most practical and convenient to him, as summarised in the following stages:

- Create two summary tables: one for the conceptual framework, including initial definitions, interrelated definitions, authors and year; another for the thematic framework, including initial themes, sub-themes, authors and year.
- Read the article and electronically highlight key information from the PDF without printing it (just save the changes in the PDF).
- Copy the highlighted information to the two summary tables as per the table fields' requirements.

- Add any new field to the summary tables, including newly emerged themes, sub-themes, definitions and interrelated definitions.
- Save each PDF article in the designated folder created with Endnote software.

The summary table idea is similar to thematic ideas of a coding system of NVivo software, and consists of more than 120 pages. This table considerably helped the synthesis and critique stage, which showed all author contributions for a particular theme or definition. Moreover, it made it easier to extract key information, as it grouped together new ideas from different authors, and agreements and disagreements between them.

In addition, the table helped develop the thematic framework: it started with five themes, expanded to 15, and was finally reduced to 13 main themes, with some previous themes merged together. Tranfield et al. (2003) note that emerging themes should be combined with more synthesised detail, i.e. as sub-themes.

By implementing a flexible approach and crossing the search boundaries at times, this added nine further papers and three books into the list. The final total of key papers is therefore 86. To ensure that no related articles had been missed, the 65 targeted journals were searched again, using the terms ‘dynamic capabilities’ or ‘dynamic capability’ in the ‘article title’ field, without specifying a date; a few papers appeared, but these were not directly related to dynamic capabilities. This additional step validated the start date of the search boundaries.

2.3 Conceptual framework

This section discusses the dynamic capabilities conceptual framework and synthesising the literature (Figure 2.4), which emerged from the systematic literature review. It provides a Resource Based View (RBV) definition, concepts, limitations, and how it has evolved along with the dynamic capabilities concept. This is followed with an overview of the dynamic capabilities concept, theoretical background, its role and definition, interrelated definitions and challenges; and ends by discussing the theoretical implications and providing a summary.

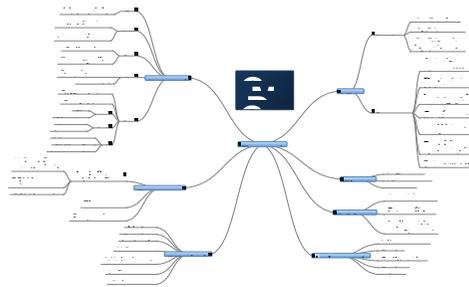


Figure 2.4: Synthesising the literature of dynamic capabilities.

2.3.1 Resource Based View (RBV)

The Resource Based View (RBV) is an important academic, theoretical outline, which explains ways of achieving competitive advantage, and how to maintain these over time in moderate market conditions (Eisenhardt and Martin, 2000, Teece et al., 1997, Barney, 1991, Peng et al., 2008). Døving and Gooderham (2008) argue that RBV is the ability of a firm to depend on its own superior resources to enter a new market, by extending its scope of product or service. They also note that RBV stresses the protection and arrangement of inimitable knowledge, instead of the need to change resources and capabilities over time. Others, including Bowman and Ambrosini (2003), Barney (1991), and Eisenhardt and Martin (2000), further explain that if firms' resources are valuable, rare, inimitable, and non-substitutable (VRIN), they can generate more rent: with lower unit costs leading to tremendous profits and competitive advantage through the application of newly created strategies, which are difficult for competitors to imitate. Moreover, RBV considers firms as packages of resources, which are distributed differently across the organisation based on their functions, and continue making a difference over time (Eisenhardt and Martin, 2000).

2.3.1.1 RBV Limitations

RBV, though, lacks explanations for how and why competitive advantages in some firms are maintained while business environments are changing very rapidly (Teece et al., 1997). This breaks down when the market is at high velocity (Eisenhardt and Martin, 2000). RBV has been criticised for ignoring the negative impact of assets and capabilities on firm rents (Vogel and Güttel, 2012). Ambrosini and Bowman (2009) add that RBV does not explicitly explain how to create future valuable resources, and how to maintain and renew the current stock of VRIN resources in dynamic environments.

Moreover, it does not adequately maintain important competitive advantages (Teece et al., 1997, Ambrosini and Bowman, 2009), and is primarily a static theory: which focuses on one or a single group of resources at a time (Ambrosini and Bowman, 2009, Barreto, 2010). In contrast, best practice of market leaders has proven that response times, rapid product innovation (Teece et al., 1997) and flexibility, combined with management abilities to efficiently coordinate internal and external competencies is essential if companies are to survive in the ever-changing business environment.

2.3.1.2 RBV extends to dynamic capabilities

These limitations and concerns have led many scholars to develop a new framework: which can explain how to sustain competitive advantages and survive in dynamic situations (Teece et al., 1997). Many (Zott, 2003, Teece et al., 1997, Zollo and Winter, 2002, Winter, 2003, Eisenhardt and Martin, 2000) propose that the dynamic capabilities framework can fill these gaps: a view shared by Barreto (2010), Ambrosini et al. (2009), Vogel and Güttel (2012), Teece (2014a). Zeng et al. (2017) claim that RBV is about possessing and selecting resources, whereas dynamic capability is about deploying and reconfiguring resources to generate superior economic return.

All authors mentioned above consider dynamic capabilities as an extension of RBV, which can address modern business environment requirements. However, Schilke (2014b), and Zeng et al. (2017) ask for an explanation on how dynamic capabilities can develop, renew and adapt to market conditions.

This extends the first guiding question mentioned earlier:

How are dynamic capabilities developed, deployed and renewed?

2.3.2 Supporting definitions and their relationships

2.3.2.1 Definition of resources

According to Teece et al. (1997, p.516), ‘Resources are firm-specific assets that are difficult if not impossible to imitate’. He also argues that they are difficult to transfer between organisations, due to associated tacit knowledge and transfer costs. Likewise, Capron and Mitchell (2009) and McKelvie and Davidsson (2009) argue that resources are the stock of factors which an organisation controls; or assets suitable to the production process. Eisenhardt and Martin (2000) suggest that resources are organisational assets used to create and implement exclusive value-creating strategies. They also consider them as a core of RBV, extended to dynamic capabilities. Therefore, resources can be viewed as a foundation with which to sustain competitive advantage, as they address particular customers and markets in unique ways.

Krsto et al. (2003), and Døving and Gooderham (2008), differentiate resources into two categories: tangible resources, such as machinery, plants, technology and facilities; and intangible resources, such as knowledge, experience, brand, patents and market position. Døving and Gooderham (2008) consider that tangible resources are generally fixed assets

and not easy to change, whereas intangible resources are quite flexible in receiving changes when developed internally. Conversely, Eisenhardt and Martin (2000, p.1106) distinguish resources differently from others, dividing them into physical assets, such as specialised equipment and physical sites; human assets, such as knowledge in particular fields; and organisational assets, such as organisational processes.

2.3.2.2 Definition of routine and processes

Teece et al. (1997, p.518) explain processes as ‘the way things are done in the firm or what might be referred to as its routines or patterns of current practice and learning’. Processes are collective activities to produce output or perform a task systematically (Teece et al., 1997, Wang and Ahmed, 2007, Peng et al., 2008, Cetindamar et al., 2009, Newey and Zahra, 2009). Wang and Ahmed (2007) argue that processes can be transferred simply within or between organisations, as they have a clear, codified structure.

Routines are activities performed by organisations’ specific assets, collected in combined clusters spanning individuals and groups; and these activities also create organisational processes (Teece et al., 1997). Similarly, Zollo and Winter (2002, p.340) define routines as ‘stable patterns of behaviour that characterise organisational reactions to variegated, internal or external stimuli’. In the same way, Winter (2003, p. 991) suggests that routines are ‘behaviour that is learned, highly patterned, repetitious, or quasi-repetitious, founded in part in tacit knowledge’. Peng et al. (2008), and Cetindamar et al. (2009), concur with this. O'Connor (2008) suggests that routines are simple, require minimal investment to build, and concentrate on particular boundaries of priorities and conditions, so are not rigid processes.

As we have seen, routines and processes are related to each other and frequently explained together. Routines can be observed as processes in some circumstances, or vice versa; both share similar characteristics, such as highly patterned, collective activities when identifying organisational tasks.

2.3.2.3 Definition of capabilities

According to Helfat and Winter (2011, p.1244) capabilities are ‘an organisational capacity to perform a particular activity in a reliable and at least minimally satisfactory manner’. They should be repeated and reliable, and will not be considered as capabilities without these characteristics. Teece et al. (1997, 2014b) define capabilities as the potential ability to utilise resources and complete tasks in response to competition or particular situations. Moreover, Teece (2014c), highlights that ordinary capabilities are responsible for producing and selling

static services and products, and performing definable tasks. According to the literature, capabilities are both a result of strategic decisions and business units which help recognise competitive performance and operational strengths (Peng et al., 2008, Barrales-Molina et al., 2014).

Similarly, Makadok (2001) defines capabilities as **non-transferable resources** embedded in an organisation which specialises in improving the productivity of other resources. Moreover, capabilities ownership cannot easily be transferred without shifting or owning the whole organisation, or any interrelated or sub-interrelated units of it. In a different way, Winter (2003) explains capabilities as **high-level routines** which make inputs along with other types of routines, and offer firm management a set of options for producing output according to the type of situation.

On the other hand, Schreyögg and Kliesch-Eberl (2007) argue that capabilities offer reliable problem-solving activities, consisting of complex linking rules. These activities must be successful in different circumstances and reproducible. Moreover, Peng et al. (2008) consider capabilities as part of the operation strategy; thus operation performance measurement should be in place and consist of quality and cost control, flexibility and other performance parameters.

Capabilities are categorised in two categories, based on their specific role and circumstances. Newey and Zahra (2009), Helfat and Winter (2011), Zahra et al. (2006), and Winter (2003) highlight the following:

- Operational or ordinary capabilities are used to maintain steady earnings in a stable environment by producing identical products for the same customers in the same volume over time. They are responsible for generating revenue; firms cannot survive without them.
- Dynamic capabilities deal with change: they are used to change products in terms of scale, and customise products to match demands of markets and customers.

However, Ambrosini et al. (2009), Collis (1994), and Winter (2003) propose a higher level or category: meta-capabilities (also known as higher order or regenerative capabilities). This level is needed to update and renew current dynamic capabilities.

2.3.2.4 Supporting definitions' relationships and features

According to Peng et al. (2008), and Capron and Mitchell (2009), resources are both tangible and intangible firm assets; or 'stocks of factors that a firm control' (Amit and Schoemaker, 1993, p.35). These are grouped in clusters and used by organisational processes to achieve planned outputs, and are called routines (Teece et al., 1997, Peng et al., 2008). Collis (1994), Zollo and Winter (2002), and Winter (2003), relate routines to capabilities in terms of high-level routines or groups of interrelated routines; thus capabilities can be viewed as high-level processes or groups of interrelated processes. Capabilities are the sum of clear processes and tacit features embedded in processes (Wang and Ahmed, 2007); formal and informal processes (Schreyögg and Kliesch-Eberl, 2007); or tangible or intangible processes (Capron and Mitchell, 2009), which generate a firm's profit by collaborating with its resources. However, Makadok (2001) defines capabilities as a special resource to enhance other resources' productivity.

Dynamic capabilities differ from operation capabilities by being systematically responsible for changes (Winter, 2003, Helfat and Winter, 2011). Helfat and Winter (2011) argue, though, it is very difficult or even impossible to establish clear demarcations which can distinguish operation from dynamic capabilities. The business environment is changing rapidly, with unique situations driven by events: so distinguish between capabilities is, at least to some extent, impossible for some firms.

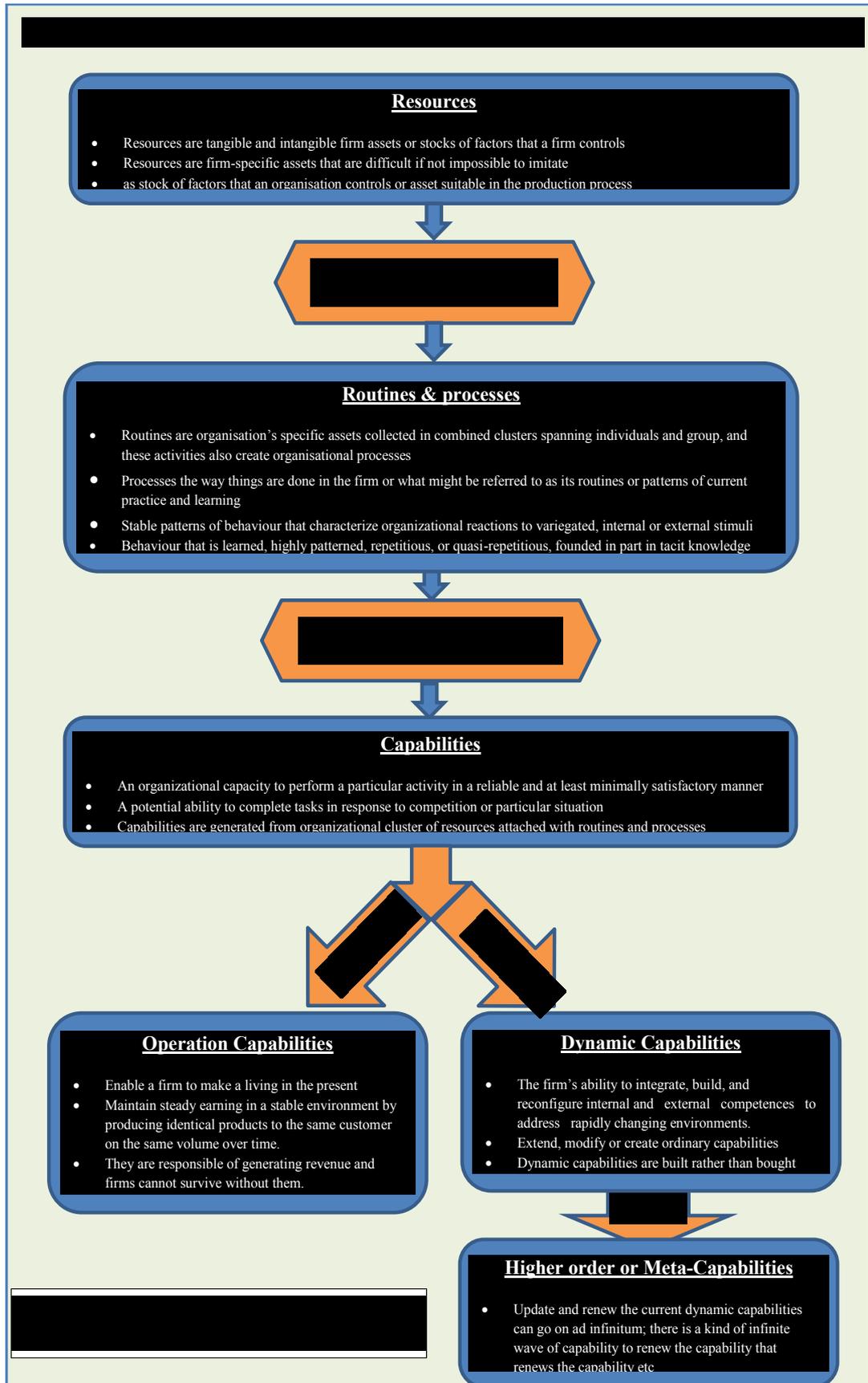
Teece (2014a, p. 332) identified some differences between ordinary and dynamic capabilities. Table 2.4 is reproduced from his work, and illustrates some of these differences:

Table 2.4: Differences between ordinary and dynamic capabilities

	Ordinary capabilities	Dynamic capabilities
Purpose	Technical efficiency in business functions	Achieving congruence with customer needs, technological and business opportunities
Mode of attainability	Buy or build (learning)	Build (learning)
Tripartite schema	Operate, administrate, and govern	Sense, seize, and transform
Key routines	Best practices	Signature processes
Managerial emphasis	Cost control	Entrepreneurial asset orchestration and leadership
Priority	Doing things right	Doing the right things
Imitability	Relatively imitable	Inimitable
Result	Technical fitness (efficiency)	Evolutionary fitness (innovation)

Capabilities are generated from an organisational cluster of resources attached to routines and processes embedded in idiosyncratic social structures, managerial processes, ways of gaining knowledge, individual skills, ways of communication and historical experiences (Krsto et al., 2003, Schreyögg and Kliesch-Eberl, 2007, Peng et al., 2008). These help sustain competitive advantage, as they are an outcome of routines combined with tacit knowledge; nature and path dependent. They are non-transferable, firm-specific and create barriers for competitors to imitate or substitute (Amit and Schoemaker, 1993, Makadok, 2001, Krsto et al., 2003, Peng et al., 2008). Figure 2.3 illustrates the definition's hierarchy and relationship based on these theoretical implications.

Figure 2.3 Definitions' hierarchy and relationship



2.3.3 Definitions of dynamic capabilities and roles

The dynamic capabilities framework was developed by Teece et al. to overcome limitations and fill the gaps of the RBV. Dynamic capabilities were initially introduced in 1994 by Teece and Pisano. Three years later, they produced another article about this idea which drew extraordinary attention within the management literature (Barreto, 2010, Barrales-Molina et al., 2012, Schreyögg and Kliesch-Eberl, 2007). Consequently, several authors proposed alternative frameworks (Barrales-Molina et al., 2012), while others modified Teece et al.'s original definition (Ambrosini and Bowman, 2009). Most contributions are theoretical studies of the concept, role, nature, creation, development and heterogeneity of dynamic capabilities (Barreto, 2010, Barrales-Molina et al., 2012, Schreyögg and Kliesch-Eberl, 2007). Table 2.5 shows the core definitions, authors, emphasised actions and key roles of dynamic capabilities.

Table 2.5 Dynamic capabilities: core definitions

Definition	Author	Emphasised action	Key role
The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.	Teece et al., 1997, p.516	Ability to integrate, build, and reconfigure	Intentional efforts to change the firm's resource base.
The firm's processes that use resources – specifically, the processes of integrating, reconfiguring, gaining and releasing resources – to match and even create market change; dynamic capabilities are the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die	Eisenhardt and Martin, 2000, p.1107	Processes to integrate, reconfigure, gain and release resources	Ability to match, adapt and create market change
A dynamic capability is a learned and stable pattern of collective activity through which the organisation systematically generates and modifies its operating routines in pursuit of improved effectiveness.	Zollo and Winter, 2002, p.340	Collective activity to systematically generate, extend and modify operating routines	Renew and change operating capabilities
Dynamic capabilities exist to	Winter,	Capacity to extend,	Build and

extend, modify or create ordinary capabilities (zero level capabilities) which enable a firm to make a living in the present	2003, p.992	modify or create ordinary capabilities and regenerate dynamic capabilities	regenerate dynamic capabilities as 'meta-capabilities'. Capability to renew the capability that renews the capability, etc.
The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker.	Zahra et al., 2006, p. 918	Abilities to reconfigure a firm's resources	Provide options for decision makers
Firm's behavioural orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage.	Wang and Ahmed, 2007, p.35	Behavioural orientation constantly to integrate resources.	Sustain competitive advantage in changing environment
Dynamic capabilities can be disaggregated into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting and, when necessary, reconfiguring the business enterprise's intangible and tangible assets	Teece, 2007, p.1319	Capacity of sensing, seizing, and transformation	Prediction for new business opportunities in changing market
The capacity of an organisation to purposefully create, extend, or modify its resource base.	Helfat et al. 2007, p. 4	Capacity to create, extend, or modify its resource base	Organisational capacity to change resources.
A dynamic capability is the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base	Barreto, 2010, p.272	Potential to solve problem	Problem-solving and timely change to resource base
Dynamic capabilities enable the	Teece 2014a,	Ability to integrate,	Maintain

firm to integrate, build, and reconfigure internal and external resources to maintain leadership in continually shifting business environments.	p. 332	build, and reconfigure internal and external resources	leadership
Dynamic capabilities define the firm's capacity to innovate, adapt to change, and create change that is favourable to customers and unfavourable to competitors.	Teece et al., 2016 p. 6	Capacity to innovate	Adapt to change, and create change to compete

These contributions to the dynamic capabilities field are among the most cited, influential articles in strategic management publications. Many other contributions in the same field are not mentioned in the table, because they are only incremental or very close to these works.

Collecting these definitions in one table allows us to highlight the general agreement about the concept. The emphasised actions used different terms: ability, processes, collective activities, capacity, and behavioural orientation. *All these terms are used to describe dynamic capabilities as organisational processes via different terminologies. In view of that, **these processes have a common role: intentional or deliberate change to the resource base.*** This confirms that dynamic capabilities are an extension of RBV. However, these different terms and explanations illustrate that there is still no universal definition. Many authors note that a dynamic capability conceptual framework is not well established yet in the literature.

That said, Barreto (2010)'s definition of dynamic capabilities differs somewhat from the rest. His approach is about firms' potential to systematically solve problems, sense opportunities and threats, and change resource base accordingly. In other words, it is more about analysing the business environment, then making decisions based on this. He purposely uses the term 'systematically' to differentiate it from ad hoc problem solving, and emphasise the repeatable nature of the process (Zollo and Winter, 2002). Yet despite his efforts to escape from the RBV and Teece et al.'s original definition, he nonetheless addresses change to the resource base in a dynamic environment.

This project adopts Teece's definitions: particularly from 2007, which segregates the DC roles into **sensing, seizing and reconfigurations**. The following sections highlight the key roles of dynamic capabilities, taking into account Table 2.6 and any incremental contributions. We shall start by explaining the role of dynamic capabilities based on Teece et al. (1997)'s definition, before turning to that of other scholars.

‘The firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments’ (Teece et al., 1997, p. 516).

This dynamic capabilities framework was created from major theoretical foundations to address different strategic management elements. Barreto (2010) highlights some important elements:

- The definition starts with the term ‘ability’ as the nature of the concept: which emphasises the important role of strategic management. It is considered an extension of the RBV by proposing a special type of capability, such as ability.
- It highlights dynamic capability’s role in integrating, building and configuring internal and external competencies. An evolutionary economics view is assumed here: stating the role of routines, path dependencies and organisational learning.
- It stresses specific kinds of external contexts which are rapidly changing the environment. These generate an innovative, novel perspective of dynamic capabilities as an extension of the RBV; and resolve a major limitation of the latter, which has been criticised for not adequately addressing rapidly changing environments.

2.3.3.1 Intentional efforts to change the firm’s resource base

Dynamic capabilities link to strategic change and address one type of change: an intentional change of the resource base (Ambrosini and Bowman, 2009). They are not an alternative term for strategic change. Zahra et al. (2006), and Helfat (2007), argue that dynamic capabilities are not created from luck; deploying them must be intentional and deliberate. Zollo and Winter (2002) highlight that dynamic capabilities must have some stable, repeatable pattern; they do not involve ad-hoc problem solving (Winter (2003); Schreyögg and Kliesch-Eberl (2007); Helfat (2007). Winter (2003) emphasises that if firms adopt fragmental behaviours in dealing with crises, they not practising dynamic capabilities.

Although the dynamic capabilities framework explains intentional efforts to change an organisation’s resource base, it cannot apply alone for strategic change or resource creation, reconfiguration and development (Ambrosini and Bowman, 2009). These intentional changes may happen while developing processes which are not intentionally practised by the management team, could owe to luck (Barney, 1991), or be an outcome of ad hoc interventions (Winter, 2003). Yet how can we distinguish between resources developed from dynamic capabilities, and those which owe to luck or ad hoc interventions?

2.3.3.2 Ability to match, adapt and create market change

Many researchers are exploring how dynamic capabilities might enable firms to adapt to changes in the markets and technology. Eisenhardt and Martin, 2000 (p.1107) provide some robust ideas in their definition, which holds that firms can survive if ‘the firm’s processes that use resources – specifically the processes of integrating, reconfiguring, gaining and releasing resources – **to match and even create market change**’.

Dynamic capabilities are firm’s capacities **to survive and sustain themselves** in a rapidly changing business environment, by adapting and matching their resources and competencies to environmental conditions over time, taking into account their past history and current resource limitations (Teece et al., 1997, Teece and Pisano, 1994, O’Connor, 2008, Ambrosini and Bowman, 2009, Barreto, 2010). When managers reconfigure their resources and skills to match and adapt to market conditions, this can help identify new business opportunities and generate market change (Teece, 2007, Eisenhardt and Martin, 2000, Augier and Teece, 2009, Newey and Zahra, 2009, Krsto et al., 2003, King and Tucci, 2002, Bowman and Ambrosini, 2003, Wilhelm et al., 2015).

There are many examples of firms which have ended up involved in very different businesses from what had initially been envisaged. These transformations were because of market change, innovation, evolutions in technology, and politics: for example, the boom in military industries during and after the Second World War. Wang and Ahmed (2007) cite the Brimfield Precision company from the US metalwork sector, which almost disappeared from the market after the Second World War due to an inability to compete with newcomers: especially Japanese companies. As a result, the company was transformed from its dependency on price-based contracts and a small customer base to designing and manufacturing many types of surgical instruments.

Table 2.6 below highlights transformation examples (O’Reilly and Tushman, 2008, p. 187).

Table 2.6: Transformation examples

Company	Established	Original business / product	Current business
Morton Intl	1848	Salt	Air Bags
American Express	1850	Express Delivery	Financial Services
Vivendi	1853	Garbage	Media
W.R Grace	1854	Bat Guano	Chemicals
Ingram	1857	Sawmills	Distribution
Armstrong	1860	Cork	Floor Coverings
Nokia	1865	Lumber	Mobile Phones
Goodrich	1870	Fire Hose	Aerospace
J&J	1885	Bandages	Pharmaceuticals
Sunbeam	1890	Horse Clippers	Appliances
Harries	1895	Printing Press	Electronics
Tandy	1899	Leather	Retail Electronics
3M	1902	Mining	Office Supplies
Xerox	1906	Photog. Paper	Business Equip.
Black & Decker	1910	Bottle Cap Mach.	Power Tools
Allied Signal	1920	Chemicals	Aerospace
ITT	1920	Phone Companies	Insurance
Hasbro	1923	Carpet Remnants	Toys
Marriott	1927	Root Beer	Hotels
Southland	1927	Ice	Retail Electronics
Bally	1931	Pinball Machines	Casinos/ Fitness
Carlson	1938	Gold Bond Stamp	Travel
Nucor	1897	Automobiles	Mini-mill Steel

2.3.3.3 Update and change operating capabilities

Operation routines (Zollo and Winter, 2002) or ordinary capabilities (Winter, 2003) are firms' assets which enable a firm to make a living in the short term. Dynamic capabilities exist to systematically extend, modify or create these types of capabilities and routines: to adapt to changes and achieve process improvement through a stable, dedicated process (Winter, 2003; Zollo and Winter, 2002; Newey and Zahra, 2009; Zahra and George, 2002; Cetindamar et al., 2009).

Furthermore, the older firms become, the more chance there is of capabilities and competencies becoming rigid or obsolete (Zahra and George, 2002, Zollo and Winter, 2002). Experience alone is not a tool to survive and develop in the modern business environment. These firms must act well before they become too inflexible to change - or they might lose their market position. Updating and renewing operational capabilities is a necessity, not an option, in the rapidly changing environment. Eisenhardt and Martin (2000, p.1107) note that dynamic capabilities are the organisational and strategic routines through which firms achieve new resource configurations as 'markets emerge, collide, split, evolve and die'.

2.3.3.4 Build and regenerate dynamic capabilities as 'meta-capabilities'

Over time, though, dynamic capabilities will themselves become irrelevant to market conditions. Zahra et al. (2006) argue that a 'source of rigidity' might develop when a firm over-uses some of its capabilities. If the business environment is changing more quickly than a firm's dynamic capabilities expectations, such a firm must transform or reconfigure its capabilities to achieve new ones, which can sustain new environmental conditions (Ambrosini et al., 2009). In high technology industries, technology is changing dramatically; core valuable resources require new dynamic capabilities to cope with frequent resource configuration requirements.

Authors such as Ambrosini et al. (2009), Collis (1994), and Winter (2003) have investigated this issue. Table 2.7 summarises their thoughts about capabilities' hierarchy and structure:

Table: 2.7: Capabilities' hierarchy and structure

Capability order & type	Collis (1994)	Winter (2003)	Ambrosini et al. (2009)
Third order of dynamic capabilities	The fourth level, 'Meta-capabilities', which relate to learning to learn capabilities.	Higher order capabilities which operate on top of second level capabilities	Regenerative dynamic capabilities: applied to regenerate the current set of dynamic capabilities
Second order of dynamic capabilities	The third level: the ability to recognise the intrinsic value of other resources or to develop novel strategies before competitors.	Higher order capabilities which operate on top of the first level capabilities	Renewing dynamic capabilities, used to adjust the mix of the extant resource stock
First order of dynamic capabilities	The second level; dynamic improvements to the activities of the firm.	First order capabilities, which modify and change zero level capabilities.	Incremental dynamic capabilities, used to continually improve the resource base
Zero order of capabilities (Resources base)	The first level; a firm's ability to perform the basic functional activities.	The zero order are ordinary or operational capabilities which permit the firm to earn a living in the present	The first level is the firm's resources in a broad sense.

Collis (1994) suggests four levels of capabilities: resource base (first level); dynamic capabilities (second and third levels); and meta-capabilities (fourth level; described as higher order and learning to learn capabilities). There is an infinite, continually regenerating process of renewing current capabilities.

Ambrosini et al. (2009) generally follows Winter (2003) and Collis (1994) in her proposal. She starts with resource base as zero level, and divides dynamic capabilities into incremental (first level) and renewing (second level). At the top of the hierarchy or higher order, she defines regenerative capabilities. These will be applied when managers predict higher disturbance in the business environment than their anticipation.

Ambrosini et al. (2009), like others, stress the need for regenerative capabilities if dynamic capabilities are redundant or obsolete, and not delivering new resources as the market changes (Eisenhardt and Martin, 2000, p. 1107). Ambrosini et al. (2009) point to the examples of International Greetings (IGR) and GlaxoSmithKline (GSK). These companies

provide illustrations of regenerative dynamic capabilities via a process of modifying and changing their R&D; and another process to change these processes.

These types of capabilities (meta-capabilities, higher order capabilities and regenerative dynamic capabilities) do not directly deal with resources in terms of changing or configuring them. Instead, they work indirectly to the resource base by inserting new dynamic capabilities into firms. These capabilities are two stages beyond resources configuration and creation, while dynamic capabilities are just one stage (with a direct impact on resources).

Collis (1994)' work on meta-capabilities and Winter (2003)'s proposal of higher order capabilities are extended from Teece et al. (1997): which recommended that capability levels were distinguished. However, Ambrosini et al. (2009)'s suggestion of regenerative capabilities built on Collis (1994) and Winter (2003), which originated from Teece et al. (1997). Many authors utilised the same approach: among them, Wang and Ahmed (2007), Zahra et al. (2006), and Zeng et al. (2017).

Yet many concerns emerged during the literature analysis. For example, if higher order, meta-capabilities and regenerative dynamic capabilities must be repeated forever, this should be considered as a routine within dynamic capabilities; not a new capability or normal operation capabilities. Moreover, if the main purpose of current dynamic capabilities is to deal with change, these are also changing to match market change; otherwise, they would not be dynamic capabilities any longer.

The new terminology of meta-capabilities and regenerative dynamic capabilities is to address continuous improvement of current dynamic capabilities. Therefore, this validates the construct and modifies the first guiding question:

How are dynamic capabilities developed, deployed and regenerated?

2.3.3.5 Provide options for decision makers

Krsto et al. (2003, p. 1013) define the real option as 'investments in physical and intangible resources that provide the firm with contingencies in an uncertain environment'. They also describe firms as a web of assets and complex pool of resources, skills and capabilities (i.e. dynamic capabilities), which provide real options (flexibility) to the firms' management to run their business.

Dynamic capabilities can provide management with a real options approach, considered a practice in strategy deployment. This confirms the DC role in strategy deployment and provides insight for **the second guiding question**.

2.3.3.6 Sustain competitive advantage in changing environment

Dynamic capabilities provide important answers on how some firms but not others achieve and sustain competitive advantage (Teece and Pisano, 1994, Teece et al., 1997, Eisenhardt and Martin, 2000, Makadok, 2001, Zott, 2003, Sher and Lee, 2004, Zahra et al., 2006, Schreyögg and Kliesch-Eberl, 2007, Teece, 2007, Wang and Ahmed, 2007, O'Reilly and Tushman, 2008, Ambrosini et al., 2009, Ellonen et al., 2009, Kuo-Feng et al., 2012). Organisations' dynamic capabilities are difficult to imitate and embedded in the organisational process. These capabilities are shaped by specific (tangible and intangible) assets, and the paths available to sustain competitive advantage. Likewise, Teece et al. (1997, p. 516) propose that dynamic abilities give firms the ability to generate new, innovative ways of sustaining competitive advantage. Sher and Lee (2004, p.935) argue that knowledge management is considered as dynamic capabilities, and creating competitive advantage in three ways: reducing OPEX, producing product variety and reducing lead time to manufacture, sell and deliver.

On the other hand, Eisenhardt and Martin (2000) argue that even though dynamic capabilities are process embedded and idiosyncratic in their details, some common feature can be copied across firms, including competitors (Cetindamar et al., 2009). However, their values in resource creation and reconfiguration differ between firms even in the same sector (Teece, 2007, Eisenhardt and Martin, 2000).

Lack of dynamic capabilities in a firm's processes and competencies will most likely lead it to make profits and sustain competitive advantages only for a short time (Teece, 2007, Eisenhardt and Martin, 2000, Teece et al., 1997, Augier and Teece, 2008, Bowman and Ambrosini, 2003). Without continually innovative capacity, Schumpeterian (creative destruction) rents and even the monopoly (Porterian) rent cannot be maintained, as these require special strategic management (Teece and Pisano, 1994, Teece et al., 1997, Makadok, 2001, Wang and Ahmed, 2007, Augier and Teece, 2009, Cetindamar et al., 2009).

2.3.3.7 Ability to sense, seize opportunities and transform firms

Teece (2007) segregated dynamic capabilities into sense, seize and reconfiguration roles. This was his second contribution to the field of dynamic capabilities. It is a remarkable

work, cited by many authors (including Ellonen et al., 2009; Barreto, 2010). In 2014 and 2016, he further explained how these roles can be deployed, and recommended that leadership be continuously maintained, and capacity built to innovate, adapt to change, and create change. The following points summarise Teece (2007, p.1319)'s suggestions and explain the main features of sense, seize and reconfiguration roles.

- Sensing opportunities and threats in a rapidly changing environment require special dynamic capabilities. Competition among existing firms and newcomers is very high on the open market, with opportunities open for all. Existing firms are, however, threatened by loss of profits or failure to maintain growth. These situations are common, especially when governments privatise service sectors and open it up to competition. Many firms or government service sectors used to be a monopoly, but no longer: for example, British Telecom, gas and power, and the Omani telecommunications sector. Therefore, firms' dynamic capabilities (sensing capabilities) require the scanning and monitoring (Schreyögg and Kliesch-Eberl, 2007) of any changes in the business environment - especially government plans and regulations - to identify new opportunities and threats (Ellonen et al., 2009).
- Seizing opportunities and threats after sensing them is an important stage which requires distinctive capabilities. In this stage, the firm should look at which ways are best to address these opportunities and threats. Can the current process, product development, resources and assets handle it; or does it require new product, process, resources, complementary services and assets? The outcome of this stage is critical for decision makers; and any mistakes may lead to a huge loss. Ellonen et al. (2009) argue that these capabilities are needed in many activities, such as product and business model designing, and to help enhance innovation and creativity.
- After identifying opportunities or threats and setting plans of how to tackle them with required support, firms need to manage their transformation toward these plans. The capability to recombine and reconfigure assets and organisational structures as firms grow is the main dynamic capabilities role if the firm is to survive and grow in dynamic business environments. Ellonen et al. (2009) note that at the reconfiguration stage, it is useful to redeploy and reuse existing assets as much as possible.

It could be that many organisations are already practising these capabilities without referring to them as dynamic capabilities. The issue is *how to distinguish between these types of*

strategic capabilities in the organisation and the operation capabilities or routines, and how frequently these capabilities are used and updated. Moreover, is there any impact (direct or indirect) on organisational performance when these capabilities are applied?

Dynamic capabilities sense, seize opportunities and reconfigure: all considered as practices in strategy deployment. This confirms the DC role in strategy deployment and provides insight on **the second guiding question**.

2.3.3.8 Organisational capacity to change resource base

Organisational capacity to change – in other words, its dynamic capabilities - refer to organisations' abilities and methods to respond to dynamic business environments. Teece et al. (1997), Eisenhardt and Martin (2000), Sher and Lee (2004), and Helfat (2007) argue that these capacities can be presented as processes within organisations: changing the resource stock by modifying, integrating, generating and releasing resources. Moreover, these capacities can be organisational processes which generate and exploit the knowledge base to enhance innovation, research and development, when combined with complementary assets (Sher and Lee, 2004, Helfat, 2007).

Many firms are facing a rapidly changing environment and are willing to change. However, they do not possess the dynamic capabilities necessary to do this. Some of these firms might hire a consultancy company, but this will not work; as Makadok (2001) notes, they should build internally and cannot buy from the market.

2.3.3.9 Systematic and timely problem-solving

In rapidly changing business environments, many changes appear, cause issues, and sometimes reveal internal or external problems. These problems could owe to changes in regulations, changes in customers' perceptions or technological obsolescence. As they occur frequently, Barreto (2010) suggests the development of dynamic capabilities which can systematically solve them. He emphasises the adverb 'systematically' to maintain the feature of being repeatable and structured (Zollo and Winter, 2002), not geared towards ad-hoc problem solving (Winter, 2003, Zahra et al., 2006, Rahmandad, 2012).

Broadband internet in a telecommunications company is an example of how changes in technology and customer knowledge may reveal an existing internal problem. The customers become smart enough to find gaps in modem configurations, which leads to the use of a single username and password by many users at the same time. This is resolved by binding

broadband with landline telephones. As a result, a new process may be established to monitor resources and overcome problems.

2.3.4 How do dynamic capabilities work?

2.3.4.1 Dynamic capabilities embedded in processes

Dynamic capabilities can be observed as processes in firms' operations (Eisenhardt and Martin 2000, Wang and Ahmed 2007, Anand et al. 2009, Coen and Maritan 2011, Kuo-Feng et al. 2012, Ambrosini and Bowman 2009. Zollo and Winter (2002, p.344) describe dynamic capabilities as 'development from the coevolution of tacit experience accumulation processes with explicit knowledge articulation and codification activities'. Moreover, dynamic capabilities are 'management coordination processes' used by managers to manage firms' resources, with experience gained from organisational processes such as knowledge management and problem solving processes (Teece et al., 1997, Eisenhardt and Martin, 2000, Krsto et al., 2003). To increase the effectiveness of routines enhanced by strong and steady organisational values, organisational processes work as a tool to embed the strategy and business model of the organisation into day-to-day routines (Teece, 2014c). Organisations keep their process information and development classified, otherwise competitors may imitate them. However, many argue that this is not a major danger, as these processes are embedded in organisations' units and subunits, together with complementary assets.

2.3.4.2 Management influence on dynamic capabilities

Management skills to sense, seize opportunities and threats, and reconfigure 'if required' in rapidly changing environments are important strategic roles. The skills needed to recognise and exploit complementarities are scarce (Teece, 2007, p.1346; Ambrosini and Bowman, 2009; Augier and Teece, 2009; Barrales-Molina et al. 2012. O'Reilly and Tushman (2008), and Helfat and Martin (2015) suggest that managers should consider the orchestration and integration of new and existing assets when evaluating opportunities to overcome inertia and path dependency issues. Zahra et al. (2006) state that managers' abilities and perceptions considerably influence the path taken and its consequences. O'Reilly and Tushman (2008) add more challenges which influence path dependencies, such as cultures, organisational structure and current routines, and the mindset of the older leadership. They also note that the management skills required for exploitation differ from those needed for exploration; a paradox termed as 'ambidexterity' (Augier and Teece, 2008, p. 1196).

2.3.4.3 Dynamic capabilities influence and effect over time

As we have seen, dynamic capabilities are processes embedded in firms which develop over time, with managers placed at the centre (Krsto et al., 2003, Zahra et al., 2006, Wang and Ahmed, 2007). Krsto et al. (2003) argue that dynamic capabilities develop and change over time as knowledge also changes. Yet knowledge can be obtained from different approaches, including learning through experiential trial and error; the acquisition of collected and accumulated experience; or any combination of these, with time all-important (Eisenhardt and Martin, 2000, Zollo and Winter, 2002, Teece, 2007).

However, Zahra et al. (2006), and Wang and Ahmed (2007) stress that firms should link current challenges and changes with long-term vision and performance to achieve effective results, as the outcomes of dynamic capability will only become clear over time. The management team must wait for this, not rush to implement alternatives. These effects could take the form of performance improvement, but not directly impact on profitability.

2.3.5 Dynamic capabilities: challenges and limitations

2.3.5.1 Lack of a universal definition

The dynamic capabilities framework carries some ambiguity in its terminology, as it is still emerging and not well-established in the literature (Winter, 2003, Zahra et al. 2006, O'Reilly and Tushman 2008, Capron and Mitchell 2009, Ellonen et al. 2009, Kuo-Feng et al., 2012, Dixon et al., 2014). Moreover, the dynamic capabilities literature has generated confusion, inconsistency, overlapping ideas and hazy definitions. This is central to other issues, limitations and challenges which hinder the development of a solid ground on which a dynamic capabilities conceptual framework can stand.

2.3.5.2 Does not guarantee success

Although dynamic capabilities' main aim is to maintain the growth and survival of a firm in a rapidly changing environment, they do not guarantee this (Winter, 2003; Zahra et al. 2006; Barrales-Molina et al., 2012). If a firm deploys dynamic capabilities incorrectly, unnecessarily and incompletely, this could disturb or even damage its performance. Ambrosini and Bowman (2009, p.35) suggest that firms which deploy dynamic capabilities might fail or not necessarily make any gains, as the outcome pertains to resource stock, which could be irrelevant to the current market situation. Additionally, Zott (2003), Zahra et al. (2006), Ambrosini et al. (2009), and Barrales-Molina et al. (2012) hold that success is impacted by the particular market situation, type of change, managerial skills, timing of

making decisions and many other factors. This means that the success or failure of firms should not be linked to dynamic capabilities only (Wang and Ahmed, 2007). Other factors could include culture, resistance to change, political issues and organisational structure. Moreover, it is difficult to predict rates of success unless all identified assumptions are accurate and the measurement method is widely generalised across many organisations.

2.3.5.3 Costly and time-consuming

Dynamic capabilities take effect over time (Wang and Ahmed 2007). Investing in product development or R&D will not lead to an instant or direct effect on performance. Accordingly, Wang and Ahmed (2007) advise firms not to stop investing in developing dynamic capabilities because of initial signs of failure or delays in achieving results. Dixon et al. (2014) point towards a lack of studies which explain how to appraise dynamic capabilities' benefits and performance over time. For these developments to be more effective, firms must sustain a long term vision and view their long-term performance as key.

Similarly, Barrales-Molina et al. (2012, p. 14) suggest that when the business environment is changing rapidly, management will most likely deploy dynamic capabilities, but these involve high cost and commitment. Winter (2003) highlights that the more details involved in deploying dynamic capabilities, the greater the commitment and cost will be.

Rahmandad (2012) argues that results can be delayed if inadequate investment is allocated, leading top management to exercise a trade-off option. Zott (2003) claims that if the costs of a specific change option (dynamic capabilities activity) are higher than the anticipated benefits, the firm will not deploy it. Instead, Winter (2003, p. 993) suggests that an ad-hoc problem-solving approach is used instead, as the costs will vanish if there is no problem to solve. Schreyögg and Kliesch-Eberl (2007), and Ambrosini and Bowman (2009) advise management teams to balance and evaluate deployment cost between ad-hoc problem-solving approaches and dynamic capabilities.

2.3.5.4 No generalised approach for measurement

Lack of a common definition of dynamic capabilities poses challenges in developing an accepted generalised measurement approach (Kuo-Feng et al. 2012). Instead, it is represented in many aspects: process (Eisenhardt and Martin 2000); learning (Zollo and Winter 2002); or systematic problem solving (Barreto 2010). Zott (2003) agrees that dynamic capabilities change and reconfigure a firm's resource stock, competencies and operation capabilities: which impact performance.

2.3.5.5 Influenced by human perception of the business environment

Management perceptions of the external and internal business environment are critical and central in determining the development necessity of dynamic capabilities (Augier and Teece, 2009, Ambrosini et al., 2009, Barrales-Molina et al., 2012). Moreover Teece (2007), and Augier and Teece (2009) suggest that managers must study, synthesise and examine business environment information carefully to make the right decision about whether dynamic capabilities are required.

If the management's perception of the business environment is incorrect, incomplete or not analysed properly, the outcome of dynamic capabilities will be irrelevant, and the resulting benefits will not cover the costs of developing and maintaining these capabilities (Barrales-Molina et al., 2012, Helfat and Winter, 2011). Zahra et al. (2006, p. 941) notes that: 'Managers' perceptions, preferences, capacities, and errors significantly influence the path taken and its results'. Political influence might also affect management perceptions.

2.3.5.6 Might become obsolete or a source of rigidity and need updating

Dynamic capacities are like any capabilities affected by age and changes in the business environment. They require updating and renewing frequently, otherwise they become redundant and obsolete (Schreyögg and Kliesch-Eberl, 2007, Winter, 2003). Similarly, they might become a core and source of rigidity when overused in operations, and not adjusted or tuned to match with the market environment (Ambrosini et al., 2009, Zahra et al., 2006). This challenge raises many questions: including when to start and stop renewing these capabilities, how to predict their redundancy, and what parameters and measurements can be used in making this prediction.

2.3.5.7 Culture, path dependency and change resistance

Dynamic capabilities consider culture as an important, crucial asset in achieving effective firm operations (Augier and Teece, 2008, p.1199). Ambrosini and Bowman (2009), and Fainshmidt and Frazier (2016) argue that, from a dynamic capabilities view, social capital is necessary to facilitate the process of knowledge sharing, collaboration, networking internally (within the firm) and externally (with alliances and partners), and to enhance innovation. It will help managers get the best out of their resources and assets.

Dynamic capabilities are path dependent and embedded in the organisational processes, routines and structure created to manage it. O'Reilly and Tushman (2008), and Teece (2007) highlight that, these routines and processes are shaped by paths built in the past,

organisational culture and the mindset of senior leadership. To deploy a dynamic capabilities approach effectively in an organisation, existing capabilities need to be changed and modified to match the current business environment. Therefore, management needs to break with old ideas, change the culture and rely on newly developed dynamic capabilities to cope with the market environment (O'Reilly and Tushman, 2008, Ambrosini et al., 2009, Zahra et al., 2006).

Change resistance is inevitable whenever there are changes in organisations, especially if it affects the comfort zone of employees. Zahra et al. (2006, P. 929) suggest that 'fear of disrupting existing systems constrains firms from change', and it creates conflict. Any changes always have supporters and opponents; accordingly, change agents have to manage their plans and pay attention to all groups and stakeholders.

Changes in organisations are very complex and require more attention; otherwise, it will lead organisations into chaos. Awareness of culture and organisational history plays a major part in any change, whether strategic or incremental.

2.3.6 Conceptual framework summary

Much of the literature is based on theoretical concepts; further explanation and empirical studies are lacking. Despite the dynamic capability conceptual framework yet to be well-established in the literature, there is agreement about its aim: to address change.

To recap, dynamic capabilities involve strategic intentional changes, enabling organisations to match, adapt, sustain and survive in the rapidly changing business environment. They entail processes which impact on resources, but they are not resources themselves. Ignoring or failing to address these environmental changes can negatively impact on organisations' performance. Dynamic capabilities lead to competitive advantage being sustained, as they are an outcome of routines, processes, tacit knowledge, nature and path dependency. They are non-transferable, firm-specific and create barriers for competitors. They must also be repeatable; and very different to ad hoc problem solving or based on luck. Finally, success or failure of firms should not be linked only to their deployment of dynamic capabilities; other factors should be taken into consideration too.

2.4 Thematic framework

This section illustrates factors which impact on dynamic capabilities. In discussing these factors, we will continually reflect on the guiding questions, seeking potential answers within the literature and adjusting the questions as we progress. The section highlights practices from the theory that affect the development, deployment and improvement of DC (relating to the first guiding question), and provides insights into how DC supports the deployment of concurrent approaches to strategy (relating to the second guiding question). It also highlights gaps in current knowledge and potential research questions under each factor: which are displayed in a thematic framework (Figure 2.4), and followed with detailed discussion.

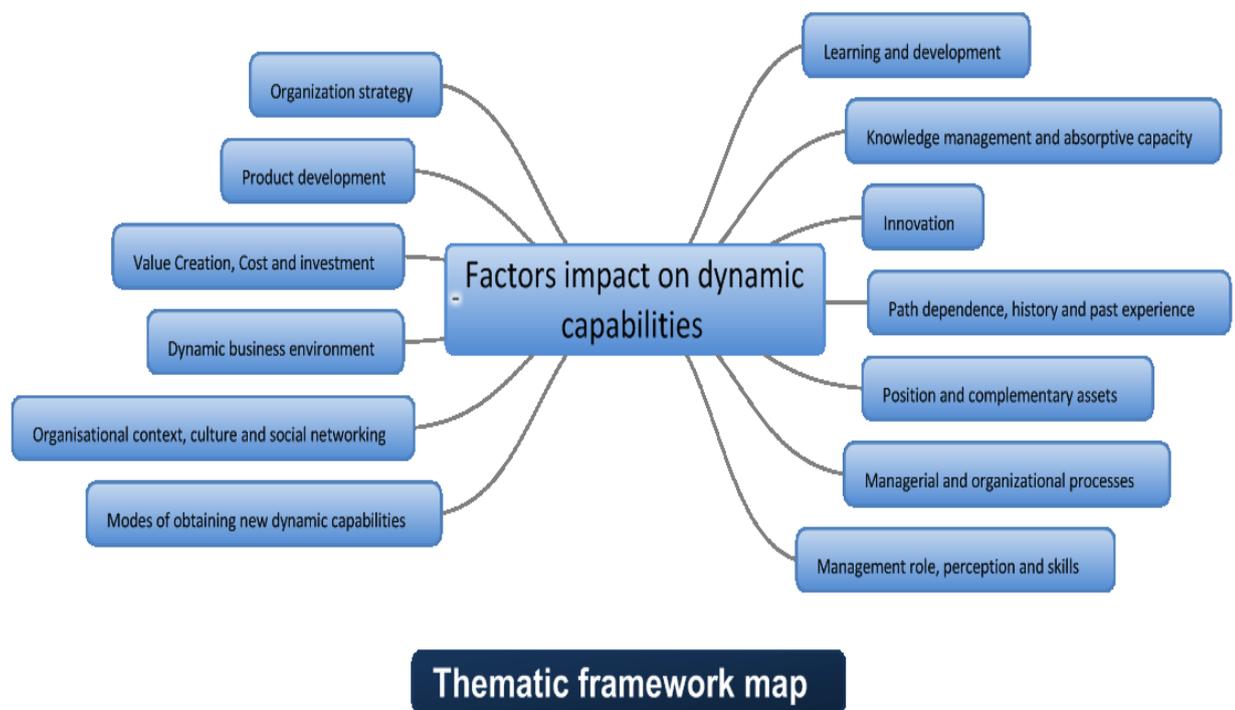


Figure 2.4: Thematic framework

2.4.1 Learning and development

Learning is a core element in developing and improving dynamic capabilities (Teece et al. 1997, Eisenhardt and Martin 2000, Zollo and Winter 2002, Bowman and Ambrosini 2003, Marsh and Stock 2003, Helfat 2007, Schreyögg and Kliesch-Eberl 2007, O'Reilly and Tushman 2008, O'Connor 2008, Ambrosini and Bowman 2009, Ambrosini et al. 2009, Vogel and Güttel 2012, Nieves and Haller 2014, Zeng et al. 2017. O'Reilly and Tushman (2008, p.200) categorise dynamic capabilities as a firm's capacity 'to learn how to learn'.

Zollo and Winter (2002, p.340) published the most cited paper on dynamic capabilities' learning, which notes that 'dynamic capabilities develop through the coevolution of three mechanisms: tacit accumulation of past experience, knowledge articulation, and knowledge codification processes'. They also suggest that investing in learning, rather than a particular change or situation, will prevent core competencies from becoming core rigidities, and improve the capacity of dynamic capabilities to adapt to any type of change.

There are many ways of learning used by dynamic capabilities for improvement and sustainability. Eisenhardt and Martin (2000, p.1112) suggest three ways of learning: prototyping and early testing obtains new information faster and provides a fall-back option for management; repeated practice; and learning from mistakes. Zahra et al. (2006, p. 949) highlights that, when the business environment is rapidly changing, it is suitable to use experimentation, trial-and-error learning, and improvisation. Experimentation is the preferred approach in developing dynamic capabilities (Zahra et al., 2006, Zott, 2003, Barrales-Molina et al., 2012).

Teece et al. (1997) argue that imitating market leaders is another form of learning, and an important way in which organisational capability can adapt to the current market situation. Zott (2003) provides an example from General Motors: which learned to imitate Toyota's experience over time, and adapted this to their product development process.

Learning is a continuous improvement process of dynamic capabilities. A continuous improvement process which makes changes in operation or ordinary capabilities (in other words, deploys dynamic capabilities) includes repeated cycles of organisational learning (Teece et al. 1997, Zollo and Winter 2002, Winter 2003, Anand et al. 2009). Continuous improvement processes facilitate the integration of current processes, help new processes to be learnt, and enhance organisational readiness for change. Anand et al. (2009)'s analysis of five unnamed companies showed that dynamic capabilities could deliver continuous improvements once systematic continuous learning processes, required by an organisation's management team to match and adapt to market conditions and achieve long-term competitive advantages, were in place.

Dynamic capabilities are shaped by learning. Ways of learning or how that learned information is obtained influences the deployment of dynamic capabilities in practice. Learning could also be incremental: such as imitating market leaders or building on previously accumulated knowledge. However, imitation approaches could hinder the creation of new capabilities or cause core competencies to become obsolete and the firm to

lag behind. Moreover, if dynamic capabilities involve continuous learning processes, how are initial dynamic capabilities created? Is it through trial-and-error, best practice or extensive experimentation?

Learning how to learn and develop organisational approaches for continuous process improvement are practices which develop and improve dynamic capabilities. This provides some insights and validates the construction of the **first guiding question**.

2.4.2 Knowledge management and absorptive capacity

The deployment of dynamic capabilities relies on knowledge. Knowledge with management support highly influences the development and deployment of dynamic capabilities (Eisenhardt and Martin 2000, Zahra and George 2002, Zollo and Winter 2002, Krsto et al. 2003, Marsh and Stock 2003, Macpherson et al. 2004, Sher and Lee 2004, Marsh and Stock 2006, Teece 2007, Wang and Ahmed 2007, Augier and Teece 2008, Cetindamar et al. 2009, Easterby-Smith et al. 2009, Argote and Ren 2012, Barrales-Molina et al. 2012). Sher and Lee (2004) and Eisenhardt and Martin (2000) suggest that knowledge creation improves dynamic capabilities' flexibility and reaction towards rapidly changing business environments. This depends on newly created knowledge, which is situation specific, and experience in similar situations (Nieves and Haller, 2014); rather than existing knowledge. Amid a low pace of market turbulence, the firm's knowledge is used to create change processes and improve the current processes: which will help speed up change (Nieves and Haller, 2014).

However, Barrales-Molina et al. (2012, p.15) argue that knowledge articulation and accumulated experience might indirectly influence the generation of dynamic capabilities, as these are embedded in the organisational process and context, which also affects the generation process. Their survey of 200 CEOs of Spanish firms showed that knowledge codification is a common factor among firms which build and develop dynamic capabilities.

Krsto et al. (2003, p.1028) highlight that 'resources and capabilities develop and change over time as knowledge changes'. Their case study of NGV Machining (NGVM) showed how the company used accumulated experiences and knowledge to build new routines and capabilities: which in turn helped them develop more capable resources and expand their technology.

Internal and External knowledge management enhance dynamic capabilities. Managing knowledge internally within the organisation in terms of knowledge collection, codification

and integration; and externally with alliances in terms of gaining and sharing knowledge with suppliers, improves the deployment of dynamic capabilities (Eisenhardt and Martin 2000, Macpherson et al. 2004, Sher and Lee 2004, Marsh and Stock 2006, Teece 2007, McKelvie and Davidsson 2009, Parente et al. 2011, Barrales-Molina et al. 2012, Hofmann et al. 2012). Eisenhardt and Martin (2000) cite an example of alliance and acquisition from Cisco Systems: namely, an effective acquisition process run by managers to improve performance by collating a group of changing products and engineering experience.

Marsh and Stock (2003, 2006) suggest that earlier project successes and failures combined with knowhow is a significant source of knowledge generation, leading to new ideas and products. Marsh and Stock (2006) quoted an example from Corning: which used its previous product knowledge of glass melting to develop colour television tubes, pyroceramic cookware, and fibre-optic cables.

Risks of utilising knowledge in practising dynamic capabilities: Despite knowledge having a major role in supporting dynamic capabilities development and deployment, retained knowledge might act as barriers if it is not updated to match the current business environment or misinterpreted (Cohen and Levinthal, 1990, Zahra and George, 2002, Krsto et al., 2003, Marsh and Stock, 2003, 2006). Marsh and Stock (2006) note that acquiring external knowledge is an approach favoured by managers over utilising internal knowledge, which negatively impacts on the internal capability to innovate and reduces employees' morale. Barney (1991) argues that benefits of external knowledge are very limited in any case, as this is also available to competitors. To mitigate some of these risks, Cetindamar et al. (2009) suggest the setting up of processes such as patenting and staff retention: protecting knowledge and expertise embedded in the products and organisational processes.

Knowledge management and absorptive capacity functions are associated with each other. The most cited work on absorptive capacity is Cohen and Levinthal (1990), which illustrates absorptive capacity as a firm's ability to identify, assimilate and apply new knowledge for commercial advantage. Zahra and George (2002, p.186) link this idea with the dynamic capabilities concept, and define absorptive capacity as a 'set of organisational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organisational capability'. Wang and Ahmed (2007) argue that the more a firm shows its absorptive capability, the more it displays dynamic capabilities. Lack of absorptive capacity may reduce a firm's ability to integrate and apply external knowledge (Cohen and Levinthal, 1990, Zahra and George, 2002, Marsh and Stock, 2006). Many recognise the importance of absorptive capacity in deploying dynamic capabilities (Marsh

and Stock, 2003, Macpherson et al., 2004, Schreyögg and Kliesch-Eberl, 2007, Ambrosini and Bowman, 2009, Capron and Mitchell, 2009, McKelvie and Davidsson, 2009, Newey and Zahra, 2009). Wang et al. (2014) identified common features of dynamic capabilities across firms in terms of absorptive capabilities: which allow firms to identify external opportunities from external knowledge; and transformative capabilities, which strategically enable them to adapt to external change.

Managing knowledge internally within the organisation and externally with alliances influences the deployment of dynamic capabilities. However, there has been scant work on how to use knowledge to tackle a situational base event or change, as the whole idea of dynamic capabilities is to be ready for a strategic change which matches the rapidly changing business environment. Some argue that knowledge or lessons learned from previous projects is required to address these situational events. Others hold that each change or event is unique, so learning and knowledge updating is the only way to address unpredictable change. To avoid confusion, many suggest that, in the case of an unpredictable event which is totally new and has no related knowledge, the ‘best practise’ approach should be applied.

Managers have a major role in managing knowledge via outsourcing firms in the supply chain and alliances which minimise negative impact on dynamic capability. Organisations may lose or obtain knowledge from third parties; managers should carefully monitor knowledge transferring processes, to avoid any risk of losing any employees (along with their knowledge) to competitors or even the third parties themselves.

Absorptive capacity is considered as dynamic capabilities when management uses knowledge creation and exploitation to enhance a firm’s ability to survive and sustain itself in a rapidly changing business environment. Knowledge management, combined with strong absorptive capacity, impacts greatly on the development and deployment of dynamic capabilities. Yet to what extent does absorptive capacity influence the development of dynamic capabilities?

Managing knowledge and exploiting absorptive capacity, practices which develop and improve dynamic capabilities, provide further insight on **the first guiding question**.

2.4.3 Innovation

Innovation is considered as dynamic capabilities and an element of generating capabilities. According to Barrales-Molina et al. (2012, p.15), ‘Innovative capability

expresses the firm's ability to develop new products and markets by aligning strategically with innovative behaviours and processes'. Kyläheiko et al. (2002) relate dynamic capabilities to innovation, as innovative activities are shaped by a firm to deal with uncertainties. Innovation itself can thereby be viewed as a dynamic capability, or may be considered an essential element to generate dynamic capabilities (Kyläheiko et al. 2002, Marsh and Stock 2003, Smart et al. 2007, Teece 2007, Wang and Ahmed 2007, O'Reilly and Tushman 2008, O'Connor 2008, Augier and Teece 2009, Ellonen et al. 2009, Barrales-Molina et al. 2012, Hofmann et al. 2012, Lichtenthaler 2012, Vogel and Güttel 2012). Moreover, Wang and Ahmed (2007, p. 37) suggest that 'the more innovative a firm is, the more it possesses dynamic capabilities'.

Innovation, major improvement and changes to match the market need may lead to some products and competencies being discontinued (O'Reilly and Tushman 2008). Examples of this include mechanical typewriters being eliminated by word processing computers; or electronic replacing mechanical watches, rendering redundant all associated mechanical engineering skills. However, Ellonen et al. (2009) analyse four cases from the publishing industry, which evidence some risks in developing radical innovations: firms may not be able to absorb them, especially if it has a strong sensing capability and is not well balanced with seizing and reconfiguration capabilities.

Many firms develop their capabilities to sustain and survive in a dynamic market; innovation is an important element which makes these **capabilities dynamic and ready to deal with uncertainties in the rapidly changing market**. Moreover, if for example, technological and pharmaceutical companies, rely on innovation and discovering new things, innovation will most likely determine their market strength. Yet just one single paper, Lichtenthaler (2012), explains the direct relationship between dynamic innovation capabilities and firm performance. The literature does not adequately explain whether innovation has a direct or indirect impact on a firm's performance. Knowledge gained from learning, networking, external acquisition and experience influences innovation capabilities: which in turn, impacts positively on a firm's ability to possess and generate dynamic capabilities.

Enabled innovation is a practice for DC deployment which also develops and improves the DC. It further extends the construct of **the first guiding question**.

2.4.4 Path dependence, history and past experience

Dynamic capabilities are dependent on a path formed by firms' decisions and historical activities (Teece et al. 1997, Smart et al. 2007, Teece 2007, Kyläheiko et al. 2002,

Schreyögg and Kliesch-Eberl 2007, Eisenhardt and Martin 2000, Rahmandad 2012, Sher and Lee 2004, Ambrosini et al. 2009, McKelvie and Davidsson 2009, Ellonen et al. 2009). Moreover, Rahmandad (2012) argues that a combination of luck and history may result in different types of initial capabilities enhancing future investment. By contrast, high levels of commitment to old ideas may jeopardise firms' ability to develop and explore new competencies and opportunities, or even result in core rigidity (Kuo-Feng et al., 2012).

Dynamic capabilities rely on past experience. According to Zollo and Winter (2002, p.344), dynamic capabilities develop from tacit experience accumulation processes and knowledge management. Leiblein (2011), and Eisenhardt and Martin (2000) argue that the development of dynamic capabilities is influenced by the speed of experience. They also highlight that, in the highly changing business environment, lessons can be learned and experience obtained very fast, yet forgotten easily before being transferred into meaningful learning. However, transformation experiences may hinder the pace of major innovation (O'Connor, 2008, Eisenhardt and Martin, 2000, King and Tucci, 2002). Organisations with a high level of experience and knowledge will have more ability to change their resource base to match the business environment (Nieves and Haller, 2014).

The literature stresses the importance of path, history and experience in developing dynamic capabilities. However, relying heavily on these factors may negatively impact on organisational opportunities regarding exploring new markets and developing new capabilities. Many other factors, such as lack of absorptive capacity, may hinder transformation based on past lessons and experiences. Balancing between these factors is a vital element in firm survival.

Some questions have been raised, such as: to what extent do the established path, organisational history and experience influence the development and deployment of dynamic capabilities, compared with new knowledge acquisition? How do incumbent firms, especially technological and pharmaceutical companies, utilise their experience to develop and deploy dynamic capabilities to survive and create competitive advantage in a rapidly changing business environment?

Building on experience, path taken and history are practices in DC development, which provide insight on **the first guiding question**.

2.4.5 Position and complementary assets

Firms' position are based on a build-up of assets through dynamic capabilities. Teece et al. (1997, p.521) describe this as the accumulation of complementary, reputational, technological, financial, market position, structural, institutional, difficult-to-trade knowledge and co-specialised assets (Ambrosini and Bowman, 2009, Teece et al. 1997, Augier and Teece 2008, Sher and Lee 2004, Kuo-Feng et al. 2012, Augier and Teece 2009).

Furthermore, firms can enhance their dynamic capabilities assets when possessing superior dynamic capabilities processes (Kuo-Feng et al., 2012). Sher and Lee (2004) performed a case study of dynamic capabilities in major Taiwanese firms, and propose that path and processes of knowledge accumulation and management govern a firm's current position.

Information technology and other complementary assets enhance the development and deployment of dynamic capabilities. Well established dynamic capabilities allow the firm to achieve superior benefits from their complementarity assets (Augier and Teece, 2009). Information Technology (IT) is a necessary element in developing and deploying dynamic capabilities, as it is involved in areas such as knowledge management, learning, innovation, or dynamic supply chain management (Parente et al. 2011, Sher and Lee 2004, Anand et al. 2009). Sher and Lee (2004) argue that building and maintaining knowledge requires IT, which can minimise many risks of losing knowledge from specific employees as positions and jobs descriptions change. Teece (2014c) highlights that subsidiaries' histories and experiences complement a firm's knowledge and capabilities by transferring their international knowledge to other branches and business units. In the dynamic capabilities perspective, R&D and the learning process are the essential factors which enable asset growth.

Firm positions involve internal and external forces permitting and limiting the development and deployment of dynamic capabilities. These internal position forces are regarded as a firm's assets: including complementary assets and other internal assets. External position forces are external business environment factors, such as market condition, position, and regulations. Although dynamic capabilities have some commonalities across firms, positions and complementary assets help distinguish between them.

Most authors have the same view of the importance of firms' positions and complementary assets in generating and deploying dynamic capabilities. However, other factors are not well explained in the literature and not adequately linked to the necessity of dynamic capabilities, such as: what is the impact of political forces on dynamic capabilities development; and how

do global market circumstances drive and influence other market capabilities, including local markets (e.g. oil price and global financial crises)? Moreover, branding itself has a major role in determining a firm's market position, which in turn affects the development and deployment of dynamic capabilities.

Exploiting IT and maintaining market position and assets are practices for DC deployment. This extends understanding on **the first guiding question**.

2.4.6 Managerial and organisational processes

Dynamic capabilities are embedded in managerial and organisational processes.

According to Teece et al. (1997), managerial and organisational processes are necessary elements in creating dynamic capabilities, categorised into three key processes: coordination and integration, learning, and reconfiguration and transformation (Bititci et al. 2010, Anand et al. 2009, Kuo-Feng et al. 2012, Helfat 2007, Lichtenthaler 2012, Nieves and Haller 2014, Helfat and Martin 2015). Dynamic capabilities are also embedded in a firm's organisational processes, shaped by firms' position, assets and path over a period of time (Teece et al., 1997). Integrative processes with partners in supply chain and product development are considered as dynamic capabilities which can be used to develop firm processes to adapt to dynamic market conditions (Beske et al., 2014, Vanpoucke et al., 2014).

However, Bititci et al. (2010, p.168) highlight that managerial processes are sequences of routines that support the role of dynamic capabilities, enabling a firm to reconfigure its resources base to sustain dynamic market conditions. Dynamic capabilities are resident in the firm's managerial processes, and address the future of organisational performance (Teece et al., 1997, Helfat, 2007, Helfat and Martin, 2015). Likewise, Lichtenthaler (2012) conducted a case study of 146 industrial firms; the analysis showed the importance of linking general dynamic capabilities, such as R&D and innovation, to the organisational process, which helps improve firms' performance. Nowadays, organisations no longer compete so much in the process, but over the ability to constantly improve their processes (Teece, 2007).

Dynamic capabilities are embedded in organisational processes formed from a firm's position, path and history. These processes help accumulate firm assets to enhance and sustain its competitive advantages. Managerial processes are also required to organise and manage organisational processes, to enhance and continuously improve dynamic capabilities. The literature review features general agreement on the role of managerial and organisational processes. Many authors emphasise the need for process improvement; but look more at

organisational than managerial processes. More work on the latter is needed for a clearer picture of the role of managerial processes in deploying dynamic capabilities.

Managerial and organisational processes are necessary elements in developing DC. This extends insight on **the first guiding question**.

2.4.7 Management role, perception and skills

Managers who recognise the rapid changes in the business environment are those who promote and develop dynamic capabilities effectively (Macpherson et al. 2004, Augier and Teece 2008, Wang and Ahmed 2007, Krsto et al. 2003, Zahra et al. 2006, Barrales-Molina et al. 2012, Teece 2007). Moreover, in the dynamic capabilities perspective, managers play a major role identifying opportunities in making investment decisions, continuous organisational renewals and managing assets, especially when complementary assets must be gathered for integration and transformation to match with market conditions (Ambrosini and Bowman, 2009, Augier and Teece, 2008, Adner and Helfat, 2003, Eisenhardt and Martin, 2000, Helfat, 2007). Teece (2007), and Krsto et al. (2003) argue that the ability of management to identify requirements and opportunities to invest in co-specialised assets - whether developed in-house or acquired from external sources - is essential in dynamic capabilities and influences their development. Ways of linking and benefiting from knowledge should be developed by managers, as organisations cannot progress without acquiring and developing additional resources (Macpherson et al., 2004, p.164).

That said, Barrales-Molina et al. (2012) performed a survey of 200 CEOs of Spanish firms: which showed that developing dynamic capabilities is very expensive and requires managerial commitment. Deploying dynamic capabilities unnecessarily may impact negatively on organisational performance. Furthermore, managers must not evaluate dynamic capabilities alone, but relate these to aspects such as external environment, firm history and path (Wang and Ahmed, 2007).

Managers' perceptions of the need for change based on the internal and external business environment are crucial elements in the development and deployment of dynamic capabilities (Ambrosini et al. 2009, Ambrosini and Bowman 2009, Barrales-Molina et al. 2012). Managers are required to analyse the business environment cautiously before deciding to develop dynamic capabilities; this avoids unnecessary development efforts (Augier and Teece, 2009). It is very costly to generate and maintain dynamic capabilities (Helfat, 2011).

Management skills and experiences influence the development of dynamic capabilities. Dynamic capabilities' development involves management skills and experiences in decision making and organisational processes to sense and seize opportunities, and transformation, if required (Teece 2007, Ambrosini and Bowman 2009, Kor and Mesko, 2013, Anand et al. 2009, Augier and Teece 2008, O'Reilly and Tushman 2008, Zahra et al. 2006). Teece (2007, p.1346) categorises the main functions and skills of executive management into three categories: (1) the ability to sense any changes in the business environment, such as shifts in technology, regulations, customers and competition; (2) the ability to seize these changes; (3) the ability to reconfigure resources and assets to match and adapt to the current market situation, which includes exploitation and identification of complementarities and co-specialisations. These three skills are very rare in individual managers, so are most likely to be part of the executive management's role (Teece, 2014a). When the executive management is strong in all these skills, the firm has better business opportunities.

O'Reilly and Tushman (2008) argue that in the dynamic capabilities perspective, ambidexterity is a skill embedded in senior leadership learning; represented by the ability to reconfigure a firm's assets and competencies to match and adapt to changes in business environments in a repeatable way. Senior managers are required to protect these skills and capabilities: via knowledge management, codification and patenting. Likewise, Teece (2007, 2014a) explains that entrepreneurial management is required to sustain and maintain dynamic capabilities. Entrepreneurship is about sensing and understanding opportunities; and discovering new, superior ways of setting things together. The dynamic managerial capabilities concept is divided into three elements (Adner and Helfat, 2003, p. 1012):

- Managerial human capital: including managers' knowledge and skills obtained from their individual endowments and talents, education and professional experience in, for example, technology, the organisational context and business environment.
- Managerial social capital: which includes managers' relationship and networks to access the resources base. These connections allow managers to access more crucial information needed to manage their human resources, especially during the transformation stage.
- Managerial cognition: includes managers' decision-making mechanisms, i.e. the belief systems and mental models (Helfat and Peteraf, 2014). These mechanisms are formed from their experience and interaction with internal and external networks.

Kor and Mesko (2013) endorse these three dynamic managerial capabilities, and note that the elements are interconnected.

As we have noted, dynamic capabilities are embedded in organisational processes and path dependencies, and impacted by the organisational system and structure established to manage the business: which is not easy to break or change. Thus management abilities, skills and experience are key in developing dynamic capabilities which can overcome these issues and adapt to the new business environment (Ambrosini and Bowman, 2009, O'Reilly and Tushman, 2008, Teece, 2007). Newey and Zahra (2009) performed parallel case studies on a biotechnology and pharmaceutical company, which showed that managers use their skills and experiences to develop processes to routinize collaboration between operation and dynamic capabilities.

The literature review highlights the crucial role played by managers in enabling their organisations to adapt to new circumstances in the dynamic business environment. Moreover, managers strongly influence the process of dynamic capabilities development: enhancing and supporting the learning process, knowledge management, and motivating firms to make more innovations.

Moreover, managers' attention, predictions, preferences, capacities and perceptions about business environment conditions are most important when it comes to triggering change in their organisations. They must be highly analytical and systematic in judging the market conditions; inaccurate analysis may result in developing dynamic capabilities unnecessarily. However, dynamic capabilities should always associate with other internal and external factors and not to be assessed as a standalone aspect.

Teece (2007) looked at sensing, seizing and transforming. His work is considered as a major addition to the field of dynamic capabilities. Thus this paper addresses dynamic capabilities from a strategic management point of view; rather than how to sustain competitive advantage, survive in a rapidly changing environment or develop dynamic capabilities via learning and knowledge management. These three abilities or skills are not normally exercised by individual managers, but by the executive management team instead.

The literature review displayed some gaps in areas such as: to what extent sensing, seizing and transforming are deployed in practice, especially in technological firms, i.e. telecommunications companies. Many firms exercise these without calling them dynamic capabilities. Moreover, are the three roles of DC applied to all firms regardless of the dynamism of their business environment? Similarly, how can management perceptions

which could lead to the development of irrelevant dynamic capabilities be mitigated? To what extent do the management roles of motivation and enhancement influence the development of dynamic capabilities? Finally, how do managers develop the skills required to build dynamic capabilities?

Dynamic capabilities development relies on managers' perceptions of market conditions. This extends insight on **the first guiding question.**

2.4.8 Modes of obtaining new dynamic capabilities

Proper selection processes and strong modes of obtaining new capabilities enhance a firm's ability to renew its capabilities and survive longer than firms with weaker selection capabilities (Capron and Mitchell, 2009, Teece et al., 1997, Cetindamar et al., 2009, Coen and Maritan, 2011, Zhan and Chen, 2013). Taking into consideration the internal social contexts and other constraints when choosing between the external and internal development of dynamic capabilities will improve the whole development process. Stadler et al. (2013) suggest that resources initially obtained should be further developed before being commercially used, even when the obtaining processes are very comprehensive. Likewise, a study of the international telecommunications industry showed that modes of selecting internal and external capabilities are the key mechanisms enabling firms to change their capability perspectives and mitigate social challenges (Capron and Mitchell, 2009). Cetindamar et al. (2009) suggests that technology selection should be supported by the organisational decision-making process, which takes into account strategic aspects: such as buying, collaborating, or ensuring that capabilities match current technologies.

Obtaining dynamic capabilities internally (exploitation): According to Capron and Mitchell (2009, p.296), 'Internal development refers to creating a new capability within the existing boundaries of a firm by recombining the firm's existing capabilities or creating new ones'. Moreover, developing capabilities internally allows firms to exploit and protect internal knowledge and provide for strong future abilities in developing new capabilities, which entails greater knowledge integration than external acquisition. Wang et al. (2014) argue that rapid technological change impacts on high-tech organisations: which need to exploit existing capabilities to compete in the short term, while simultaneously exploring new capabilities to compete in the long term. Many other processes and activities, such as new product development, serving existing customers and improving current services, take place at the same time (Teece, 2014a).

However, Cohen and Levinthal (1990) illuminates that historical and existing capability endowments hinder the internal development of new capabilities. In addition, Macpherson et al. (2004) explain that internal capabilities have been continuously extended by developing networks with supply chain firms. Similarly, an RWL case study showed that existing internal managerial capabilities, extended and improved via association with supply chain firms, were the key element in their successful innovation (Cohen and Levinthal, 1990).

Obtaining dynamic capabilities externally (exploration): Sourcing external capabilities is a strategic dynamic capability approach which requires bringing new resources into the firm from external sources. These external capabilities can be obtained through three approaches: purchase contracts, alliances, and acquisitions (Eisenhardt and Martin, 2000, Parente et al., 2011, Teece et al., 1997, Hofmann et al., 2012, Coen and Maritan, 2011, Helfat, 2007, Capron and Mitchell, 2009). Capron and Mitchell (2009) argue that managers explore and obtain strong capabilities from strong alliances and partners to complement internal weaknesses and fill gaps (Beske et al., 2014): overcoming capabilities obsolescence and resolving organisational inertia. Firms will be in better positions when they properly take existing capabilities in their outsourcing decision processes into account. That said, exploration may produce many possible outcomes and new ideas which will require even more exploration (Wang et al., 2014): leading to distraction and exploration failure.

Obtaining external capabilities may increase innovation, produce economic value, leverage a firm's capabilities, help it adapt quickly to new markets, and increase its flexibility in responding to a rapidly changing business environment (Parente et al., 2011, Teece, 2007, Hofmann et al., 2012). Coen and Maritan (2011) cite a case study of the television industry, which shows that firms with previous experience in radio manufacturing displayed higher performance.

Any changes in firms, whether these involve organisational restructuring or introducing new systems and capabilities, will trigger resistance: especially when affecting employees (Capron and Mitchell 2009, Zahra et al. 2006). External capabilities may disturb the internal social context during the deployment period: so internal players will protect their existing values, status and power by avoiding acceptance of new capabilities, regardless of what these involve; and attempt to resist or build on any new knowledge. These new capabilities will create conflict. Teece (2014a) suggests that any firm with weaker capabilities and a culture of resistance to change should use different strategies than those with stronger capabilities. His advice is that the strategy should not be developed in-house, but managed independently: minimising conflict with existing functional units.

Capron and Mitchell (2009) suggest that firms should use suitable sourcing modes of dynamic capabilities, which fit their existing internal social context as far as possible. McKelvie and Davidsson (2009), Zahra et al. (2006), and Anand et al. (2009) propose that managers and highly skilled employees should be authorised to promote change and act as change agents. The firm should not select any change option if the cost is higher than the expected benefits (Zott, 2003).

The literature review shows that initial outsourcing decision processes are a very important stage in developing dynamic capabilities, which help determine the future of the firm. Therefore, these processes should be part of strategic decisions and cover all aspects, such as market conditions, competition, economic value, HR, innovation etc.

Internal development of capabilities is the preferred approach, as it exploits internal resources, has greater integration with existing capabilities and social context, and is familiar with organisational systems and regulations. However, when changes in competitive conditions engender requirements for new marketing capabilities and the capability gap is large, the firm will seek these externally. This helps overcome capability shortages more quickly, and will offer more business opportunities: bringing new knowledge of, for example, innovation and R&D. However, organisations must balance between exploitation and exploration. The whole idea of the internal and external development of dynamic capabilities is to address change: which will trigger change resistance and conflict between stakeholders. Leadership and management skills are required to overcome this, and move towards the targeted plans.

The literature review demonstrates that firms are still struggling to distinguish between which situations are suitable for internal or external development of dynamic capabilities. What are the criteria and tools required to measure knowledge transfer when outsourcing dynamic capability gaps? To what extent does knowledge transfer influence the maintenance of cooperation and cultural stability between new and existing capabilities? Finally, how do organisations balance between exploitation and exploration of dynamic capabilities?

Obtaining required capabilities in different ways is required to fill resource gaps and develop DC. It also develops DC by implementing the recruitment processes. As a result, it extends insight on **the first guiding question**.

2.4.9 Organisational context, culture and social networking

Dynamic capability development and continuous improvement are impacted by organisational context, culture and social networking. Firms with strong social networks and cultures are more likely to be successful in developing and deploying dynamic capabilities than those with limited social networks and weak culture (Macpherson et al., 2004, Kuo-Feng et al., 2012, Bowman and Ambrosini, 2003, Augier and Teece, 2008, Anand et al., 2009). Ambrosini et al. (2009, p.18) state that, to develop new dynamic capabilities, the management team needs to break the path and culture: a difficult task, especially in terms of the incumbent management team. Anand et al. (2009) recommend that management should constantly improve the dynamic capabilities development process by building a culture of organisational learning.

Kuo-Feng et al. (2012)'s case study of Taiwanese ICT firms showed that firms should be encouraged to enhance their integration capabilities by implementing more independent R&D culture and accumulating more technological competencies. Organisational culture, values and ability to speedily change a firm's resources and execute a new business model is related to the strength or weakness of its dynamic capabilities (Teece, 2014a).

Anand et al. (2009, p.447) argue that, 'infrastructure for continuous improvement should provide appropriate organisational context for achieving the dynamic capability of continuous improvement'. Additionally, the influence of knowledge management, learning and accumulated experiences on dynamic capabilities development may reflect an effective organisational context which enhances the development processes of dynamic capabilities (Barrales-Molina et al., 2012, Teece et al., 1997).

The literature review proves that organisational context, culture and social networking very much influence the development and deployment of dynamic capabilities. However, if an organisation lacks some of these factors, it may not be able to develop dynamic capabilities even if it has highly skilled employees. Moreover, organisational context, e.g. organisational structure, incentive policies, HR rules etc., together with the role of management in inspiring employees to learn, are key elements which enable a firm to develop dynamic capabilities for continuous improvement. Does it follow from this that organisations with a strong organisational context, culture and social networking possesses can easily create strong dynamic capabilities?

Enriching culture and social networking is a practice for continuous DC improvement. This provides understanding related to **the first guiding question**.

2.4.10 Dynamic business environment

The rate of dynamism in business environment influences the generation of dynamic capabilities. According to Eisenhardt and Martin (2000), types of dynamic capabilities differ based on the level of dynamism in the business environment (Zahra et al. 2006, Newey and Zahra 2009, Ambrosini and Bowman 2009, Wilhelm et al. 2015, Wilden et al. 2016, Girod and Whittington 2016). Ambrosini and Bowman (2009) explain that managers' perceptions of market conditions place dynamic capabilities into three categories: incremental, renewing, and regenerative. In moderately stable markets, where changes occur regularly and are generally predictable, and all stakeholders are known, dynamic capabilities are complex and respond to incremental change (Ambrosini et al., 2009, Barrales-Molina et al., 2012, Eisenhardt and Martin, 2000). However, Winter (2003), and Zollo and Winter (2002) argue that dynamic capabilities are useless and costly when the business environment is moderately stable.

Yet high uncertainty domains are a required condition for firms to develop dynamic capabilities (O'Connor, 2008). Eisenhardt and Martin (2000) illustrate that, in high-velocity markets, dynamic capabilities are simple, and rely much more on newly generated situation-specific knowledge than existing knowledge: which may have led managers to overgeneralise negatively based on historical conditions.

The business environment clearly has a major impact on the development of dynamic capabilities. However, the rate or level of change divides these capabilities into different types, which deal with specific situations. The role of dynamic capabilities in a stable business environment is to deal with incremental or internal change, minimising impact when major changes occur. Yet the literature review does not mention how to distinguish between low, moderate and high velocity business environments.

The rate of dynamism in the business environment influences managers' perceptions when developing dynamic capabilities. This provides insight on **the first guiding question.**

2.4.11 Value creation, cost and investment

Dynamic capabilities development is a long-term investment. The value of dynamic capabilities is rooted in their enhancement and creation of new resources, which enable a firm to sustain competitive advantage and survive in rapidly changing business environments (Døving and Gooderham, 2008, Ambrosini and Bowman, 2009, Zollo and Winter, 2002, Winter, 2003, Coen and Maritan, 2011, Rahmandad, 2012). Helfat and Winter (2011) argue

that dynamic capabilities should be used frequently to create remarkable value and refine investment costs of their development. Yet they may lead to failure when their resource base outcomes do not match market conditions (Ambrosini and Bowman, 2009). Thus firms must strategically balance between development costs and their real use, especially if the market is changing slowly (Schilke, 2014a).

In any case, generating and maintaining dynamic capabilities is very expensive, and has many requirements: including imitation and experimentation costs, and management commitments (Winter, 2003, Zollo and Winter, 2002, Zott, 2003, Ambrosini and Bowman, 2009). Zollo and Winter (2002) argue that if dynamic capabilities development proves very costly, they will essentially be useless. Instead, Winter (2003) suggests exercising the ad-hoc problem-solving option: the cost of which will vanish if there is no problem to solve – but this cannot be implemented for long-term sustainability. (Teece, 2014c) considers, though, that problem-solving entails dynamic capabilities, and cites an example of dynamic innovation processes neither purely routinized nor ad-hoc.

Dynamic capabilities investment constitutes an essential long-term commitment. Organisations should focus on learning, as this enables capabilities to be more adaptable to market change (Rahmandad 2012, Winter 2003, Zollo and Winter 2002). Moreover, newcomers to the market must invest more in dynamic capabilities, compared with older market players which already have accumulated experience and knowledge. For example, HP invests positively in collecting different types of learning tools to identify and diffuse the best practices in achieving organisational learning, which can enhance its dynamic capabilities (Zollo and Winter, 2002).

Many authors agree on **the cost involved in developing and deploying dynamic capabilities**; but that it is worth doing so, as it is a long term requirement to sustain competitive advantage and survive in a dynamic market. Accordingly, new market players must balance between investing in dynamic capabilities at the first stage and seize market opportunities. All firms must analyse market conditions very carefully to decide whether to deploy low risk ad-hoc problem solving; or dynamic capabilities, which entail long-term commitment; and take into account all strategic aspects in so doing. Yet the literature does not fully explain what criteria and circumstances lead firms to choose between developing and deploying dynamic capabilities, and ad-hoc problem-solving; or how to mitigate the cost impact on the resource base resulting from dynamic capabilities, in cases where they are irrelevant to market conditions.

Dynamic capabilities development is a long-term investment necessary to obtain new capabilities. Organisations recognise the importance of investing in developing DC. This extends insight on **the first guiding question**.

2.4.12 Product development

Product development stimulates the development of dynamic capabilities. New product development and market growth are main internal enablers, encouraging firms to develop dynamic capabilities (Newey and Zahra, 2009, Barrales-Molina et al., 2012, O'Connor, 2008, Wang and Ahmed, 2007). Dynamic capabilities are developed from knowledge and continuous learning; some of which owes to previous product development (Marsh and Stock, 2003, 2006; Zott, 2003; Newey and Zahra, 2009). Eisenhardt and Martin (2000) highlight IDEO, where the manager regularly creates new products to sustain market growth, by extracting knowledge from different prior product design projects in various industries, and from several clients. Sher and Lee (2004) explain that to respond to rapidly changing market conditions, dynamic capabilities are required – as these enable firms to make a timely decision to develop any new product. Dynamic capabilities are generated from learning and knowledge management. A majority of accumulated knowledge and experiences is obtained from learning and prior projects; especially new product design. Many authors emphasise the importance of product development in sustaining competitive advantage. Others even recommend linking new product development with the strategic context of the firm. That said, new product development overlaps with many other aspects, such as knowledge management, innovation, technology, or strategy: which render it a complex factor in developing dynamic capabilities. From a dynamic capabilities point of view, the literature covers this area quite well, without going into too much depth on new product development itself.

Developing and commercialising new products are practices to deploy and develop dynamic capabilities. They provide insight on **the first guiding question**.

2.4.13 Organisational strategy and roles of dynamic sensing, seizing and reconfiguration capabilities

Management strategies facilitate the development of dynamic capabilities. According to Anand et al. (2009, p.449), ‘in order to achieve dynamic capabilities through operations, it is

critical for organisations to translate their overall strategic direction into operational goals while allowing for flexibility to respond to changes in their operational environment'. Augier and Teece (2009), and Coen and Maritan (2011), argue that dynamic capabilities are generated in the strategic management field: which demonstrates the crucial role of entrepreneurial management and the resource allocation process in strategic renewal: necessary to shape the long term stock of resources and sustain competitive advantage. Wang and Ahmed (2007) explain that when an organisation has more resources and high dynamic capabilities, most will generate a more complex, advantageous strategy, with these capabilities directed by strategic options.

Although dynamic capabilities are developed to generate strategic advantage, their deployment does not guarantee success (Zahra et al., 2006, Ambrosini et al., 2009). Consequently, some operations management strategies are not promoted in dynamic capabilities development (Parente et al., 2011). Teece (2014a) suggests that dynamic capabilities should be tied to a strong strategy to sustain competitive advantage, and should not operate alone. Moreover, resources and strategies are interrelated, and associated with dynamic capabilities in creating and sustaining competitive advantage. Zollo and Winter (2002) argue that some firms possess different dynamic capabilities, depending on rate of change in the market, development methods, and the strategic position of future change.

Enhancing and shaping organisational strategy is a planned approach in supporting strategic deployment. It provides understanding and validates the construct of **the second guiding question**.

Dynamic capabilities are located in the main processes of strategic management, and contain specific strategic processes, such as product development, alliances and strategic decision-making: which enable a firm to survive by transforming its resource base into new, value-creating strategies (Eisenhardt and Martin, 2000, Sher and Lee, 2004, Mintzberg et al., 2005). Cetindamar et al. (2009) suggest that the selection of technologies should follow the organisational decision-making processes: which take into consideration all strategically related aspects, such as strategic objectives (Døving and Gooderham, 2008), aligning technology with the whole business strategy. Managerial orchestration is an essential element of enhancing processes and grasping opportunities, and must be directed by a strategy; dynamic capabilities are stronger when the leadership is wiser (Teece, 2014a, 2014c, 2016).

Kyläheiko et al. (2002) propose that dynamic capabilities can **provide the management with real options**: which can help them be proactive, understand the competition, take into account the future as well as current market, and provide decision-makers with clear, analytical, relevant information. In a high technology market, where scale and scope are important, ‘it is necessary to exercise the real option and to invest immediately in path-dependent routines and capabilities’ (Kyläheiko et al., 2002, p. 72). Zahra et al. (2006) suggest that, in a competitive and dynamic market, firms which deploy dynamic capabilities to address existing challenges, identify breakthroughs, and reconfigure their resources and capabilities, are those most likely to survive in these markets as situations change.

Kyläheiko et al. (2002) refer to ITC’s difficulties in making a strategic decision when choosing between two technologies: either to deploy 3G (Third Generation Mobile) immediately; or wait for 4G (Fourth Generation Mobile), which has more technical advantages. ITC took all strategic considerations into account: competition, customer demand and the correct investment at the right time. A firm’s path and history can create a strategic path which may diminish the scope of strategic management; subsequently, its trend and future direction may be locked in with it, and all other strategic options will be eliminated (Schreyögg and Kliesch-Eberl, 2007). Teece (2014c) argues that the strategy must be coherent and consistent, so that the legacy and history will make major contributions in shaping the path ahead.

Dynamic capabilities can provide management with real options: a practice in strategy deployment (planned, unplanned and emergency approaches). This confirms the DC role in strategy deployment and provides insight on **the second guiding question**.

Employment of dynamic capabilities indirectly enhances firm performance and profitability. If the development of dynamic capabilities successfully aligns with organisational strategy, it may enhance firm performance and competitive advantage (Wang and Ahmed, 2007, Fainshmidt et al., 2016, Ringov, 2017), and positively impact on long term profitability (Bowman and Ambrosini, 2003, Augier and Teece, 2009). Zahra et al. (2006) demonstrate a model which confirms the indirect effect of dynamic capabilities on firm performance, and mediates interactions between operation capabilities and knowledge. It is not a profit maximising framework, but a profit-seeking framework (Augier and Teece, 2009). Teece (2014a) argues that, to achieve good performance, firms should have strong dynamic capabilities of sensing, seizing and reconfiguration, combined with good strategy. The productivity of dynamic capabilities can be compromised if the strategy is poor (Teece 2014b).

Focus on performance and profitability is a practice for planned and unplanned approaches to support strategy deployment. This validates the construct of **the second guiding question**.

Dynamic capabilities shape organisational strategies by sensing and seizing opportunities, and transforming the business. According to (Teece, 2007, p.1346), the aim of the dynamic capabilities framework is to explain new strategic aspects required to sense and seize opportunities; and how to reconfigure the business when the market changes: the main strategic roles of executive management (Teece et al., 2016, Girod and Whittington, 2016). Augier and Teece (2008) argue that these roles are the main function of dynamic capabilities and critical to strategic management theory, which is not appreciated by economic theory. Firms need to match the exploration of new opportunities with existing ones.

Sher and Lee (2004) cite their major Taiwanese firms case study, which shows that dynamic capabilities are a compulsory element of strategic management, especially amid global competition. O'Reilly and Tushman (2008) explain that the overall business vision and values allow employees to share a common understanding, regardless of their differences in terms of business strategies. It also enables the adoption of long-term ideas, essential to opportunity exploration.

Teece (2014a, 2014c, 2016) explains these three main roles in detail, emphasising their effectiveness in enhancing and shaping organisational strategy:

- Sensing capabilities are responsible for business scanning, data collection and interpretation. This information is required to identify opportunities or threats, and assess organisational assets: including technological assets linked to customer need and business requirements. Sensing is very important to the strategy, and consists of a strong element of diagnosis.

Sense opportunities and threats are practiced to build scenarios for planned and unplanned approaches to support strategy deployment. Some of these uncertainties and threats could emerge from an emergency situation. This practice provides insight on the construct of **the second guiding question**.

- Seizing capabilities are responsible for setting up resources, mobilisation plans and policies to address the identified opportunities or threats. They also facilitate the

decision-making process. This role should be linked with the guiding policy and coherent action.

Seize business opportunities or threats helps set up plans and resources to support planned and unplanned approaches in strategy deployment. It provides insight and validates the construct of **the second guiding question**.

- Reconfiguration capabilities are responsible for managing transformation and change regarding strategic plans. They continually align all organisational strategic operations to fit the current dynamic business environment. This role needs guiding policy and coherent action.

Managing transformation and change is a practice to reconfigure the resource base for planned, unplanned and emergency approaches to support strategy deployment. It provides insight and validates the construct of **the second guiding question**.

Those following Teece (2014b)'s lead in segregating dynamic capabilities into three roles include Helfat and Peteraf (2014), Wang et al. (2014), and Nieves and Haller (2014). Moreover, Vanpoucke et al. (2014) suggested that these three roles should be integrated, interlinked and synchronised together, to achieve the ultimate aim.

Several authors emphasise the importance of developing dynamic capabilities; and that these development plans must be part of the organisational strategy. Others consider dynamic capabilities an indispensable element of strategic management, required to maintain competitive advantage and survive in the rapidly changing environment by creating a long-term resource base. Dynamic capabilities are involved in many strategic processes, such as product development, alliances and decision-making. Such processes cannot easily be outsourced to a third party; however, some firms hire consultancy companies to assist them in forming these processes. Moreover, in dynamic markets with high uncertainty in terms of technological change, firms face challenges in choosing the right technology at the right time, even when taking all strategic objectives into account; it is necessary for them to exercise the real option capability, the key role of dynamic capabilities. However, dynamic capabilities do not guarantee success and should not be eliminated at the first sign of failure,

as they are part of a long term strategy. Indeed, firms without dynamic capabilities may only enjoy short-term business advantages.

Dynamic capabilities are history and path dependent. There is a risk of strategic objectives being locked into a path previously established, with possible alternatives ignored. A clear strategy and vision from senior management can easily mitigate any such challenges. Sensing and seizing opportunities and transforming capabilities will enhance a firm's ability to create a strong strategy and vision for a challenging future. In contrast, lack of clear strategy and vision will create chaos, less information exchange, conflict, and a weaker ability to respond to change.

The literature review also highlights that the effects of dynamic capabilities on firm performance and profitability are relatively complex. Few authors explain that dynamic capabilities have only an indirect impact. Yet how does a firm improve performance and profitability when exercising dynamic capabilities? Is it the role of dynamic capabilities to create and enhance organisational strategy, or does the organisation strategy generate plans to develop dynamic capabilities, or both? Moreover, to what extent do sensing and seizing opportunities and transforming enhance and shape a strong strategy and vision?

2.4.14 Thematic framework summary

The table in Appendix 1 provides a detailed summary and analysis of the literature discussed above. It identifies all themes covered under the DC research, describes the practices (from theory) that affect the development, deployment and improvement of DC, highlights the research gaps and proposes potential research questions to advance this area of research.

2.5 Framing the research questions for this study: Dynamic Reconfiguration Capabilities (DRC)

The analysis of the literature enabled the identification of gaps in research and refinement of the initial guiding questions. The literature has gaps in knowledge in relation to DRC - particularly around their development and role in strategy deployment – which will be the focus of this study.

Teece (2007, p.1347) argues that there are obvious close links and interrelationships between and amongst the three micro foundations of DC, as the market changes rapidly. He also mentioned that in theory, and for analytical purposes DC could be disaggregated.

Theoretically, it could be imagined that transactions between units that explore and develop opportunities, and those that try to act upon them. “In reality, the two functions cannot be cleanly separated, and the activities must be integrated into a single enterprise” (Teece, 2007, p.1327). Therefore, if enterprises are to cut time-to market for new products and processes, the cross-functional activities and associated investments must take place concurrently, rather than sequentially.

In the context of this study, DRC combine the seizing and reconfiguration capabilities defined by Teece (2007). According to Teece (2007, p.1319), after identifying opportunities or threats through dynamic sensing capabilities, these set plans on how to tackle them through required support, such as technology and financial commitment. Seizing capabilities are closely linked with reconfiguration capabilities to manage strategic transformation deployment. DRC’s main role is to reconfigure resources and organisational structures as a firm grows and competes in dynamic business environments. Ellonen et al. (2009) argue that in the reconfiguration stage, it is useful to redeploy and reuse existing assets as much as possible.

Teece (2014a, p.341, 2014c, p.19) also explains dynamic sensing, seizing and reconfiguration capabilities as clusters of the process, and managerial orchestration activities applied by organisations. Table 2.8 is reconstructed from Teece (2014a), which shows the link between dynamic capabilities roles and organisational strategy.

Table 2.8: Link between dynamic capabilities roles and organisational strategy

Strategy Kernel	Diagnosis	Guiding policy	Coherent action
Related dynamic capabilities schema	Sensing	Seizing /transformation	Seizing/transformation
Nature of managerial orchestration	Entrepreneurial	Administrative	Leadership

Teece (2014a) also notes that dynamic seizing and reconfiguration capabilities should be linked with the guiding policy and coherent action, as they are interrelated with each other with no clear demarcation. Therefore, he combined both: in terms of dynamic capabilities schema and the nature of managerial orchestration. For the purpose of this study, dynamic reconfiguration capabilities will include seizing roles, as both are directly related to strategy deployment. The dynamic sensing capability is excluded from this study, as it owes more to business scanning, monitoring, and scenario planning: which are outside this research’s

scope (Schreyögg and Kliesch-Eberl, 2007, Ellonen et al., 2009) . However, it will include dynamic sensing capabilities activities that are only associated and overlapping with seizing activities to plan the required resources to enable being proactive. This is in line with the suggestion by Teece (2007, p.1343) that “Sensing activities need to be decentralised with the information rolling up to top management. Tight planning will be a part of seizing, but less so of sensing.”

The research questions directing the rest of this study are:

RQ1: How are dynamic reconfiguration capabilities (DRC) developed, deployed and improved?

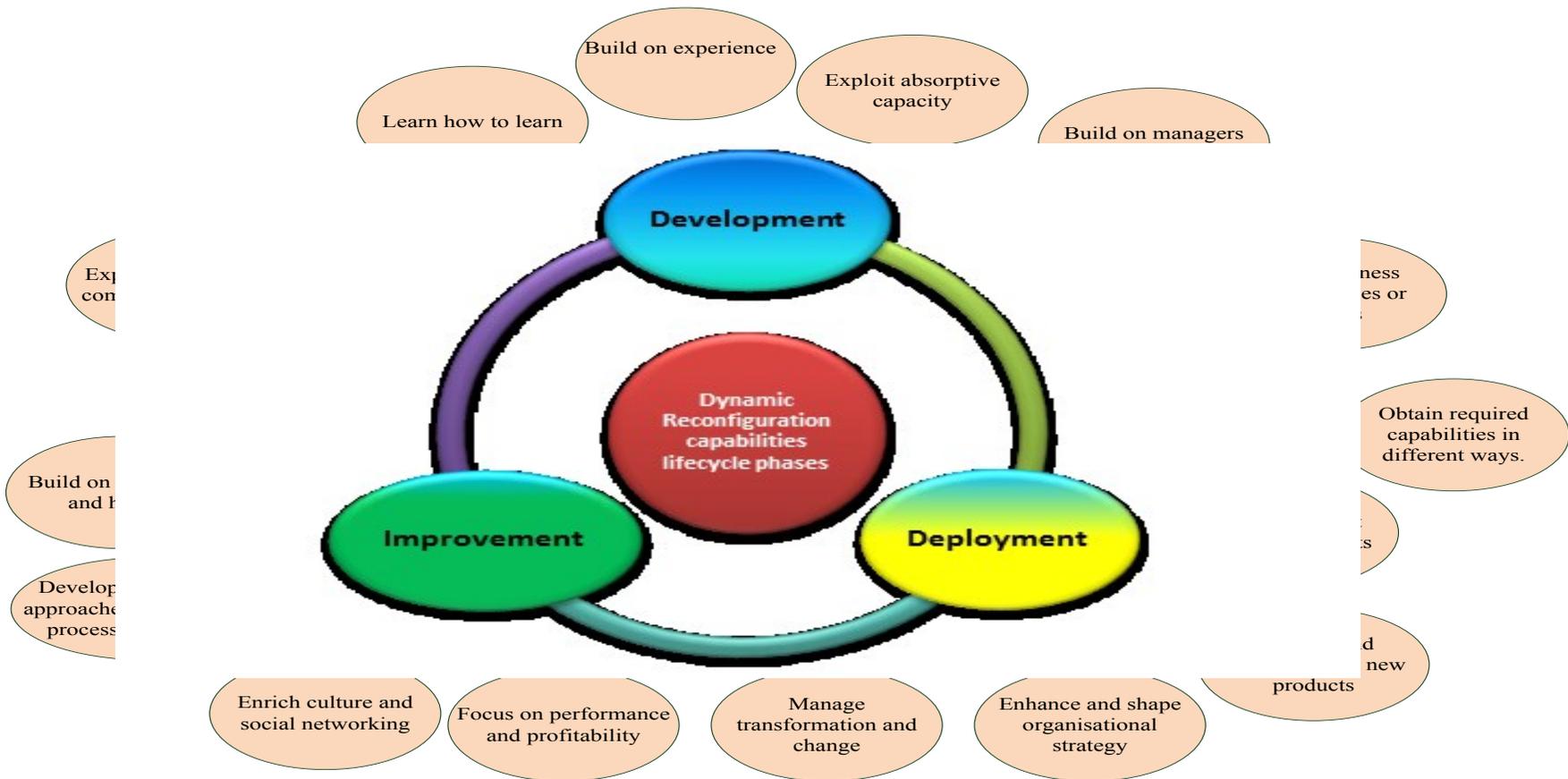
RQ2: How do DRC support the concurrent approaches to strategy deployment?

2.5.1 RQ1: How are dynamic reconfiguration capabilities (DRC) developed, deployed and improved?

The literature provides a general description of dynamic capabilities (DC), but lacks focus on the micro-foundations of sensing, seizing, and reconfiguration. Few empirical studies have analysed the specific roles of dynamic reconfiguration capability (DRC) in different contexts.

The literature review has enabled the identification of practices which support the Development, Deployment and Improvement of DC (Appendix 1). The theoretical findings and practices around DRC will be considered for the remainder of this research. Although some findings and practices are applied to all three micro-foundations, this study will exclude any findings related to sensing capabilities only.

The author has organised the DRC theoretical practices (Appendix 1) into a DRC lifecycle framework, consisting of three phases: development, deployment and improvement (Mintzberg, 2003, Ates, 2008). Some of these practices address more than one phase in the lifecycle: for example, innovation and new product development practices. Figure 2.5 demonstrates the DRC lifecycle framework, followed by an explanation for each phase of the lifecycle.



Dynamic Reconfiguration capabilities lifecycle phases and practises

Figure 2.5 Dynamic reconfiguration capabilities lifecycle framework

2.5.1.1 Development

‘Internal development refers to creating a new capability within the existing boundaries of a firm by recombining the firm’s existing capabilities or creating new ones’ (Capron and Mitchell 2009, p.296). Dynamic capabilities are generated from an organisational cluster of resources attached to routines and processes, embedded in idiosyncratic social structures, managerial processes, ways of gaining knowledge, individual skills, learning, communication and historical experiences (Krsto et al., 2003, Schreyögg and Kliesch-Eberl, 2007, Peng et al., 2008, Zeng et al., 2017). They are non-transferable, firm-specific and create barriers for competitors to imitate or substitute (Amit and Schoemaker, 1993, Makadok, 2001, Krsto et al., 2003, Peng et al., 2008).

2.5.1.2 Deployment

‘The firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments’ (Teece et al., 1997, p 516). Dynamic capabilities are a firm’s capacities to survive and sustain itself in the rapidly changing business environment, by adapting and matching their resources and competencies to environmental condition over time, taking into account their past history and current resource limitations (Teece et al., 1997, Teece and Pisano, 1994, O’Connor, 2008, Ambrosini and Bowman, 2009, Barreto, 2010). When managers reconfigure their resources and skills to match and adapt to market conditions, this can help identify new business opportunities and result in new market change (Eisenhardt and Martin, 2000, King and Tucci, 2002, Bowman and Ambrosini, 2003, Krsto et al., 2003, Teece, 2007, Augier and Teece, 2009, Newey and Zahra, 2009, Helfat and Martin, 2015).

2.5.1.3 Improvement

Dynamic capabilities are affected by age and changes in the business environment ‘as markets emerge, collide, split, evolve and die’ (Eisenhardt and Martin, 2000, p. 1107). These capabilities require updating and renewing frequently; otherwise they may become redundant (Winter, 2003, Schreyögg and Kliesch-Eberl, 2007, Zeng et al., 2017). Similarly, they may develop rigidity when overused in operations and not adjusted or tuned to match with the market environment (Ambrosini et al., 2009, Zahra et al., 2006). From a dynamic capabilities viewpoint, culture and social capital are necessary to achieve effective operations and facilitate the continuous process of knowledge sharing, collaboration and

networking (both internally and externally), and enhance innovation (Augier and Teece, 2008, p1199; Ambrosini and Bowman 2009).

2.5.2 RQ2: How do DRC support the concurrent approaches to strategy deployment?

Even though DRC is about resource deployment and configuration, there is no clear understanding of how it supports the deployment of different types of strategy. This is especially important for, for example, the telecommunication sector, which has to deal continually with different strategic approaches. A requirement of the telecoms industry is to manage and deploy planned, unplanned and emergency strategic approaches concurrently. The review of the literature reveals a lack of DC research in this area, and a clear need for empirical studies in such regard.

2.6 Chapter summary

This chapter has developed a comprehensive conceptual and thematic framework of dynamic capabilities, and set out the current state of dynamic capabilities literature. The concepts, definitions and theoretical practices explored will be used as key elements for the rest of this thesis. Gaps have been identified, which helped shape the research questions of this thesis. The next chapter will explain the methodology of the empirical inquiry which will address these research questions.

Chapter 3: Methodology

3.1 Introduction

This chapter will evaluate the methodological approaches available to management researchers. Research methodology enables researchers to conduct reliable and difficult research. This chapter will also address the research design in the context of this study.

The methodology is used to address a specific problem by combining preferred methods to figure out a path to link the research problem (questions or hypothesis) with end results and conclusions (Yin, 2014). Easterby-Smith et al. (2012) define research as a method to expedite understanding of how managers can achieve and deploy best practice in their organisations.

3.2 Nature of the research

This study consists of two research questions, whose answers will contribute to knowledge of DRC:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

RQ2: How do DRC support the concurrent approaches to strategy deployment?

The above research questions begin with “How”: a descriptive question, which aims to describe situations based on theory or reality (Yin 2014). The characteristics of such questions are explanatory in nature, as they deal with operational links rather than frequency. This study seeks to explain and fill an important research gap: a lack of empirical studies of DRC roles in the telecommunications sector.

The systematic literature review identified clear limitations in regards to how DRC emerge and how these can be used to manage concurrent strategy. This research will interrogate the research gaps in an exploratory way. This project takes more of an exploratory nature, although it has descriptive and explanatory characteristics. Yin (2014) notes that even though exploratory, descriptive and explanatory methods have individual characteristics, there is vast overlapping between them. The answers to the research questions cannot be

found in the current literature; so the research entails ‘theory building’, and hypothesis testing is impossible.

3.3 Philosophical assumptions

Philosophical assumptions will assist the researcher in selecting the correct research strategies. It will enable satisfactory outcomes to be reached from research processes of understanding and interpreting the reality of the world (Easterby-Smith et al., 2012). That said, research which does not consider philosophical stances might serious impact the end results. Easterby-Smith et al. (2012) suggest the following advantages of considering philosophical assumptions in research:

- Identify clear design processes.
- Enable the researcher to evaluate and eliminate a research design which may not work.
- Help the researcher to think, create and design research processes away from his experiences and knowledge.

The philosophical debates are divided into four assumptions: ontology, epistemology, methodology, and methods and techniques (Easterby-Smith et al., 2012). The following sections provide a brief summary of these assumptions.

3.3.1 Ontology

Easterby-Smith et al. (2012, p 18) defined ontology as an assumption about the nature of reality, and categorises it into:

- **Objective ontology** is about the physical sciences approach, which deals with facts, causality, fundamental laws, reductionism, measurement and objective reality. The truth holds regardless of who the observer is; the aims is to discover what is there.
- **Subjective ontology** is about the constructed approach in nature: what is there is not solid, but shifting. The truth depends on who establishes it; facts are all human creations, based on people’s interpretations and perceptions.

3.3.2 Epistemology

Epistemology is related to the search for foundations and how we see the nature of reality in the world (Johnson and Duberley, 2000, Easterby-Smith et al., 2012). It is a general set of assumptions about the best ways of inquiring into the nature of the world (Easterby-Smith et

al., 2012, p 18), as we view social world issues from different lenses gained through our background, education, personal and professional experiences.

There are different philosophical debates among management researchers who support different paradigms. To help select the most relevant paradigm, Meredith et al. (1989, 1998) explained two important elements for philosophical modelling of management research. The first element is rational (existential), which defines whether there is just one reality, and is independent to the researcher; the second is that this reality is subjective and socially constructed. Easterby-Smith et al. (2012) explain different paradigms for epistemologies in social sciences:

- **Positivist paradigm** suggests that the social world exists externally. Its properties are measured through objective methods, rather than inferred subjectively through sensation, reflection or perception.
- **Interpretivist paradigm** deals with different contexts through sense-making, rather than the objective real world. Interpretivist researchers mostly employ different qualitative methods and discourse analysis to generate qualitative data. Data analysis involves observations, depth interviewing and analysis of text reports to overcome generalisability critiques.
- **Critical realism paradigm** is a philosophy of social science which shares with positivism the belief that there is a reality, both natural and social, independent of human knowledge. It combines the strengths and avoids the limitations of positivist and interpretivist paradigms. Its main strengths are that it recognises the value of using multiple data sources and perspectives; its main weakness is that it may require expensive, time-consuming large samples.

3.3.3 Methodology

Easterby-Smith et al. (2012, p.18) define methodology as a combination of techniques used to enquire into a specific situation. It also refers to whether the research is following a deductive or inductive approach. A deductive approach starts with literature followed by empirical investigation, as the researcher has some orienting constructs and propositions to test or observe in the field (Miles and Huberman, 1994). The inductive approach starts with field data and links it with previous literature. The question is whether the main study objective is to build, modify or test existing theories.

3.3.4 Methods and techniques

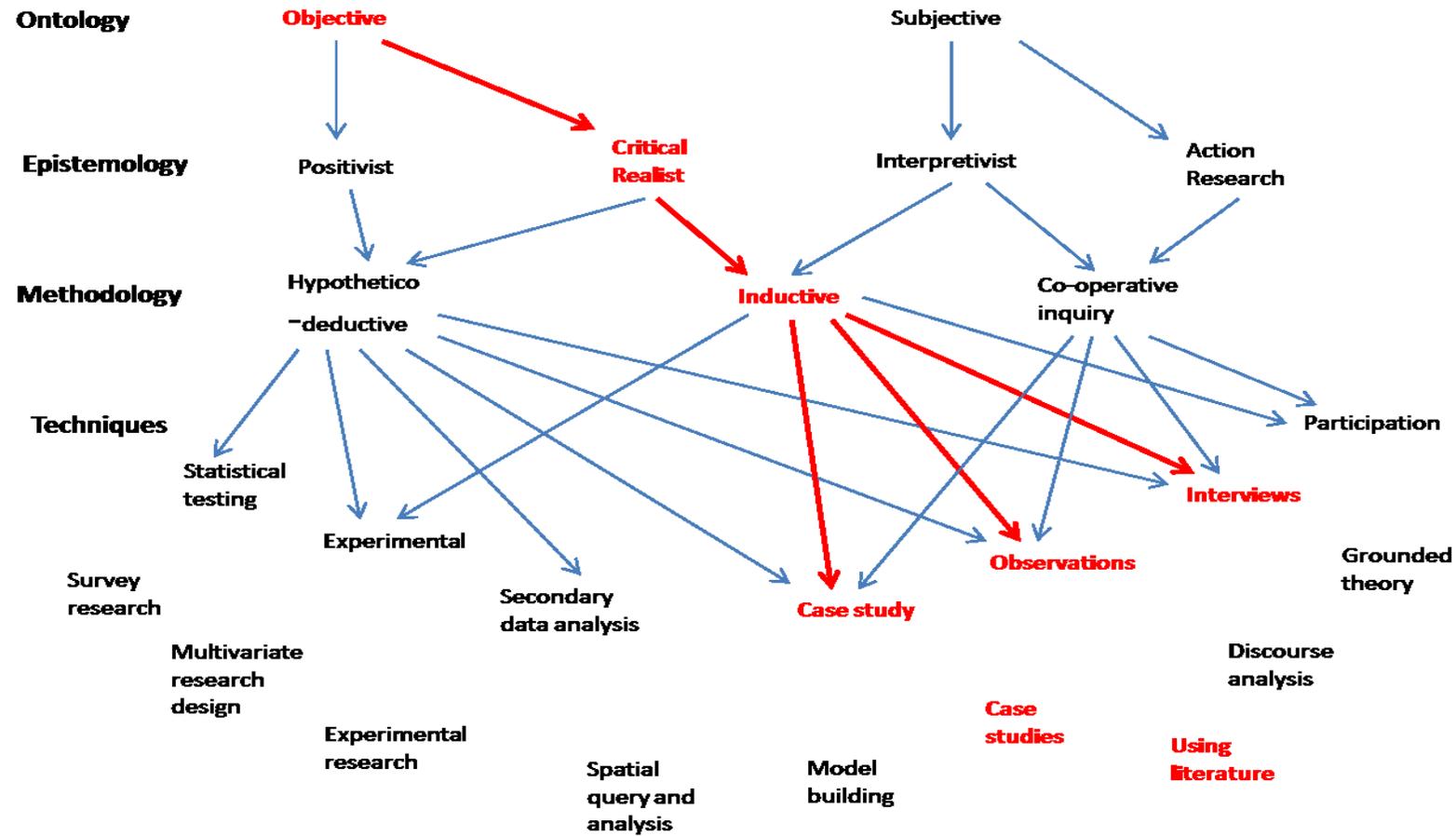
Easterby-Smith et al. (2012, p.18) define methods as individual techniques for data collection and analysis. Methods are the techniques or practices which the researcher deploys to investigate certain phenomena. Research methods and techniques could include statistical testing; experimental or secondary data analysis; case study; observation; interviews; and participation. The decision to use any of these techniques is dependent on the researcher's preferences, ontology and epistemology.

3.3.5 Selected paradigm

As noted above, this project is an exploratory piece of theory-building research. The research questions are 'how' questions. Thus as an independent observer, the researcher will seek explanations of a company's behaviour regarding the DRC lifecycle, and its role in strategy deployment. The researcher believes that reality in the social world exists subjectively according to individuals' own judgment and interests. Even though the researcher has a pre-understanding and knowledge of the company to be studied, he will interview middle and top management to understand their interpretations and perceptions about the subject. Subjective ontology is preferred for this research, as it allows the researcher to examine the DRC lifecycle and strategic activities which fit together in practice. Consequently, critical realism is the epistemological selection to address the research questions. It recognises the value of using multiple data sources and perspectives, and can be context specific (in this case, the telecommunications sector).

The literature provides different taxonomies and concepts to guide the empirical study before conducting the field investigation. However, the researcher will also keep an open mind during the empirical investigation, as the findings from the empirical study will be compared and contrasted with the current literature. The contribution is expected to extend current theories into the context of DRC's roles in supporting the concurrent deployment of strategic approaches in the telecommunications sector. Thus, this research will deploy an inductive methodology to build theory, rather than a deductive one; it is not testing any hypotheses and aims to consider the patterns which emerge from the data.

Qualitative case studies are most suitable in answering the research questions. The case study will be conducted with the support of multiple interviews, documentation and observations. The current literature will also be used for triangulation purposes. The research design path chosen is demonstrated in Figure 3.1(Ates, 2008).



Methods path for this study is in red

Figure 3.1 Research Methodology design: map for this research

3.4 Methodology selected for this study

3.4.1 Case study methodology

This research follows a case study methodology. Yin (2014, p.2) identifies case study research as an empirical inquiry that “investigates a contemporary phenomenon (the “case”) in its real-life context especially when the boundaries between phenomenon and context may not be clearly evident”. The literature highlighted that the dynamic capability framework contains some ambiguity in terminology: it is still emerging and there is no universal definition. This contemporary problem hinders the development of solid ground for a dynamic capabilities conceptual framework to stand on. A case study is a history of a past or current phenomenon, formed from multiple sources of evidence. Voss et al. (2002) highlight the importance of context: any fact relevant to the stream of events describing the phenomenon is a potential historical input into a case study.

Voss et al. (2002, p.197) explain that case research has consistently been one of the most powerful research methods in operations management, particularly in the development of new theory. Case studies can help identify new insights, build on new theory and have high validity with practitioners. Voss et al. (2002, p.198) also set out four different research purposes for case studies, as shown in Table 3.1 below.

Table 3:1. Matching research purposes with case study types (adapted from Voss et al. 2002, p.198)

Purpose	Research question	Research structure
<i>Exploration</i> Uncovering areas for research and theory development	Is there something interesting enough to justify research?	In-depth case studies Unfocused, longitudinal field study
<i>Theory building</i> Identifying or describing key variables Identifying linkages between variables Identifying ‘why’ these relationships exist	What are the key variables? What are the patterns or linkages between variables? Why should these relationships exist?	Few focused case studies In-depth field studies Multi-site cases studies Best-in-class case studies
<i>Theory testing</i> Testing the theories developed in the previous stages Predicting future outcomes	Are the theories we have generated able to survive the test of empirical data? Did we get the behaviour that was predicted by the theory or did we observe other unanticipated behaviour?	Experiment Quasi-experiment Multiple case studies Large-scale sample of population
<i>Theory extension/ refinement</i> To better understand the theories in light of the observed results	How generalisable is the theory? Where does the theory apply?	Experiment Quasi-experiment Case studies Large-scale sample of population

Meredith (1998) highlights three outstanding strengths of case study research:

- The phenomena can be studied in its natural setting - with meaningful, relevant theory generated from understanding gained through observing actual practice.
- The case method allows the questions of why, what and how to be answered with a relatively full understanding of the nature and complexity of the complete phenomena.
- The case study method lends itself to early, exploratory investigations where the variables are still unknown and the phenomenon not at all understood.

Case studies are the preferred method of answering ‘how’ or ‘why’ questions (Yin, 2014). Stake (1995) views case studies as instrumental methods used to achieve something beyond simply understanding the companies involved; it is about answering the research questions and building new theories. This is very much in line with the research questions, which start with ‘how’.

Yin (2014) explains that case study research could be single or multiple, holistic or embedded. It can also comprise both qualitative and quantitative evidence, and is dependent

on multiple sources. Case research provides a systematic way of looking at events, collecting data, analysing information, and reporting findings.

This research is categorised as exploratory, theory-building research. Therefore, it will pursue a multiple case study, which enables theory-building. Multiple case study research provides in-depth investigation: essential for this study to develop theories. Few empirical studies have analysed the specific roles of dynamic reconfiguration capability (DRC) in different contexts. Thus this study requires an in-depth empirical data investigation to explain how DRC emerges and is deployed in managing concurrent strategic approaches in the telecommunications sector. Multiple case studies will allow the researcher to understand the different factors within organisational settings, and draw conclusions based on real situations. It will also allow for theories to be developed which can be generalised outside a single unit of analysis. A multiple case study approach is also the main contributor to the external validity of the study. Finally, a quick survey of the literature reveals that qualitative research, particularly interviews and case studies, are commonly used methodologies in dynamic capabilities studies.

3.4.2 Building theory from multiple case studies

This research will follow the case study methodology stages defined by Eisenhardt (1989) to build a theory. Case study research in theory helps clarify meanings and remove uncertainty in the explanation of constructs (Voss et al., 2002). The literature highlighted a lack of empirical studies in analysing the specific roles of dynamic reconfiguration capability (DRC) in the telecommunications sector. Consequently, it was not possible to form a reliable hypothesis before the data collection. Hence, the aim of this research is to develop new theories which identify and explain organisational practices which contribute to the DRC lifecycle and manage concurrent strategic approaches in the telecommunications sector.

The theory-building process occurs via recursive cycling among the case data, emerging theory and later, extant literature (Eisenhardt and Graebner, 2007, p.25). It also involves the conceptual coding and categorisation of data with continuous relative analysis. A theory is a statement of what causes what, and why. Eisenhardt (1989) points out that constructs or concepts can help researchers shape a stronger research design, as it is almost impossible to begin research without any initial idea about the subject. In this case, the researcher commences with prior constructs derived from the literature of dynamic capabilities. Concurrently, Eisenhardt emphasises the importance of keeping an open mind and avoiding

thinking about specific relationships or reaching initial conclusions in the early stages of research.

3.4.3 Processes of building theory selected for this study

Eisenhardt (1989) defines eight stages which are essential when planning and conducting theory building in case study research. Flexibility in data analysis is one of the main advantages in these processes, which fit with an exploratory research project. Also, the data analysis can be performed concurrently with data collection, as it does not require a hypothesis or theory to be tested. These processes are adaptable to the field situation, and the research questions should be open to modification as the analysis processes progress. Table 3.2 demonstrates the overall processes of theory building.

Table 3.2. Process of building theory from case studies (Eisenhardt 1989, p. 533)

Step	Activity	Reason
<i>Getting started</i>	Definition of research question Possibly a prior construct	Focuses efforts Provides better grounding of construct measures
<i>Selecting cases</i>	Neither theory nor hypotheses Specific population Theoretical not random sampling	Retains theoretical flexibility Constrains irrelevant variation and sharpens external validity Focuses efforts on theoretically useful cases – i.e. those that replicate
<i>Crafting instruments and protocols</i>	Multiple data collection methods Qualitative and quantitative data combined Multiple investigators	Strengthens grounding of theory by triangulation of evidence Synergistic view of evidence Fosters divergent perspectives and strengthens grounding
<i>Entering the field</i>	Overlap data collection and analysis including field notes Flexible and opportunistic data collection methods	Speeds analyses and reveals helpful adjustments to data collection Allows researchers to take advantage of emergent themes and unique case features
<i>Analysing data</i>	Within-case analysis Cross cases pattern search using divergent techniques	Gains familiarity with data and preliminary theory generation Forces researchers to look beyond initial impressions and see evidence through multiple lenses
<i>Shaping hypotheses</i>	Iterative tabulation of evidence for each construct Replication, not sampling, logic across cases Search evidence for ‘why’ behind relationships	Sharpens construct definition, validity and measurability Confirms extends and sharpens theory Builds internal validity
<i>Enfolding Literature</i>	Comparison with conflicting literature Comparison with similar literature	Builds internal validity, raises theoretical debate and sharpens construct definitions Sharpens generalizability and raises theoretical level
<i>Reaching closure</i>	Theoretical saturation when possible	Ends process when marginal improvement becomes small

3.4.3.1 Getting started

This research is exploratory in nature, so it important to have initial research questions and objectives at the beginning stage. These enable a researcher to be focused, as it would be easy to become overwhelmed by the data volume in their absence. Theory building research starts as far as possible with the idea that no theory is to be considered or hypotheses tested. Easterby-Smith et al. (2012) also recommend avoiding thinking about specific relationships

between variables and theories as much as possible, particularly at the start of the process. Therefore, this study began with an extensive review of the literature, which allowed for the creation of conceptual and thematic frameworks. These frameworks enable the identification of research objectives and knowledge gaps. To reiterate: the lack of empirical studies analysing the specific roles of DRC in the telecommunications sector mean there is no theory or hypotheses to be tested.

3.4.3.2 Selecting cases

According to Yin (2014), case studies methods are useful approaches in getting to the reality through fieldwork, and provide context-dependent reality: the core of this study. The aim of this project is to understand organisational practices and activities which contribute to DRC lifecycle processes and manage the concurrent deployment of strategic approaches in the context of the telecommunications sector. Eisenhardt (1989) argues that case studies are the best tool to demonstrate practice for research, as well as the interaction between theory and practice which will help us move from subjectivity. A telecommunications service provider company in Oman was selected for this study. The researcher's work experience and educational background had a major influence on this selection.

Unit of analysis

The strategic practices or influence of activities on the resource base within functional units/divisions will be investigated. Easterby-Smith et al. (2012, p.65) define the unit of analysis as "the entity that forms the basis of any sample. That may be formed from one or more of the following; countries, cultures, industrial sectors, organisations, departments, etc.". Therefore, the **unit of analysis of this research is functional units/divisions** which have an influence of strategic activities on the resource base. Accordingly, five functional units/divisions within the same company will be considered as a unit of analysis, as they are directly involved in these types of practices and activities. Voss et al. (2002, p.197) note that: "A case study is the unit of analysis in case research". It is possible to use different cases from the same firm to study different issues or to research the same issue in a variety of contexts in the same firm. Eisenhardt (1989), moreover, believes that between four and ten cases are preferable for successful theory-building.

Table 3.3 sets out the functional units selected as case studies, and the rationale for their selection. Further details about the company and organisational structure are provided in the Appendix (3).

Table 3.3 Selected case studies for this research and reason for inclusion

Case no.	Reason for inclusion
CASE STUDY 1	Human Resource Unit (HR)
	This receives resource requirements from other units and fills these gaps by announcing vacancies internally (exploitation) or externally (exploration). It provides training to meet current and future organisational skills requirements. It also develops career plans for the whole organisation's units to meet its mission and vision. All these activities impact upon and influence the resource base.
CASE STUDY 2	Regulatory Affairs Division (LGL)
	This division implements TRA (Telecommunication Regulation Authority) rules and regulations, and coordinates with other external entities. Accordingly, it sets organisational rules and regulations which impact on the resource base of the whole organisation.
CASE STUDY 3	Corporate Strategy Unit (CSG)
	This unit is responsible for creating the organisational vision and mission. Therefore, it receives information from other units, to set organisational level Key Performance Indicators (KPI). Each functional unit reconfigures its resource base as per the appointed KPI.
CASE STUDY 4	Corporate and Consumer Units (C&C)
	These units are responsible for sales, marketing, customer care, market monitoring and analysis. It provides market intelligence and information to other units, reconfiguring their resources to meet the dynamic business environment. It is responsible for developing new products to match the market status and manage product lifecycles.
CASE STUDY 5	Integrated Network & Technology Unit (IN&T)
	This unit contains more than 60% of the whole organisation's workforce. It is responsible for driving technology to meet end users' perspectives; and the whole network's operation and maintenance (O&M), so maintaining the performance KPI. As a result, it frequently reconfigures the organisation's resource base to meet dynamic business environment trends.

The selected company used to be an incumbent and the only service provider in the country until 2003, when competition was introduced. It is a perfect case for this research for many reasons, as will be evidenced by the findings. The following points illustrate the validity and reliability of the selection.

The company managed its transformation from the government sector to a private company, and registered on the local stock market. Thereafter, it has maintained the same pace of growth and keeps developing new products to match new market conditions. This

transformation success highlights the company's own dynamic reconfiguration capabilities and experience.

The company owns the largest telecommunications infrastructure in the country. It has the widest mobile network coverage and almost 95% of fixed telecommunications services in the country. These assets have accumulated over 45 years, and demonstrate market knowhow. These networks require dynamic reconfiguration capabilities to maintain service continuity and continue being updated. Maintaining service continuity reflects the role of DRC in supporting planned, unplanned and emergency concurrent strategic approaches.

The company has continually transformed in the face of significant changes in the external environment, and continues to grow, be profitable, have a strong brand and be an attractive employer. In dealing so effectively with the dynamic business environment, it must be doing something right, to put it mildly.

3.4.3.3 Crafting instruments and protocols

In multiple case studies, researchers have the advantage of collecting data in different ways, or combining more than one way: which can be customised towards obtaining the required information. Eisenhardt (1989) suggested that building flexibility in data collection is very important, as the main aim is to understand each case as far as possible, provided that any modifications or adjustments in data collection are systematic and controlled.

This research is exploratory in nature, and will require obtaining strategic information related to the DRC lifecycle and its role in deploying concurrent strategic approaches in the telecommunications sector. Therefore, the researcher will adopt three different methods of data collection: interview with managers, direct observations, and the collection of relevant documents. Eisenhardt (1989) contends that interviews, observations and documentary sources are most commonly used in case study, and stressed the need to combine two or more of these to ensure triangulation.

According to Yin (2014), a study should have a protocol to increase its reliability: this keeps the researcher focused on the research topic and forces them to anticipate potential problems. Therefore, the researcher developed a protocol for this research. It also helps to ensure that each case in a multi-case studies approach is carried out in a similar way, enhance reliability, and ensure that data is collected in a comparable way. This research protocol structure was developed and divided into four sections (Yin 2014, p.85):

- **Section A:** an overview of the case study, which includes a brief background on the research and dynamic capability framework, especially DRC; the aim and objectives; and the purpose of selecting a particular unit: mainly, their functional unit influence on the resource base.
- **Section B:** Data collection procedure, which includes gaining access to the case organisation (units in this case), necessary data collection tools such as a voice recorder and laptop, collection method templates, and a checklist of other logistics for the case study visit.
- **Section C:** data collection questions, which include questions to keep in mind during data collection, and other potential evidence for addressing the questions. In this study, the researcher developed open-ended questions based on the thematic framework, as shown in the Appendix (2).
- **Section D:** a guide for the case study reports, which include a structure and outline of the writing of the case study report, and how to link it to the field evidence.

3.4.3.4 Entering the field

Construct validity in case study research is achieved through ‘triangulation’, or multiple sources of evidence (Yin, 2014). According to Voss et al. (2002), interviews are extensively used in collecting data in case study research, which considers triangulation a fundamental principle in data collection. Yin (2014) also identifies that case study evidence could be obtained from six sources, as shown in Table 3.4 below, along with their associated strengths and weaknesses.

Table 3.4 Six sources of evidence from case studies (adapted from Yin, 2014, p.106)

	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> ▪ Stable - can be repeatedly reviewed ▪ Unobtrusive - not created as a result of the case study ▪ Exact - contains exact names, references, and details of an event 	<ul style="list-style-type: none"> ▪ Retrievability - can be low ▪ Biased selectivity, if collection is incomplete ▪ Reporting bias - reflects bias of author ▪ Access - may be deliberately blocked
Archival Records	<ul style="list-style-type: none"> ▪ Same as above for documentation ▪ Precise and quantitative 	<ul style="list-style-type: none"> ▪ Same as above for documentation ▪ Accessibility due to privacy reasons.
Interviews	<ul style="list-style-type: none"> ▪ Targeted - focuses directly on case study topic ▪ Insightful - provides perceived causal inferences 	<ul style="list-style-type: none"> ▪ Bias due to poorly constructed questions ▪ Inaccuracies due to poor recall ▪ Reflexivity - interviewee gives what interviewer wants to hear
Direct Observations	<ul style="list-style-type: none"> ▪ Reality - covers events in real time ▪ Contextual - cover context of event 	<ul style="list-style-type: none"> ▪ Time consuming ▪ Selectivity - unless broad coverage ▪ Reflexivity - event may proceed differently because it is being observed ▪ Cost - hours needed by human observers
Participants observation	<ul style="list-style-type: none"> ▪ Same as above for direct observations ▪ Insightful into interpersonal behaviour and motives 	<ul style="list-style-type: none"> ▪ Same as above for documentation ▪ Bias due to investigator's manipulation of events
Physical Artifacts	<ul style="list-style-type: none"> ▪ Insightful into cultural features ▪ Insightful into technical operations 	<ul style="list-style-type: none"> ▪ Selectivity ▪ Availability

The researcher conducted a pilot case study to try the suitability of the protocol and link data collection plans with data content and procedures (Yin, 2014). As a result, the research protocol is used to guide the field entry and data collection. Three key methods of data collection are used in this research, as follows:

- **Interviews** are one of the most important sources of case study information (Voss et al. 2002, Yin 2014). They also divide interviews into three types: unstructured, semi-structured, and highly structured. In this study, the researcher conducted 23 semi-structured interviews with key managers to discuss their roles in reconfiguring the resource base to deploy concurrent strategic approaches, and how they participate in DRC lifecycle processes.

DC is still emerging in the literature and has a lack of universal definition. Therefore the researcher started the interview by explaining the academic term “dynamic reconfiguration capabilities” and how it relates to the research topic. Then, he started the first interview question by asking the managers about their functional unit’s challenges and how they manage their unit capabilities and resources to address them. For example, the starting question for corporate and consumers units was: “How do you manage and tackle complex customer requirements to develop customised solutions?”; for network and technology units: “How do you deal with emergency activities which are not part of the maintenance prevention plan without affecting the running services?” These starting questions were varied between interviewees based on their functions, which enabled them to grasp the idea of the research topic and to be familiarised with the rest of the interview questions. This tactic enabled the collection of relevant data and provided new insight into the research topic. The plan was to conduct a minimum of three interviews per case study to reach a saturation point and to present the holistic reflection of case study data, except the legal division, in which two interviews were conducted due to the division’s size. Even though the saturation points were reached in some themes, e.g. learning at the third case study, shown by repetition of information, further interviews were conducted as they were already scheduled and new insights might possibly be identified. The interviews were conducted in the English language and recorded digitally with participants’ agreement. Voice records were transcribed into text to facilitate the analysis processes. The interview duration and the volume of transcribed text are presented in Table 3.5.

- **Documentation** can be obtained in many forms, including letters, e-mails, memoranda, agendas, administrative documents (proposals, progress reports, etc.), formal studies and other articles appearing in the mass media (Yin 2014, p.106). Collecting documents requires high levels of trust between the company under study and the researcher: necessary for the disclosure of confidential information. In this research project, the required levels of trust were present, as the researcher is still considered an employee of the company. Therefore, he managed to collect more than 120 documents, including KPI, an annual report, strategic plans, technology roadmaps, an HR development plan, and internal memos. Most of the documentation is not case study specific, as all five cases were conducted by the same company, and most documents are related to more than one case study.

- **Direct observations** were conducted straightforwardly by the researcher, as he is still an employee of the company. He attended many strategic meetings and observed managerial practices regarding the seizing of business opportunities, managing risks and attending emergencies. As a result, he recorded ten behavioural observations in different business environment conditions. Yin (2014) suggests that some relevant behaviours or environmental conditions may serve as another source of evidence in a case studies approach.

Table 3.5 below provides a brief description of the collected data, and includes designations of interview participants, duration of interviews and the different types of documentation. For the full list of questions discussed during the interviews, see Appendix (2).

Table 3.5: A brief description of collected data

Case study	Interviewee Designation	Duration (time)	Transcription (pages)	Observation	Documentation
1. Human Resource Unit	Senior Manager, Employee Engagement	00:34:35	15	Ten direct observation reports from the five case studies which provide insight into behaviours, management styles, meeting contents, staff comments and reactions.	Over 120 documents. These consist of KPI, internal memos, organisation strategy presentations, vendors workshops, meetings, evaluation and appraisal reports, job evaluation criteria, technology roadmap, annual reports.
	Senior Manager, Recruitment & Workforce Planning	00:39:26	15		
	Senior Manager, Career Planning	00:47:26	20		
2. Regulatory affairs division	Manager, Legal	00:33:48	13		
	Senior Manager, Legal Affairs	01:19:38	32		
3. Corporate Strategy Unit	Senior Manager, Advertising and branding	01:13:08	37		
	Manager, Business Intelligence	01:02:13	22		
	Senior Manager, Corporate Strategy	01:17:30	27		
	Advisor to CEO (Ex VP Organisation strategy unit)	01:40:19	37		
4. Corporate and consumer units	Senior Manager, Marketing Planning and Performance Management Corporate	01:21:36	14		
	Advisor, in Technology (former Sale advisor)	00:49:56	11		
	Senior Manager, Product Development Consumer	01:07:11	12		
5. Integrated Network & Technology Unit	General Manager, Information Technology Division	00:41:04	10		
	Senior Manager, Enterprise Applications	00:57:33	13		
	Manager, IT Service Desk	00:55:44	14		
	Manager, Customer Solution Design	00:41:59	18		
	Manager, Core Transport Design	01:36:37	41		
	Senior Manager, Transport Network Design	00:50:11	23		
	Manager Fixed network implementation	00:39:38	18		
	General Manager, Network Deployment	01:28:44	36		
	Senior Manager, Quality Control Network Operations	00:47:43	20		
	General Manager, Network Operation and Maintenance Division	00:32:43	14		
	Senior Advisor, COO	01:10:29	35		

3.4.3.5 Analysing data

The overlapping of data collection and data analysis is important in theory building processes (Miles and Huberman, 1994, Eisenhardt, 1989). This will expedite the analysis process and allow the researcher flexibility to make adjustments during the data collection stage as the theory begins to emerge. The data analysis for this research project adopts the following processes:

Within case study:

According to Saldaña (2012, p.3), “A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and /or evocative attribute for a portion of language-based or visual data”. The researcher can easily end up feeling overwhelmed by the volume of data; coding will allow them to reduce data into categories and structure it (Miles and Huberman, 1994, Schreier, 2012). Miles and Huberman (1994), and Voss et al. (2002) explain that coding enables the researcher to map events (e.g. activities, behaviours, settings, relationships) into categories, before comparing these with previous events in the same category to identify patterns of data: enabling the development of theories.

Miles and Huberman (1994) identify three methods for creating codes. First: the researcher creates an interim list of codes which emerged from the literature review and the research questions, before conducting the fieldwork. Second: the researcher does not create a code list until data is fully collected, so a more open-minded approach can be adopted during data collection. This method is commonly used in inductive or grounded research. The third method involves a mixture of the methods: the researcher does not create specific codes, but instead defines general domain areas before entering the field. Codes can emerge inductively during later phases.

Coding is one of the analysis techniques used in this research project: which adopts the second method mentioned above. Given the lack of empirical studies analysing the specific roles of dynamic reconfiguration capabilities, the researcher should enter the field with an open mind (without a predefined coding list), to develop more insight about the study subject. The adopted coding technique consists of two levels which manage the volume and multi-types of the collected data. Level-1 coding technique is used, with the structure derived from the thematic framework. The main aims of level-1 coding are to minimise any jargon or unrelated information, and categorise input data based on thematic coding by highlighting

any key or relevant information; as well as identifying newly emergent themes, which complement the initial thematic coding list.

The level-2 coding technique is also used, with the structure derived from the research questions and lifecycle framework of dynamic capabilities, excluding sensing actions. This framework emerged from the literature review. Coherent process steps between the two coding levels of the whole data analysis are maintained, to avoid alternative data interpretations and to ensure the reliability of the coding process.

A causal network diagram is the second technique used in this research project. It identifies patterns and strategic relationships by mapping empirical DRC strategic practices emerging from coding (Miles and Huberman, 1994). This diagram demonstrates the interlinks between practices, and how they fit in. It helps and guides the writing up of the case study.

Cross-Case Analysis:

In a cross-case analysis, the researcher compares data from one case with another, to identify key similarities and differences and enable patterns, trends and relationships to emerge. Eisenhardt and Graebner (2007) explain that the theories emerged and develop through recognition of patterns of relationships among constructs within and across cases, and their fundamental logical arguments. Eisenhardt (1989) also explains that the main purpose of pattern searching is to reduce researcher bias and minimise the probability of reaching false or premature conclusions. Miles and Huberman (1994) highlight that cross-case analysis is used to strengthen understanding but not generalise; and recommend creating matrices and tables to categorise data. Thus two types of comparison tables are created to analyse the cross-case data for this research project:

- The first table is created to address the first research question: mainly on how DRC developed, are deployed and improved.
- The second table is created to address the second research question, divided into three sections: planned, unplanned and emergency approaches.

3.4.3.6 Shaping hypotheses

At this stage, the case study analysis should identify the emergent constructs of DRC lifecycle and organisational practices which support concurrent strategic approaches to strategy deployment, as evident in the case study data. The next step in the theory building process is 'shaping propositions'. This involves refining and validating these constructs and practice relationships into the final results. To maintain the coherence of the analysis, the

evidence matrices will be compared systematically with each case study, to assess whether a construct or relationship fits with a case study, needs revision, or must be removed due to lack of strong evidence. A close fit is important in building a good theory, as it takes advantage of new insights possible from the data and yields an empirically valid theory (Eisenhardt, 1989, p.541).

3.4.3.7 Enfolding literature

The next stage in the theory building process is ‘enfolding literature’. This stage involves comparing the final findings with the literature. The dynamic capability literature, which formed the prior constructs for theory-building, will be used for this contrast. Eisenhardt (1989, p.545) notes that “tying the emergent theory to existing literature enhances the internal validity, generalisability, and theoretical level of theory building from case study research”. He also stresses that in theory-building research, it is important to link the findings with the literature, as these will mostly be shaped by a very limited number of cases.

It is expected that some organisational practices identified by this research will confirm the literature, some will contradict or extend it, and others will reveal new practices not explicitly mentioned in the DC literature. It is anticipated that some practices will be case specific; many practices or functions are performed by a specific functional unit, which represents a single case in this research project. Eisenhardt (1989, p. 544) posits that if researchers ignore conflicting findings (anxiety of challenge to internal validity), or idiosyncratic findings on the specific cases of the study (anxiety challenge to generalisability), confidence in the findings is reduced.

It is therefore important to strengthen the overall theory by looking back to the original concepts for comparison, and identifying differences. This stage is crucial in this research, as the literature comparison will help identify (confirm, extend, or provide new) organisational practices which support the DRC lifecycle; and how these practices support the concurrent strategic approaches in strategy deployment.

3.4.3.8 Reaching closure

Reaching closure is the final stage of the theory building process. According to Eisenhardt (1989), there are two important issues to consider on when to end the research. First, when the theoretical saturation point is reached, the investigation should stop. This means that adding any new case would provide minimal new insight compared to the effort, time and

resources required to carry it out. Secondly, when to stop iterating between theory and data is pivotal in reaching closure. The iteration process should stop when incremental improvement to theory is minimal. Eisenhardt (1989) argues that there is no ideal number of case studies; however, between four and ten cases normally works well in meeting the saturation points. This project will carry out five case studies in total, in line with Easterby-Smith et al. (2012)'s suggestion.

3.5 Validity, Reliability and Generalisability

The research methodology will play an important role in this project being accurate and of quality; the key decisions were made during the research methodology design. As Easterby-Smith et al. (2012, p.71) note, regardless of the methodology used in management research, the concepts of validity, reliability and generalisability are key considerations for all researchers. Validity is about utilising suitable instruments to represent reality; reliability about utilising instruments in an accurate and repeatable way; and generalisability about creating appropriate representative statements or claims of the research findings. As this research follows an exploratory case study approach, Yin (2014, p.46) recommends the following categories for the quality test.

- **Construct validity:** “Identifying correct operational measures for the concepts being studied”. In this research project, this is achieved by (1) using multiple sources of evidence, such as interviews with the management team, observations and different documentation; (2) establishing a chain of evidence; (3) having the draft case study report reviewed by key informants: in this case, one of the unit managers.
- **External validity (Generalisability),** “defining the domain to which the study can be generalised”. In this research, this is achieved through the use of replication logic when selecting multiple cases from functional units, as they have influence on resource base reconfiguration.
- **Reliability:** the researchers should “demonstrate that the operations of a study such as the data collection procedures can be repeated, with the same results”. In this research, this is achieved by developing a case study protocol and database tactics. The database refers to the case study reports, with associated evidence.

Easterby-Smith et al. (2012, p.71) compare different philosophical assumptions and how to assess their related quality (Table 3.6). This table also addresses the philosophical assumption of this research: critical realism.

Table 3.6 Research design viewpoints related to research quality (adapted from Easterby-Smith et al., (2012, p. 71).

	Viewpoint		
	Positivist	Critical Realist	Interpretivist
Validity	Do the measures correspond closely to reality?	Have a sufficient number of perspectives been included?	Does the study clearly gain access to the experiences of those in the research setting?
Reliability	Will the measures yield the same results on other occasions?	Will similar observations be reached by other observers?	Is there transparency in how sense was made from the raw data?
Generalisability	To what extent does the study confirm or contradict existing findings in the same field?	What is the probability that patterns observed in the sample will be repeated in the general population?	Do the concepts and constructs derived from this study have any relevance to other settings?

Finally, summaries of the research quality criteria, adapted from Maxwell (2005), Easterby-Smith et al. (2012), and Yin (2014), will be discussed in the concluding Chapter 7: demonstrating whether the research objectives are achieved or not.

3.6 Chapter Summary

This chapter explained how the selected methodology links the empirical work with the research questions. It justified the choice of critical realism as the most appropriate paradigm; and explained that this project is a form of qualitative research: which will use multi-case studies as the most appropriate method to conduct an exploratory investigation in theory building. Five case studies from a telecommunications service provider company were selected, each following the same pre-designed protocol. The next chapter will discuss the findings of these five case studies.

Chapter 4: Within-Case Analysis and Empirical Findings

This chapter explains in-depth qualitative data processes used to analyse within-case studies. It will also demonstrate detailed case study reports: which include researcher interpretations based on the interviews, observations and collected documentations for each case. Finally, it will provide detailed insights into the selected five cases:

- *CASE STUDY 1*: Human Resource Unit (HR)
- *CASE STUDY 2*: Regulatory Affairs Division (LGL)
- *CASE STUDY 3*: Corporate Strategy Unit (CSG)
- *CASE STUDY 4*: Corporate and Consumer Units (C&C)
- *CASE STUDY 5*: Integrated Network & Technology Unit (IN&T)

4.1 Within-case study analysis process

This research project will use two qualitative techniques to analysis within-case data: coding and causal network diagram. Coding qualitative data can be done both manually using tables and matrices (Miles and Huberman, 1994), or with the help of software e.g. NVivo (e.g. Bazeley, 2007). The researcher decided to analyse the qualitative data manually by using XL spreadsheets. The manual technique allowed for the demonstration of analysis processes in a coherent and transparent way. It also displays the visibility of data analysis, which makes it easier to trace any analysis steps. It demonstrates the critical validity and reliability of the whole process. Figure 4.1 and the subsequent sections demonstrate the within-case analysis process.

Most of the information on collected documentation is mentioned and quoted by the interviewees. They practise whatever is contained in the documentation as part of their operations. This documentation formed an indirect part of the analysis, as part of the interview data: validating interviewees' insights.

Within case study analysis process

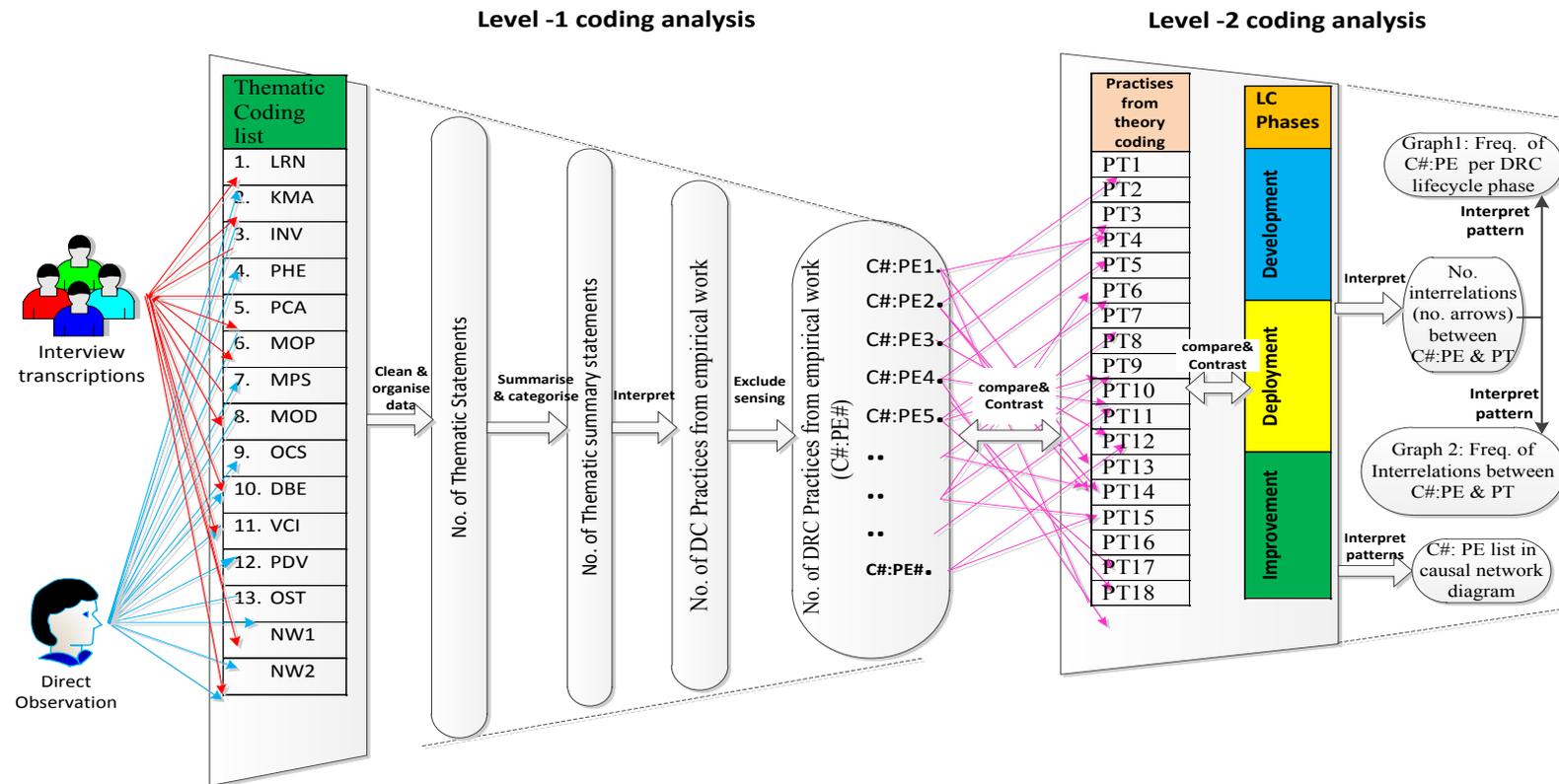


Figure 4.1 Within-case analysis processes

4.1.1 Coding

Based on the suggestions of Miles and Huberman (1994), Voss et al. (2002), Schreier (2012), and Saldaña (2012), this research deploys two levels of coding, to prevent the researcher being overwhelmed by the volume of data, and to reduce and categorise data in a structured way. The following sections explain these coding processes.

4.1.1.1 Level-1 coding: thematic codes

The level-1 coding technique is derived from the thematic framework which emerged from the systematic literature review. The field data will identify new themes to complement the initial thematic coding list. This will allow a more open-minded approach be adopted during data collection. Table 4.1 illustrates level-1 codes.

Table 4.1: Level-1 code list

level-1 coding	
Code	Thematic coding
LRN	Learning and development
KMA	Knowledge management and absorptive capacity
INV	Innovation
PHE	Path dependence, history and past experience
PCA	Position and complementary assets
MOP	Managerial and organisational processes
MPS	Management role, perception and skills
MOD	Modes of obtaining new dynamic capabilities
OCS	Organisational context, culture and social networking
DBE	Dynamic business environment
VCI	Value Creation, Cost and investment
PDV	Product development
OST	Organisational strategy and roles of dynamic sensing, seizing and reconfiguration capabilities
NW1	New theme 1
NW2	New theme 2

The main aims of level-1 thematic coding are to minimise any jargon or unrelated information, and categorise the input data by highlighting any key or relevant information. Any key information not falling under any of the thematic codes is considered as a newly emergent theme. Moreover, the researcher will underline any empirical examples, facts, important statements or any other quotations. These thematic statements from different data inputs with the same meaning will be summarised and grouped together per theme, and complemented with direct observation data. These thematic summary statements will be

interpreted to identify empirical strategic practices (C#: PE#). Subsequently, these empirical strategic practises (C#: PE#) will be grouped based on dynamic capabilities' strategic roles of sensing, seizing and reconfiguration. To align with the research questions and provide holistic insight, the empirical strategic practices per case (C#: PE#) list will exclude practices related to sensing roles only, and combine the other two roles as dynamic reconfiguration capabilities for the next stage of analysis. This will be used in the causal network diagram.

Level-1 coding technique outcome:

- Empirical examples and other quotations.
- Newly emergent themes from the filed data.
- Thematic summary statements.
- DC Empirical strategic practices (C#: PE#) list.

4.1.1.2 Second level coding: theoretical strategic practices (PT)

The level-2 coding technique is derived from the research questions and lifecycle framework of dynamic reconfiguration capabilities' development, deployment and improvement, excluding sensing actions. The lifecycle framework emerged from the systematic literature review. The level-2 coding table (Table 4.2) shown below demonstrates theoretical strategic practices (PT) which impact on development, deployment and improvement of dynamic reconfiguration capabilities (DRC).

Table 4.2: Level-2 code list

level-2 coding	
code	Theoretical strategic practices (PT)
PT 1	Learn how to learn
PT 2	Manage knowledge
PT 3	Build on experience
PT 4	Exploit absorptive capacity
PT 5	Build on path taken and history
PT 6	Build on managers perceptions
PT 7	Exploit IT and other complementary assets
PT 8	Provide options to decision makers
PT 9	Seize business opportunities or threats
PT 10	Enable innovation
PT 11	Develop and commercialise new products
PT 12	Maintain market position and assets
PT 13	Obtain required capabilities in different ways
PT 14	Manage transformation and change
PT 15	Enhance and shape organisational strategy
PT 16	Focus on performance and profitability
PT 17	Develop organisational approaches for continuous process improvement
PT 18	Enrich culture and social networking

To maintain coherent process steps between the two coding levels and avoid alternative data interpretations, the level-1 coding's results for empirical strategic practises (C#:PE#) are the inputs for the level-2 coding. These practises (C#: PE#) will be compared and contrasted with theoretical strategic practices (PT) based on the level-2 coding table to interpret and interlink between the C#: PE# and PT. These interpretations will be articulated and categorised based on the research questions. This stage will ensure a reliable, repeatable data coding process, which prevents idiosyncratic interpretations. These C#-PE# / PT are aligned to that which is relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not the practices of development and improvement).

Level-2 coding technique outcome:

- List of DRC empirical strategic practises (C#: PE#) to interpret the rest of the case and to be used in the causal network diagram.
- Frequency graph of DRC empirical strategic practises (C#: PE#) per DRC lifecycle phase to identify pattern per lifecycle phase.

- Frequency graph of interrelations between (C#: PE#) and (PT) to show the interrelation patterns between them.
- Lists of PT with associated C#: PE# to show the relationship between them, required to shape answers to the research questions.

4.1.2 Causal network diagram

This section identifies patterns and strategic relationship by mapping the DRC empirical strategic practises (C#:PE#) emerging from the coding into a causal network diagram (Miles and Huberman, 1994). This diagram demonstrates interlinks between C#: PE# (these practices will be connected in the map, such as A is leading B), and how they fit into the diagram.

4.1.3 Researcher's interpretation

This section will report and articulate the case study findings: which mainly include lists of PT with associated C#: PE#, summary statements supported by empirical examples, and other quotations. The newly emerging themes will be interpreted and explained. This section will be structured to answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

RQ2: How do DRC support the concurrent approaches to strategy deployment?

4.2 Case Study 1: Human Resources Unit

4.2.1 Summary introduction

The company's Human Resources Unit is responsible for recruitment, HR performance monitoring, employees' development and career planning. It manages the whole organisation's HR plan, including retirement and employee benefits. This unit directly reports to the CEO. It comprises three divisions, and several other departments: people engagement (new department), employee relations, human resources and rewards, human resources and support, training and development.

The Human Resources Unit receives resource requirements from other units and fills these resource gaps by announcing vacancies internally or externally. It trains employees to meet current and future organisational skill requirements. It also develops career plans for the

whole organisation to meet its mission and vision. All these activities impact on and influence the company's resources.

Two within-case study qualitative data analysis techniques are used: coding and causal network diagram. Figure 4.2 and subsequent sections demonstrate the HR within-case study analysis process and results.

HR within case study analysis process

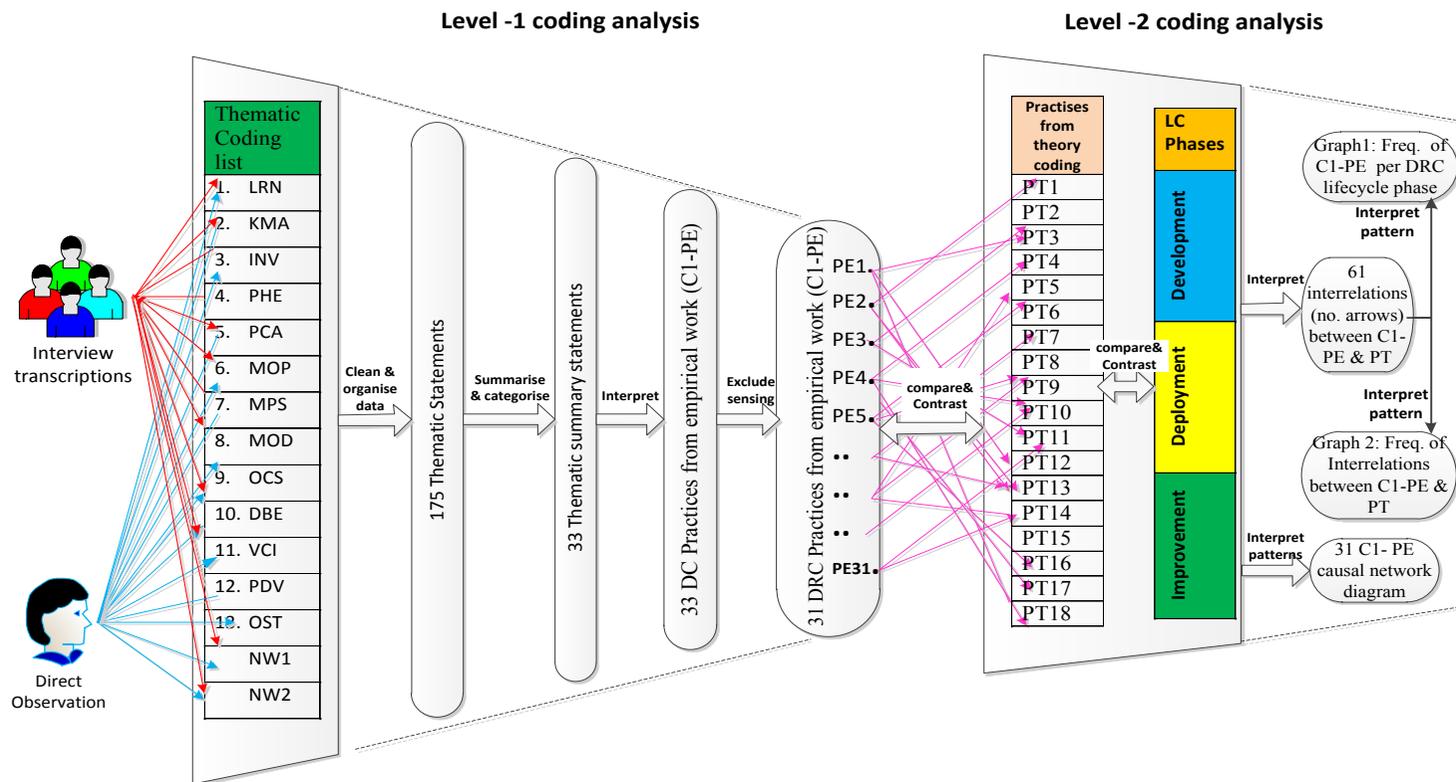


Figure 4.2 Within-case analysis processes

4.2.2 Coding results from Human Resource Unit

4.2.2.1 Level-1 coding results:

The researcher conducted a content analysis of the Human Resources Unit case study data to remove unrelated data and identify new themes. 175 key statements were highlighted from the case study data, and categorised based on the thematic factors, resulting in 33 summary statements grouped into thematic factors. In the process of categorising the 175 statements into thematic factors, the researcher identified new themes emerging from the data. Several statements had a strong emphasis on issues related to *Employee Engagement*, and *branding*; these were identified as themes not addressed or explicitly explained in the dynamic capabilities literature review.

The relevance of employee engagement involves keeping the company's staff loyal and connecting them with its values, vision, and mission, which will lead them to maintain a stable culture. The organisational trend for the past three years has been employee engagement, as it is important to engage employees at the beginning stage of the strategy and build the teams required for long-term planning. *"The company is engaging employees to be part of the strategy building in which they will provide some ideas, and they will advise the management of unforeseen risks"* - Direct Observation, 2014 (C1-PE25).

The strong brand is reflective the right capabilities at the right time in the organisation. *"The organisation has a strong brand more than Bank Muscat, which ranked number 33 in the MENA region. This strong brand reflects how strong our company is in the market and how we keep maintaining our market position as we own the right capabilities"* - Interviewee no.1, 2014 (C1-PE22).

Figure 4.3 provides a snapshot of the level-1 data analysis.

Interviewees	level-1 coding				
	Thematic Coding	175 Highlighted notes from each source	33 summary statements / observation (31 without sensing)	33 Practices from Empirical work (31 without sensing)	D.C strategic role
SAA	NW1	However, if you take this from the actual or employee engagement point of view, it is a direct impact on employee satisfaction.	The organisational theme for the past three years is employee engagement. Engaging employees at the beginning stage of the strategy is essential to building the teams required for better flexibility. (The company is engaging employees to be part of strategy building: they will provide some ideas, and advise the management of unforeseen risks. 'Direct Observation').	Engage employees in strategy development to maintain stable culture, staff loyalty and connect them with values, vision and mission.	REC
M	NW1	M: Okay, we keep hearing that, I've been in the company for 20 years, I've been doing this for 20 years, M: Okay, Ali, they enter a different person and they left the training a totally different person. Even if they were negative, you could not see how positive they are... M: Okay, so what we did, we just engaged them.			
M	NW1	AAH: So basically to, then, the positive part you said people use the experience with little bit of engagement and motivation, even they become more dynamic based on their experience they can do even more. They just required some engagement, on the plans, what are the company doing, and some motivation. The, I would say the negative part of it, which you already tackled, you said the people somehow rigid, and they do not want to change... M: They are in the comfort zone.	HR has a division which is looking after all employee engagement activities and initiatives towards high employee engagement and satisfaction within the company overall. To keep staff loyal and to connect them with values, vision, and mission, which will lead to having a stable culture in the company.		REC
SAA	NW1	My role is to look after all employee engagement activities and initiatives towards high employee engagement and satisfaction within the company overall. To keep the company staff loyal and to connect them to the company's values, vision and mission, and of course to have a stable culture in the company. Having fun and having entertainment, and enjoy their life in the company.			
SAA	NW1	SAA: Cross function, engagement, you can call it, within the different unit and within different functions, and meeting people and also, it helps to strengthen your network. Because having strength, strong networks within the organisation will help you all to facilitate your role.			

Figure: 4.3. Snapshot of level-1 data analysis

The analysis of these 33 summary statements enabled identification of 33 practices from empirical work related to the development, deployment and improvement of DCs (2 of these were related to sensing DC and therefore excluded from the next stage of analysis). These were coded with unique codes of C1-PE# as they emerged. The 31 C1-PEs considered for the next level of analysis are listed below, and explained in the narrative section by unique codes.

Table 4.3: 31 Practices from empirical work C1-PE

C1-PE#	Case study 1: Practices from empirical work
C1-PE9	Access to external expertise and adaptation to organisational culture
C1-PE28	Promote and encourage networking and a culture of knowledge sharing
C1-PE3	Learn how to learn
C1-PE2	Learning supported by providing additional responsibilities, empowerment, sharing best practice and engagement in external knowledge sharing
C1-PE27	Enrich employees' capabilities by deploying on-the-job training, rotation and exposure to new technologies
C1-PE1	Enhance absorptive capacity through knowledge management
C1-PE5	Develop and manage individual employee development programme (IDP)
C1-PE11	Encourage employees to adapt to market changes
C1-PE12	Encourage innovation and customise organisational processes in line with changes in the market
C1-PE26	Enhance the HR system to enable adaptation to continual change
C1-PE14	Identify and fill the skills gaps
C1-PE4	Explore opportunities to exploit non-core capabilities under new market conditions
C1-PE15	Develop competency framework
C1-PE16	Develop and enhance recruitment processes
C1-PE17	Develop and implement talent management system in 3 steps: performance management, compensation and career development.
C1-PE18	Encourage ideas to challenge current processes across the whole organisation and give access to present these to top management
C1-PE19	Design business processes based on customer segmentation
C1-PE10	Deploy ERP to accelerate organisational and managerial processes
C1-PE7	Mitigate and manage resistance to change
C1-PE20	Develop a special program to encourage long-time service employees to share their ideas and experience
C1-PE6	Exploit employee experience to enhance performance
C1-PE22	Build awareness of the link between individual roles and organisational brand
C1-PE8	Continuous review and evaluation of capabilities in line with market position and strategy
C1-PE30	Build awareness of the company's mission, vision, and values

C1-PE25	Engage employees in strategy development to maintain a stable culture, staff loyalty and connect them with values, vision, and mission.
C1-PE29	Align all resources, processes and employees with strategic direction
C1-PE23	Implement long-term planning to build required capabilities
C1-PE21	Continuous review and refinement of organisational strategy
C1-PE13	Seize business opportunities to enable being proactive
C1-PE24	Build flexibility to implement unplanned strategies
C1-PE31	Build capacity to manage emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce

4.2.2.2 Second level coding results

These 31 DRC practices from empirical work (C1-PE) will be compared and contrasted with the practices from theory (PT) listed in Table 4.2, then associated with the DRC lifecycle phase. This analysis identified 61 interrelations between C1-PE and PT (note that some C1-PEs address more than one PT). Figure 4.4 provides a snapshot of the data analysis.

level-1 coding	level-2 coding	
31 Practices from empirical work C1-PE (without sensing)	Frequency of interrelations between C1-PE and PT (61 interrelations)	LC Phases
Engage employees in strategy development to maintain stable culture, staff loyalty and connect them with values, vision and mission.	Provide options to decision makers	Deployment
	Enhance and shape organisational strategy	Deployment
	Enrich culture and social networking	Improvement
	Develop organisational approaches for continuous process improvement	Improvement

Figure 4.4: Snapshot of data analysis

Figure 4.5 below shows that 58.3% of practices within the HR unit are related to the deployment phases of the DRC lifecycle, with 15.3% and 26.4% related to development and improvement respectively. This means that the HR unit is conducting more deployment practices as part of their responsibilities. The researcher's interpretation summary report will provide more details on how this graph contributes to answering the research questions.

Figure 4.5: Frequency of practices per DRC lifecycle phase

Figure 4.6 below demonstrates the emphasis and interrelation between theoretical and empirical practices. The percentage figure represents the number of C1-PE (from the total of 61 in this case) related to each PT. It provides a view of the most frequent PT to the particular organisational function (HR in this case).

Figure 4.6: Frequency of interrelations between theoretical and empirical practices

The analysis revealed that **most frequent practices ($\leq 10\%$)** within the Human Resource Unit related to: *Focus on performance and profitability (PT16)*, and *Developing organisational approaches for continuous process improvement (PT17)* (representing 39% of practices within HR to influence the resource base across the whole organisation). These figures suggest that HR is focused on processes which help employees be more productive and dynamic, fitting the current market environment.

Other practices: here, we identify PEs that have a value greater of $\leq 5\%$: *Learn how to learn (PT1), Provide options to decision makers (PT8), Seize business opportunities or threats (PT9), Obtain required capabilities in different ways (PT13), Manage transformation and change (PT14), Enhance and shape organisational strategy (PT15), Enrich culture and social networking (PT18)*. These represent 42% of total practices.

Least frequent practices: *Develop and commercialise new products (PT11)*. This represents 0% of the total practices in the empirical data.

4.2.3 Causal network diagram

The following tables 4.4 and 4.5 compare and contrast DRC practices from theory (PT) with empirical work (C1-PE), based on the research question. The causal network diagram identifies patterns and the relationship between the 31 DRC practices from empirical work (C1-PE). This will enable the researcher to develop an explanation which helps answer the research questions. The causal map in Figure 4.7 shows all C1-PE: colour-coded based on the lifecycle phase, and numbered with associated PT.

Research Question 1: How are DRC developed, deployed and improved?

Table 4.4: Research question 1

Practices from theory (PT)	Practices from empirical work (C1-PE)	DRC lifecycle phase
PT1: Learn how to learn	C1-PE2: Learning supported by providing additional responsibilities, empowerment, sharing best practice and engagement in external knowledge sharing	Development
	C1-PE27: Enrich employees' capabilities by deploying on-job training, rotation and exposure to new technologies	Improvement
	C1-PE3: Learning how to learn	Development
PT2: Manage knowledge	C1-PE9: Access to external expertise and adaptation to organisational culture	Development
	C1-PE1: Enhance absorptive capacity through knowledge management	Deployment
PT3: Build on experience	C1-PE1: Enhance absorptive capacity through knowledge management	Development
	C1-PE6: Exploit employee experience to enhance performance	Deployment
PT4: Exploit absorptive capacity	C1-PE1: Enhance absorptive capacity through knowledge management	Development
PT5: Build on path was taken and history	C1-PE8: Continuous review and evaluation of capabilities in line with market position and strategy	Development
	C1-PE7: Mitigate and manage resistance to change	Deployment
PT6: Build on managers' perceptions	C1-PE4: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment
PT7: Exploit IT and other complementary assets	C1-PE10: Deploy ERP to accelerate the organisational and the managerial processes	Deployment
	C1-PE5: Develop and manage individual employee development programme (IDP)	Development
PT8: Provide options to decision makers	C1-PE16: Develop and enhance recruitment processes	Deployment
	C1-PE24: Build flexibility to implement unplanned strategies	Deployment
	C1-PE25: Engage employees in strategy development to maintain the stable culture, staff loyalty and connect them with values, vision, and mission.	Deployment
	C1-PE31: Build capacity to manage	Deployment

	emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce	
PT9: Seize business opportunities or threats	C1-PE9: Access to external expertise and adaptation to organisational culture	Deployment
	C1-PE11: Encourage employees to adapt to market changes	Improvement Deployment
	C1-PE13: Seize business opportunities to enable being proactive	Deployment
PT10: Enable innovation	C1-PE12: Encourage innovation and customise organisational processes in line with changes in the market	Deployment
		Development
PT11: Develop and commercialise new products	None	N/A
PT12: Maintain market position and assets	C1-PE8: Continuous review and evaluation of capabilities in line with market position and strategy	Deployment
	C1-PE22: Build awareness of the link between individual roles and organisation brand	Deployment
PT13: Obtain required capabilities in different ways	C1-PE9: Access to external expertise and adaptation to organisational culture	Deployment
	C1-PE14: Identify and fill skills gaps	Deployment
	C1-PE16: Develop and enhance recruitment processes	Deployment
PT14: Manage transformation and change	C1-PE7: Mitigate and manage resistance to change	Deployment
	C1-PE11: Encourage employees to adapt to market changes	Deployment
		Development
	C1-PE20: Develop a special program to encourage long-time service employees to share their ideas and experience	Deployment
C1-PE4: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment	
	Development	
PT15: Enhance and shape organisational strategy	C1-PE21: Continuous review and refinement of organisational strategy	Deployment
		Improvement
	C1-PE23: Implement long-term planning to build the required capabilities	Deployment
	C1-PE24: Build flexibility to implement unplanned strategies	Deployment
C1-PE25: Engage employee in strategy development to	Deployment	

	maintain the stable culture, staff loyalty and to connect them with values, vision, and mission.	
	C1-PE29: Align all resources, processes and employees with strategic direction	Deployment
PT16: Focus on performance and profitability	C1-PE6: Exploit employee experience to enhance performance	Deployment
	C1-PE13: Seize business opportunities to enable being proactive	Deployment
	C1-PE17: Develop and implement talent management system in 3 steps; performance management, compensation and career development	Deployment
	C1-PE19: Design business processes based on customers' segmentation	Deployment
	C1-PE24: Build flexibility to implement unplanned strategies	Deployment
	C1-PE26: Enhance the HR system to enable adaptation to continual change	Deployment
	C1-PE31: Build capacity to manage emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce	Deployment
PT17: Develop organisational approaches for continuous process improvement	C1-PE3: Learn how to learn	Improvement
	C1-PE5: Develop and manage individual employee development programme (IDP)	Development
	C1-PE7: Mitigate and manage resistance to change	Deployment
		Improvement
	C1-PE12: Encourage innovation and customise organisational processes in line with changes in the market	Improvement
	C1-PE15: Develop competency framework	Improvement
		Deployment
	C1-PE16: Develop and enhance recruitment processes	Improvement
	C1-PE18: Encourage ideas to challenge current processes across the whole organisations and give access to present these to top management	Improvement
		Deployment
C1-PE19: Design business processes based on customers' segmentation	Deployment	
C1-PE20: Develop a special program to encourage long-time service	Improvement	
	Deployment	

	employees to share their ideas and experience	
	C1-PE25: Engage employee in strategy development to maintain the stable culture, staff loyalty and to connect them with values, vision, and mission.	Improvement
	C1-PE26: Enhance the HR system to enable adaptation to continual change	Improvement
	C1-PE27: Enrich employees' capabilities by deploying on-job training, rotation and exposure to new technologies	Improvement
	C1-PE29: Align all resources, processes and employees with strategic direction	Improvement
	C1-PE30: Build awareness of the company's mission, vision, and values	Improvement
	C1-PE16: Develop and enhance recruitment processes	Improvement
	C1-PE25: Engage employees in strategy development to maintain the stable culture, staff loyalty and connect them with values, vision, and mission.	Improvement
	C1-PE26: Enhance the HR system to enable adaptation to continual change	Improvement
PT18: Enrich culture and social networking	C1-PE28: Promote and encourage networking and a culture of knowledge sharing	Deployment
	C1-PE25: Engage employees in strategy development to maintain the stable culture, staff loyalty and connect them with values, vision, and mission.	Improvement
	C1-PE30: Build awareness of the company's mission, vision, and values	Improvement

Research Question 2: How do DRC support the concurrent approaches to strategy deployment?

Table 4.5: Research question 2

Practices supporting concurrent approaches to strategy deployment	
Planned	
PT2: Manage knowledge	C1-PE9: Access to external expertise and adaptation to organisational culture
PT3: Build on experience	C1-PE6: Exploit employee experience to enhance performance
PT5: Build on path taken and history	C1-PE7: Mitigate and manage resistance to change
PT6: Build on managers' perceptions	C1-PE4: Explore opportunities to exploit non-core capabilities under new markets conditions
PT7: Exploit IT and other complementary assets	C1-PE10: Deploy ERP to accelerate the organisational and the managerial processes
PT8: Provide options to decision makers	C1-PE16: Develop and enhance recruitment processes C1-PE25: Engage employees in strategy development to maintain the stable culture, staff loyalty and connect them with values, vision, and mission.
PT9: Seize business opportunities or threats	C1-PE9: Access to external expertise and adaptation to organisational culture C1-PE11: Encourage employees to adapt to market changes
PT10: Enable innovation	C1-PE12: Encourage innovation and customise organisational processes in line with changes in the market
PT12: Maintain market position and assets	C1-PE8: Continuous review and evaluation of capabilities in line with market position and strategy C1-PE22: Build awareness of the link between individual roles and organisation brand
PT13: Obtain required capabilities in different ways	C1-PE9: Access to external expertise and adaptation to organisational culture C1-PE14: Identify and fill the skills gaps C1-PE16: Develop and enhance recruitment processes
PT14: Manage transformation and change	C1-PE7: Mitigate and manage resistance to change C1-PE11: Encourage employees to adapt to market changes C1-PE20: Develop a special program to encourage long-time service employees to share their ideas and experience C1-PE4: Explore opportunities to exploit non-core capabilities under new markets conditions
PT15: Enhance and shape	C1-PE21: Continuous review and refinement of

organisational strategy	<p>organisational strategy</p> <p>C1-PE23: Implement long-term planning to build the required capabilities</p> <p>C1-PE25: Engage employees in strategy development to maintain the stable culture, staff loyalty and connect them with values, vision, and mission.</p> <p>C1-PE29: Align all resources, processes and employees with strategic direction</p>
PT16: Focus on performance and profitability	<p>C1-PE6: Exploit employee experience to enhance performance</p> <p>C1-PE17: Develop and implement talent management system in 3 steps; performance management, compensation and career development</p> <p>C1-PE19: Design business processes based on customers' segmentation</p> <p>C1-PE26: Enhance the HR system to enable adaptation to continual change</p>
PT17: Develop organisational approaches for continuous process improvement	<p>C1-PE7: Mitigate and manage resistance to change</p> <p>C1-PE18: Encourage ideas to challenge current processes across the whole organisations and give access to present these to top management</p> <p>C1-PE19: Design business processes based on customers' segmentation</p> <p>C1-PE20: Develop a special program to encourage long-time service employees to share their ideas and experience</p> <p>C1-PE26: Enhance the HR system to enable adaptation to continual change</p>
PT18: Enrich culture and social networking	C1-PE28: Promote and encourage networking and a culture of knowledge sharing
Unplanned	
PT8: Provide options to decision makers	<p>C1-PE16: Develop and enhance recruitment processes</p> <p>C1-PE24: Build flexibility to implement unplanned strategies</p>
PT9: Seize business opportunities or threats	<p>C1-PE9: Access to external expertise and adaptation to organisational culture</p> <p>C1-PE13: Seize business opportunities to enable being proactive</p>
PT10: Enable innovation	C1-PE12: Encourage innovation and customise organisational processes in line with changes in the market
PT13: Obtain required capabilities in different ways	<p>C1-PE9: Access to external expertise and adaptation to organisational culture</p> <p>C1-PE14: Identify and fill the skills gaps</p>
PT15: Enhance and shape organisational strategy	C1-PE24: Build flexibility to implement unplanned strategies
PT16: Focus on performance and profitability	C1-PE6: Exploit employee experience to enhance performance

	<p>C1-PE13: Seize business opportunities to enable being proactive</p> <p>C1-PE24: Build flexibility to implement unplanned strategies</p>
Emergency	
PT8: Provide options to decision makers	<p>C1-PE31: Build capacity to manage emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce</p>
PT13: Obtain required capabilities in different ways	<p>C1-PE14: Identify and fill the skills gaps</p>
PT16: Focus on performance and profitability	<p>C1-PE6: Exploit employee experience to enhance performance</p> <p>C1-PE13: Seize business opportunities to enable being proactive</p> <p>C1-PE31: Build capacity to manage emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce</p>

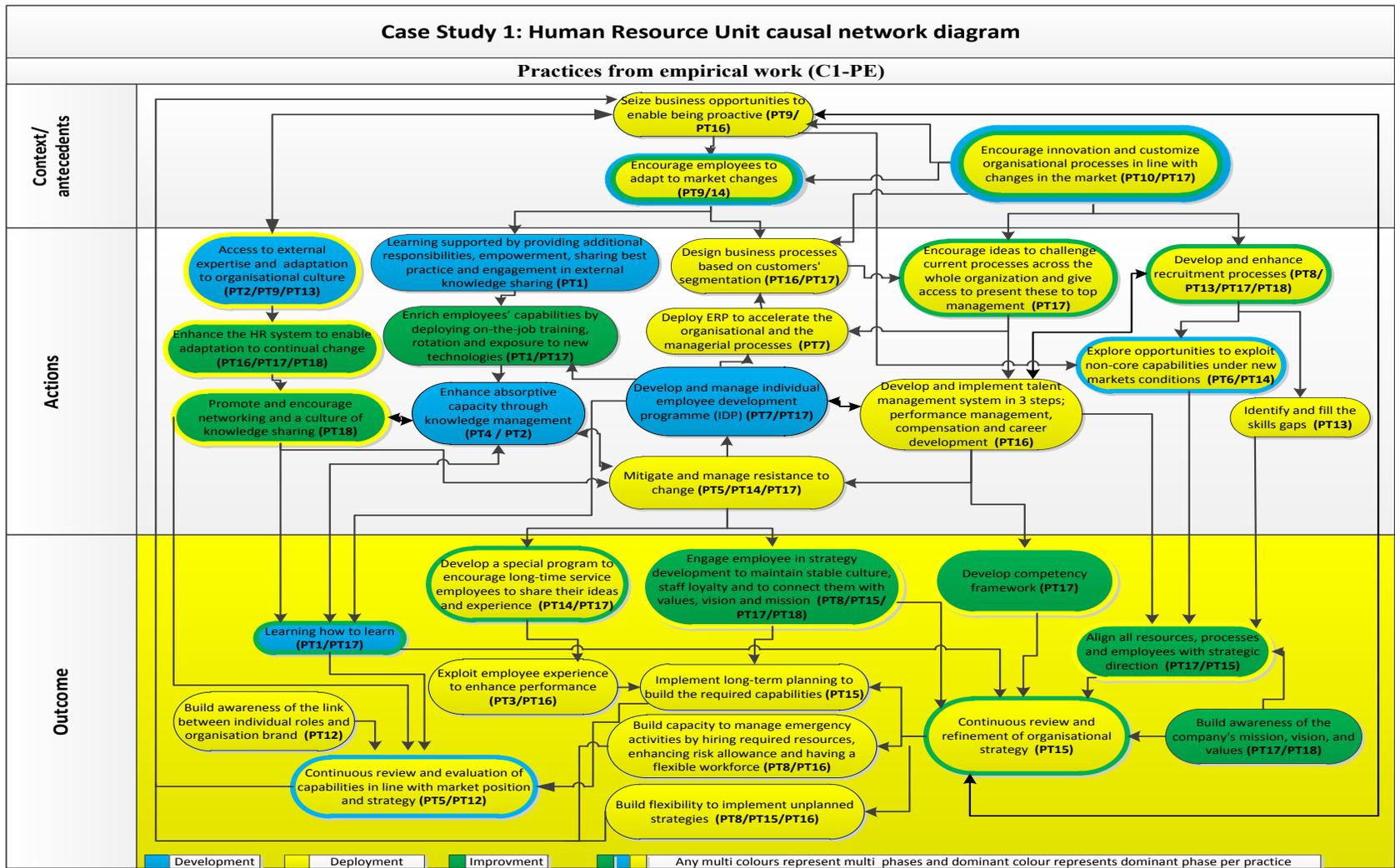


Figure 4.7: Human Resource Unit causal network diagram

4.2.4 Researcher's interpretation

The Human Resources Unit (HR) mainly focuses on developing and enhancing the existing organisational processes to build a comfortable working environment, enabling employees to be more productive in a dynamic market. The aim of this narrative is to draw on the qualitative data findings to answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

Table 4.4 summarises the results of this case study and shows the C1-PE (and corresponding PT) in relation to DRC lifecycle stages.

Development

The telecommunications sector is a dynamic business and keeps changing very fast. When competition was introduced to Oman in 2005, the HR noticed how rapidly the market was moving. They hired a consultant – who brought best practice and knowledge with them - to continually review and analyse the market. A consultant can apply different methodologies to fit and align with different company projects. The HR employees complement knowledge transferred from the consultant with their cultural understanding. This enhances networking and strengthens the current culture of knowledge sharing by removing barriers between different units: which will lead to more capabilities being built internally. *“HR employees are fully involved with a consultant because we understand our company's culture. The organisation itself is an open organisation to the extent you can even borrow some resources from other units to help you for a particular task or taking advice from them”* - Interviewee no.1, 2014, (C1-PE9, C1-PE28).

Employees' willingness to adapt and their acceptance of market changes enhances their dynamic capabilities development. However, if someone decides to stay where they are, it will affect their career, capabilities, and adaptability to the dynamic environment; and may even leave them stuck in the middle. Thus, the HR is encouraging its employees to adapt to market conditions and enhance their capabilities by learning (C1-PE26, C1-PE11). Learning practices include: empowering employees with additional responsibilities, sharing best practice, and attending and presenting at international and national conferences on an annual basis (C1-PE2). Likewise, on the job training, rotation and exposing employees to different areas and new technology will increase their absorptive capacity and enrich their knowledge and capabilities (C1-PE27). *“Allowing employees to face the challenges themselves will*

increase their absorptive capacity and knowledge which will enhance their capabilities to be more dynamic” - Interviewee no.2, 201, (C1-PE1).

The HR finished automating the Individual Development Programme (IDP), which will form part of Enterprise Resource Planning (ERP) soon **(C1-PE5)**. Employees will use the ERP to monitor their competency development more easily. *“Many ERP processes are meant to manage human resources and to enhance employees in planning their development plan together with their line managers to enrich their capabilities” - Direct Observation, 2014 (C1-PE10)*. However, management perceptions may lead to seemingly irrelevant capabilities being developed for a market which is changing very rapidly. These capabilities will at least provide extra knowledge, and might be used in the future. *“Some of the planned activities changed very fast in which the HR divert their capabilities development plans to match the market” - Direct Observation 2014 (C1-PE4).*

Deployment

Innovative ideas encourage employees to perform more research and implement best practice, which will increase their capabilities over time. It enhances employee understanding of policies, procedure and customer requirements: leading them to innovate new ideas which will help themselves and their organisation to survive in the dynamic market. *“The organisation can only survive by customising their processes. Otherwise, they will be stuck with the process that they had for a long time which will not be sufficient to face the changes in the market. That is why one of the KPI that I put to the team is innovation” - Interviewee no. 2 &3, 2014 (C1-PE12).*

The HR unit has a process of obtaining the right candidates with the right capabilities for each job **(C1-PE16)**. However, some of these jobs are very expensive or difficult to find the right candidates with the right competencies for. *“HSE personnel are becoming very expensive and specific skilled engineers and auditors are very rare in the market” - Interviewee no.1, 2014 (C1-PE14)*. These processes are announced internally first; if the required capabilities are not available internally, the process will be announced externally, or the required capabilities will be outsourced.

These candidate selection processes are applicable even to management positions. Vacant management positions are announced and shortlisted by an appointed panel from the HR and other departments **(C1-PE16)**. Following this, there is an assessment of the manager chosen: who will have a rotation programme on which to gain the required capabilities and

overview knowledge of the organisation. In some positions, technical teams support the HR team in developing certain criteria. *“The manager has to be a motivator, good communicator, removing obstacles, needs to understand each how competent are they, and needs to assign the right task to the right person who will increase his/her team DRC”* - Interviewee no.1, 2 &3, 2014 **(C1-PE14)**.

The managerial and organisational processes are designed based on the company's long time experience in the market and of its consumers. The organisation has different teams dedicated to each market segment: young consumers, oil and gas, corporate customers and VIPs customers. *“The competitor might be more aggressive in owning the dynamic capability as they just arrived in the market. However, with our long time experience, we have more advantages in building and developing capabilities compared to the competitors. We have another advantage on the competitor that we are using Omani management and we understand the market better”* - Interviewee no.1, 2014 **(C1-PE19)**.

The organisation has a process of challenging and changing the current process; so whoever feels that they want to make a change to enhance the organisation's working style, productivity and performance will generally have the support of top management **(C1-PE18)**.

The company has a career development programme with a complete competency framework. This framework consists of competencies for professional and technical skills, and core competencies for each job profile **(C1-PE15)**. The panel interview candidates based on critical competencies identified in each job profile. *“We have other job specifications and skills, but the most important is the critical competencies that help you identify the candidate”* - Interviewee no.1, 2014, **(C1-PE15)**. Likewise, the HR is moving towards automated processes (ERP) to speed up processes related to HR such as payroll, staff leave, and training. These enhance internal capability development and save a great deal of time and cost. *“ERP system reduced the workforce in the HR unit and expedites the HR process a lot. These processes have been developed by the HR team together with the ORACLE team”* - Direct Observation, 2014 **(C1-PE10)**.

Being an incumbent and experienced company could lead it to get trapped following outmoded methods; difficulties in terms of thinking out of the box; and resistance to change. Some employees with long experience are somehow rigid and do not want to change; they

are in a comfort zone and afraid of change. *“Bringing fresh blood would help, but without denying the experienced people”* - Interviewee no.2, 2014, **(C1-PE7)**.

Accordingly, HR developed a special programme as part of career development to encourage long-time service employees to share their ideas about the company's plans, as this will lead them to be more productive and dynamic. They utilise their experience to save cost and time instead of conducting trials **(C1-PE20)**. Moreover, they can train new employees and share their knowledge **(C1-PE6)**. *“We want this mix of experience also to be noted. The CEO, VPs and we as HR staff attended a special programme meant for long time service employees, and we listened to them. It is five working days training and at the end of the training programme we took their suggestions on what they want us to do, and we implement it. By doing so, they went back to their units as totally different people. To the extent that some of them said, we are willing to change our job, as we are doing it for the past 10 to 15 years; it is time to do something else”* - Interviewee no.1, 2014**(C1-PE20)**.

The organisation boasts network assets built up over the last 40 years, stability and job security: it is more than 50% owned by the government. It has a strong market position; and its services and offers, experienced people, organisational context, environment, and other complimentary assets will continue increasing its market share. The organisation possesses capabilities; but it must develop more to maintain market position **(C1-PE8)**.

The general strategy is based on SWOT and PESTEL analysis: which will lead to it identifying gaps internally, external factors, threats, and opportunities **(C1-PE23)**; and keep fine tuning this strategy as it continues **(C1-PE21)**. It is developed by DRC within the top management, and seeks to engage and develop people and their capabilities. A long-term strategy is necessary given the nature of the dynamic market. Hence, part of the organisation's strategy is to tackle the need for human resources to change **(C1-PE23)**.

Sometimes, the required capabilities are not in place, but the strategic direction is known and must be followed. Therefore, the organisational strategy must have elements which push the internal resources to enhance their capabilities and reach the strategic goals. *“As a manager, you channel your resources, for example: if someone is stuck somewhere, then the strategy is the way to be followed which will require being creative to change something and to deal with them differently to enhance his or her capabilities to reach the strategic objectives”* - Interviewee no.2, 2014 **(C1-PE29)**.

Long-term planning is necessary to build long-term capabilities and save in costs. Therefore, these plans should be flexible, adjustable and tuneable to market changes **(C1-PE21)**. Unplanned planning is expensive, but cannot be avoided in the telecoms market. If the teams are ready for any changes, this will impact the organisation positively.

Improvement

The organisation continuously adjusts its processes and capabilities to fit the fast-changing environment. HR is continually enhancing its processes to adapt to the current organisational context and culture. It is important for capabilities development to cope with change; otherwise, the organisation might lose its customers and market position. *“HR unit is always coming up with innovative ideas to customise their processes, such as recruitment, training, and employees’ appraisal. to cope with the market and international standards”* - Direct Observation, 2014 **(C1-PE26)**.

The organisational strategy is developed for three to five years and reviewed every year by the whole team to make any changes if necessary **(C1-PE21)**. The company's mission, vision, and values ensure that employees work in a dynamic environment **(C1-PE30)**. The talent management system is part of the process adjustment to fit the dynamic market, implemented step by step. It began with performance management, then extended to cover compensation, and now involves career development. The career development programme has a three-year plan for creative outcomes. *“A lot of companies benchmark on our company especially in performance management”* - Interviewee no.1, 2014 **(C1-PE17)**. Similarly, HR has a department looking after all employee engagement activities and initiatives: which aim to keep staff loyal, and connect them with the organisation’s values, vision, and mission, which will lead to a stable culture **(C1-PE25)**.

Coaching and training are synergy development elements, so HR sends staff for professional and degree certifications at Master’s and doctoral level. To be ready for any change, the issue here is not about learning technology but learning how to learn. *“To make sure that our people are ready for any changes and up-to-date, I do not want to say the experience, but the knowledge which can be exercised for any change could happen in the market, by that I can say they are ready. The problem here is not about a technology that they are learning, we want them to learn how to develop competencies”* - Interviewee no.1, 2014 **(C1-PE3)**.

RQ2: How do DRC support the concurrent approaches to strategy deployment?

Table 4.5 summarises the results of this case study and shows the relevance of C1-PE (and corresponding PT) in support of concurrent approaches to strategy deployment. These C1-PE / PT are aligned to those relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not the practices of development and improvement).

Planned approach

The skilled capabilities in the HR review the market changes constantly to develop and deploy long-term plans (**C1-PE13**). *“HR unit hired a consultant to fill the capabilities gaps in which they provide the management with options based on their international experience. The management team does not implement all consultant proposals. However, they modify and tune it to fit the culture and the country rules and regulations”* - Direct Observation, 2014 (**C1-PE9**). They create a talent management system which has a full competency framework (**C1-PE17, C1-PE15**). As part of career development, they developed a special programme to encourage long-time service employees to share their ideas (**C1-PE20**): utilising their experience to save costs and encourage more productivity and dynamism (**C1-PE6**). They develop processes to adapt to market technology changes; and automate in the ERP to speed up the organisation’s processes and reduce the workforce (**C1-PE10**). They develop the company’s strategy to own more capabilities to compete (**C1-PE23**), maintain market position and its brand (**C1-PE22**).

Unplanned approach

The skilled capabilities in this unit provide options for decision-makers on how to tackle unplanned activities, as they have knowledge and experience (**C1-PE24**). They also hired a consultant (considered as DC) with multi-international experience (**C1-PE9**). *“If you do not have the will to do unplanned changes, then you will not be able to survive the market dynamism”* - Interviewee no.2, 201 (**C1-PE24**). Moreover, they develop new ways for the management team to address the scarcity of skills and professionals. *“HR unit has some difficulties to find a right salary scheme for some of the jobs such as HSE and IP engineers, so they provide options to the management to create new higher grades to fit these jobs or to hire them based on special contracts”* - Direct Observation, 2014 (**C1-PE24**).

Technological requirements are changing very rapidly, so the ability to find and hire new people with new competencies to meet new, unplanned requirements is vital. The unit also provide international or national training for existing employees for such unplanned projects. *“Especially in the HR unit, some requirements are urgent requirements which need to be done immediately. Suddenly a new technology was introduced, and I was told to hire new*

people with new competencies or for example, I have to send people to China for training in which I was not planning for that. Nevertheless, I'm ready to accept such changes, and I can manage it satisfactorily, and it will affect the company positively” - Interviewee no.1, 2014 (C1-PE11, C1-PE24).

Emergency

The skilled capabilities in this unit provide the best possible options for decision-makers on how to manage emergency activities from an HR perspective: such as increasing working hours, suspending leave and off-days (**C1-PE31**). The unit exploits its experience and ability to find those with the right capabilities and hire them on an urgent basis for short-term contracts until the emergency is over. *“Some emergency activities capture additional business for the company which was not planned before. HR unit is hiring people in urgent cases to manage emergencies, which could be for short term contracts only. They also provide options to the top management on how to proceed with these emergency situations regarding HR responsibilities” - Direct Observation, 2014 (C1-PE31).*

4.2.5 Case study summary

The case study shows that the practices embedded within the HR function contribute to phases of DRC: with special emphasis on development and improvement phases. Even though Figure 4.5 displays a strong emphasis on deployment, this is related to the development and improvement of DRC. HR practices which demonstrate the largest impact of DRC are: Focus on performance and profitability (PT16); and Develop organisational approaches for continuous process improvement (PT17). Develop and commercialise new products (PT11), which the literature highlights as critical, does not display significance in this case. The reason for this would be that PT11 is not a core function of HR.

This case shows that HR plays an important role in all approaches to strategy deployment (planned, unplanned, emergency). Key practices which support the concurrent strategy deployment process are: Build capacity to manage emergency activities by hiring required resources, enhancing risk allowance and having a flexible workforce (C1-PE31); Build flexibility to implement unplanned strategies (C1-PE24); and Engage employee in strategy development to maintain a stable culture, staff loyalty and connect them with values, vision, and mission (C1-PE25).

4.3 Case Study 2: Regulatory Affairs Division

4.3.1 Summary introduction

The Regulatory Affairs Division (LGL) implements Telecommunication Regulation Authority (TRA) rules and regulations, and coordinates with other internal and external entities. Accordingly, they set organisational rules and regulations which impact on the resource base of the whole organisation. This division has 23 employees and is under the corporate strategy unit. This unit comprises two other divisions: business planning, and strategic marketing and branding.

Before the TRA was formed, its role was mainly that of managing contracts, resolving organisational legal issues and dealing with external entities. After its formation in 2002, the division's scope changed dramatically, so meeting TRA rules and regulations. Now, it manages an entire spectrum: including microwave transmission frequencies and power, maintaining telecommunication equipment registration and updating information, implementing and monitoring rules and regulations, to avoid any losses to the company such as TRA penalties.

Two within-case study qualitative data analysis techniques are used: coding and causal network diagram. The following sections elaborate on the LGL within the case study analysis process and results.

4.3.2 Coding results from Regulatory Affairs Division

4.3.2.1 Level-1 coding results:

The researcher conducted a content analysis of the LGL case study data to remove unrelated data and identify new themes. 152 key statements are highlighted from the case study data, categorised based on thematic factors: resulting in 32 summary statements grouped into thematic factors. In the process of categorising the 152 statements into thematic factors, the researcher identified new themes emerging from the data. Several statements had a strong emphasis on issues related to *Employee Engagement*, *Job rotation*, and *Rewarding*; these were identified as themes not addressed or explicitly explained in the dynamic capabilities literature.

Employees are engaged with top management in the strategy development process, and aware of the company's future direction. They advise management with their thoughts based

on their experiences and lessons learnt from the previous year. These processes eliminate and mitigate obstacles at the implementation stage of the strategy; and enhance organisational capabilities.

Job rotation is used as a tool to enhance employees' skills in terms of gaining more knowledge, staff motivation, and the confidence to work in other fields or for other organisations with different rules, regulations, cultures and people. The company shuffles staff internally between departments each year; the LGL is part of this rotation (**C2-PE28**).

Rewarding processes for employees with new ideas encourage them and others to be more dynamic. The company's vision is to encourage employees to be more creative and reward them in consequence. Employee rewarding is not strictly in terms of money (bonus); it may take other forms, such as career advancement and recognition announcements (**C2-PE29**).

The analysis of these 32 summary statements enabled identification of 31 practices from empirical work related to the development, deployment and improvement of DCs. 2 were related to sensing DC and were therefore excluded from the next stage of the analysis. Practices were coded with unique codes of C2-PE# as they emerged. The 29 C2-PEs considered for the next level of analysis are listed below in Table 4.6 and explained in the narrative section through unique codes.

Table 4.6: 29 Practices from empirical work C2-PE

C2-PE#	Case study 2- Practices from empirical work
C2-PE1	Identify capability gap in the market
C2-PE11	Enhance learning by attending international meetings and training, especially in the area of spectrum management
C2-PE12	Build networks of professionals by attending conferences and workshops
C2-PE7	Increase employees' knowledge and absorptive capacity through exposure to technology and regular individual coaching sessions
C2-PE13	Enhance capability through on-the-job training
C2-PE22	Enhance knowledge and skills through resource reconfiguration
C2-PE18	Communicate, inspire, motivate and lead employees to develop more skills
C2-PE28	Enhance skills development through job rotation
C2-PE20	Explore opportunities to exploit non-core capabilities under new markets conditions
C2-PE3	Build a market-driven internal culture
C2-PE2	Adopt new ideas and technologies

C2-PE5	Encourage innovation and new ideas
C2-PE4	Diversify businesses and launch new products
C2-PE6	Develop inspection process to avoid Telecommunication Regulatory Authority (TRA) penalties.
C2-PE8	Manage and maintain a database of the frequency spectrum and wireless equipment registrations
C2-PE10	Enhance skills development by exploiting organisational history, path, and experience
C2-PE9	Mitigate and manage resistance to change
C2-PE21	Build a culture of continuous process improvement
C2-PE15	Develop and implement outsourcing selection process and criteria
C2-PE14	Outsource required skills taking into consideration the balance between insourcing and outsourcing.
C2-PE27	Develop a clear vision and strategic plans
C2-PE26	Develop a flexible strategy with top management support
C2-PE19	Continuous review and refinement of organisational strategy
C2-PE17	Engage and encourage open communication between top management and staff
C2-PE16	Set SMART (specific, measurable, agreed upon, realistic and time-based) objectives and KPIs (Key Performance Indicators)
C2-PE29	Reward and recognise skills and behaviours to encourage others
C2-PE23	Implement long-term planning
C2-PE24	Mitigate threats and grab unplanned business opportunities
C2-PE25	Reconfigure frequency spectrum and other resources to manage emergency activities

4.3.2.2 Second level coding results

These 29 DRC practices from empirical work (C2-PE) will be compared and contrasted with practices from theory (PT) listed in Table 4.2; then associated with DRC lifecycle phase. This analysis identified 55 interrelations between C2-PE and PT (some C2-PEs address more than one PT).

Figure 4.8 below shows that 47.5% of practices within the LGL relate to deployment phases of the DRC lifecycle, with 26.2% and 26.2% related to development and improvement respectively. This means that the LGL is conducting more deployment practices as part of

its responsibilities. The researcher’s interpretation summary report will provide more details on how this graph contributes to answering the research questions.

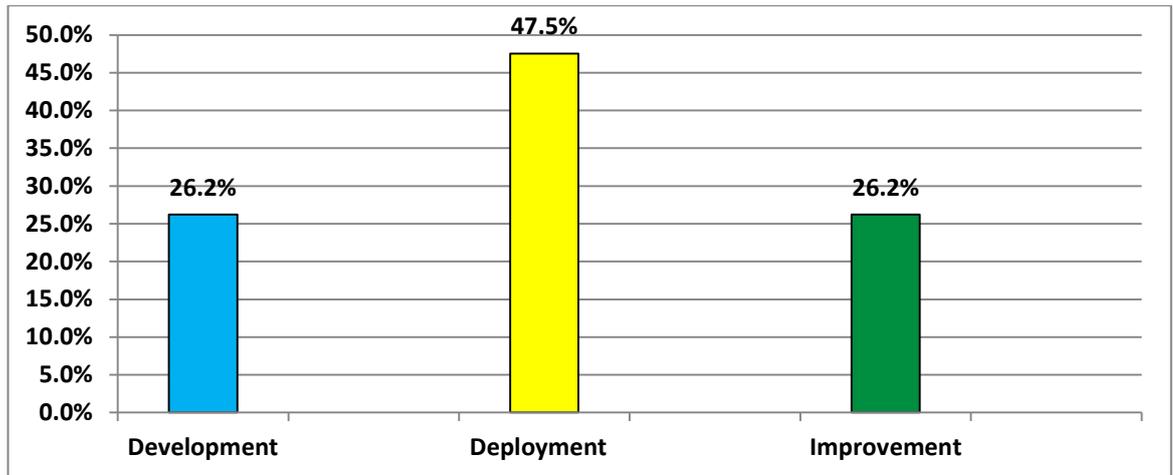


Figure 4.8: Frequency of C2-PE per DRC lifecycle phase

Figure 4.9 below demonstrates the emphasis and interrelation between theoretical and empirical practices. The percentage figure represents the number of C2-PE (from the total of 55 in this case) related to each PT. This provides a view of the most frequent of each PT for the particular organisational function (LGL, in this case).

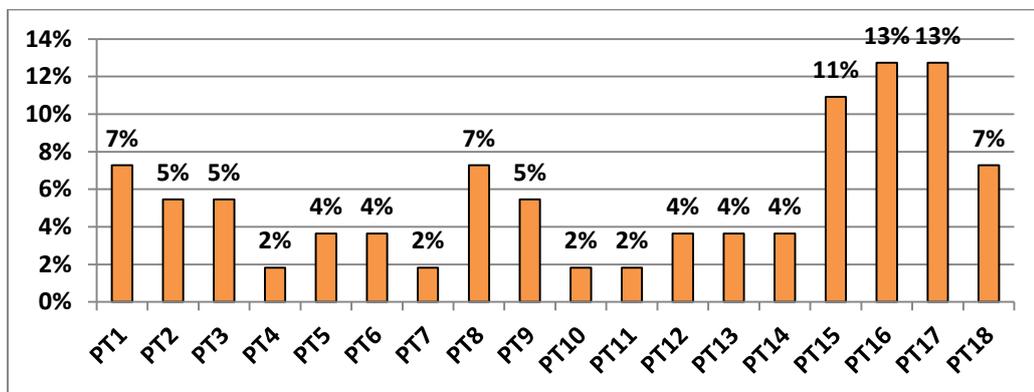


Figure 4.9: Frequency of interrelations between theoretical and empirical practices

The analysis revealed that **the most frequent practices ($\leq 10\%$)** within the LGL related to: *enhance and shape organisational strategy (PT15), focus on performance and profitability (PT16), develop organisational approaches for continuous process improvement (PT17)* (representing 37% of practices). These figures suggest that the LGL focuses on implementing and monitoring organisational rules and regulations which impact on the resource base of the whole organisation and fit the dynamic market environment.

Other practices: here we identify PEs that have a value of $\leq 5\%$: *learn how to learn (PT1), manage knowledge (PT2), build on experience (PT3), provide options to decision makers (PT8), Seize business opportunities or threats (PT9), enrich culture and social networking (PT18).* These represent 36% of total practices.

Least frequent practices: *exploit absorptive capacity (PT4), exploit IT and other complementary assets (PT7), enable innovation (PT10), develop and commercialise new products (PT11).* These represent 8% of total practices.

4.3.3 Causal network diagram

The tables in appendix (4) compare and contrast DRC theory (PT) with practices from empirical work (C2-PE) based on the research question. Similarly, the causal network diagram identifies patterns and relationships between the 29 DRC practices from empirical work (C2-PE). This will enable the researcher to provide an explanation which helps answer the research questions. The causal map in Figure 4.10 shows all C2-PE: colour-coded based on the lifecycle phase and numbered with associated PT.

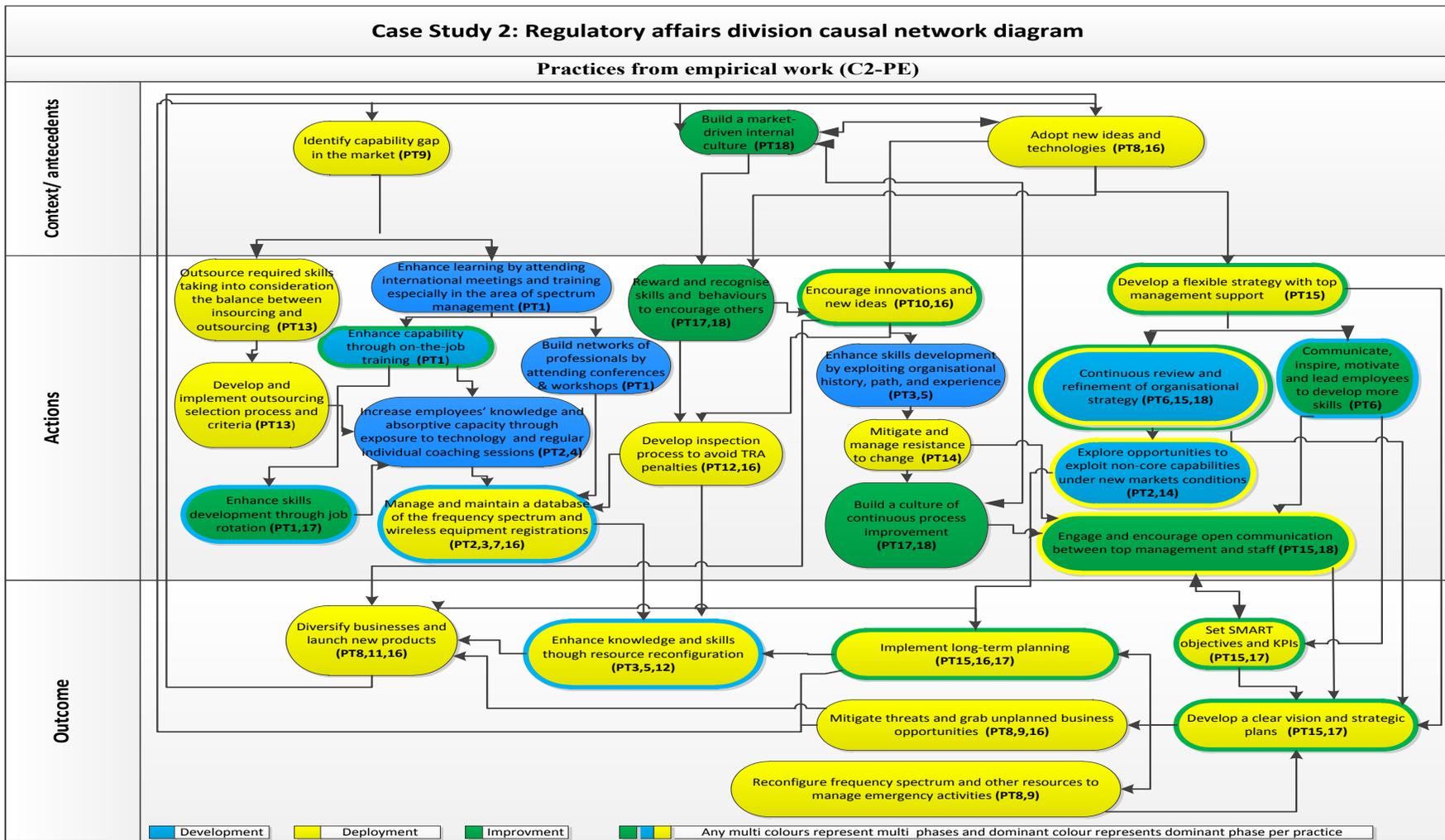


Figure 4.10: Regulatory affairs division causal network diagram

4.3.4 Researcher's interpretation

The LGL mainly focuses on developing and enhancing the processes of implementing and monitoring rules and regulations. The aim of this narrative is to utilise the qualitative data findings to answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

The tables in Appendix (4) summarise the results of this case study and show the C2-PE (and corresponding PT) in relation to the DRC lifecycle stages.

Development

When competition was introduced to Oman, the company's profits went down for the first four years, before rising dramatically: realising the highest profits in its history. *"The competition gives us even more chance to find our capability gaps"* - Interviewee no 2, 2014 (C2-PE1). The LGL develops its capabilities continually through annual development plans and identifying capability gaps. These require additional steps to be taken, such as obtaining capabilities internally by learning and continuous development; or outsourcing to consultants.

The LGL represents the company at national frequency and spectrum management meetings, which are considered part of their learning and capability development (C2-PE11). They also attend international meetings, including the GCC (Gulf Country Council); and ITU (International Telecommunication Union), the international regulatory board of telecommunications. These meetings enhance their teams' capabilities, build more experience and renew existing knowledge. The meetings also inform their teams about what is ahead in the field: such as 5G (fifth generation mobile), new frequency bands, and other technologies (C2-PE11).

Attending international conferences, courses, workshops and obtaining certifications are other ways of learning (C2-PE12). This enhances the LGL team's capability to update their knowledge and build networks of professionals (C2-PE12). Job rotation, on the job training and lessons learnt from other tasks are all very important forms of learning. *"On the job training is the best way of learning which demonstrates real life experiences and cases in front of staff"* - Interviewee no 2, 2014.

“In regards to the job rotation and cross posting, if I can manage to convince my company that I can send one of my staff to work under the ITU or to work for another company in a similar department, it would be even more useful than internal job rotation” - Interviewee no 1, 2014 **(C2-PE13)**.

Spectrum management activities require high tech skills and up-to-date knowledge: both of which help the division develop more capabilities. These activities and face-to-face meetings increase employees’ absorptive capacity over time. *“The best way to deal with low absorptive capacity staff is one-to-one meetings, as we feel ashamed to say, “I don't know”, in front of others in our culture”* - Interviewee no 2, 2014 **(C2-PE7)**.

Path, history, experience and accumulated assets have a positive impact on shaping capabilities, compared to competitors which are new to the market. One of these advantages involves building on existing experience and knowledge accumulated over more than 45 years. *“The company has more than 45 years of experience in the field; the whole history itself is a profile which makes a difference from others. I mean, building all these networks of copper and fibre require strong teams to manage these networks, which makes the whole picture”* - Interviewee no 1, 2014 **(C2-PE10)**. Similarly, management perception skills influence capability development. Managers will direct their team to change based on particular perceptions regarding the market, technology, and regulations **(C2-PE20)**.

Deployment

Customer requirements and rapidly changing technology are the main factors pushing the telecom operators’ capabilities to their limits. Market dynamism forces the operators to own more capabilities, as they cannot afford for these to become rigid **(C2-PE9)**. Moreover, TRA requirements in terms of spectrum management and other technical requirements are adding more load to the LGL’s capabilities. New operators enter the market with the latest technology, fresh blood, and fresh minds. However, being an incumbent operator is a major strength compared to newcomers: given the existing customer base, established networks, strong knowledge of the market and geographical terrain **(C2-PE9, C2-PE10)**.

The division’s teams look after all legal inspection requirements, which include technical and regulatory inspection. They inspect equipment, serial numbers, bandwidth, and transmitted power for wireless equipment. This information is recorded and updated regularly via the in-house database. Electronic applications link with the database as a complementary asset to store barcodes for all built telecom equipment: which also increase their team’s capabilities and knowledge of the company’s assets **(C2-PE8)**.

An internationally outsourced consultancy brings international experience and knowhow. The outsourcing must be to fill identified capabilities gaps only, with knowledge transfer the key criteria in company selection **(C2-PE15)**. A balance must be maintained between outsourcing and in-house capability building to minimize risks of outsourcing, which include breaking knowledge confidentiality, internal staff resistance, or failure to transfer the required knowledge. *“You need to outsource skills that you don't have and can fit the division internally as a whole with knowledge transfer”* - Interviewee no 1, 2014, **(C2-PE14)**.

Outsourcing also helps build a new culture driven by market needs. Managers must be proactive and ahead of challenges, applying their experience to the dynamic market. *“This is one of the daily issues that I'm trying to focus on... the legal functions... we don't have to restrict ourselves to the traditional role of a lawyer and to wait for the problem to occur and then look for a solution”* - Interviewee no 2, 2014 **(C2-PE3)**. However, their perceptions might not tally with the business environment, as the telecoms industry is changing very rapidly. Thus they must review their plans and perceptions frequently, to avoid developing irrelevant capabilities **(C2-PE19)**. They can, though, utilise any irrelevant capabilities for extra knowledge, in preparation of changes which might occur in the future. *“Incorrect developed capabilities based on the initial management market perception are not a waste of knowledge and there is nothing called a waste of knowledge; rather it's a gain of knowledge and set of skills which might be needed for any future business changes”* - Interviewee no 1, 2014 **(C2-PE20)**.

The company has a strong market position, reflected by its brand, customer services, and values. The LGL maintains this position by implementing and monitoring (company and TRA) rules and regulations. They send monthly performance reports to the TRA, which are published in the local newspaper and on the TRA website. The company has strong assets: networks built over more than 45 years, network coverage, resilience, fixed networks and loyal staff, with 20 to 30 years of experience **(C2-PE10, C2-PE22)**. These assets enhance company teams' creativity in coming up with new ideas: such as how to adapt to any particular change to maintain its strong position and assets **(C2-PE2)**. The company focuses on performance and profitability by adopting a business diversification strategy to compensate for reduced revenue from other streams. *“One of the compensation strategies of our company is to compensate for a downfall in the revenue coming from Short Message Service (SMS), which is to invest more into the wholesale business and other business”* - Interviewee no 2, 2014 **(C2-PE4)**.

The managers in the LGL strongly believe that top management should own some competencies and capabilities, to develop a strategy which can be implemented in the dynamic market. This strategy should be dynamic, flexible and responsive (**C2-PE19, C2-PE26**). *“If they don't have that sense, then they can lose the market share, and if they do have the sense but they don't have the reaction plans on what is needed to be done, then they cannot compete with the market competitors”* - Interviewee no 1, 2014. Top management, including the CEO, VPs, general and senior managers, set the whole organisation's objectives at the end of each year, based on its vision and mission (**C2-PE27**).

The strategic objectives are translated into KPIs (Key Performance Indicators) and must be SMART (Specific, Measurable, Agreed upon, Realistic and Time-based). These KPIs cascade down to the company's units, divisions and staff. KPIs are part of staff appraisal, and linked to the annual bonus and job progression (**C2-PE16**). The CEO and top management communicate these strategic plans and objectives to all staff across the country: engaging them in strategic decisions and informing them of the company's future direction. *“The top management is doing like road shows across Oman, discussing plans ahead, set expectations (what we expect from our staff to do), and what went wrong in the previous years. This open channel of communication and constant communication between the top management and the staff is one of the key tools in our company's success”* - Interviewee no 2, 2014 (**C2-PE17**). Engaging staff with high capabilities has positive impacts. The strategy must have the objectives of developing and enhancing capabilities (**C2-PE27**).

Improvement

The LGL has many processes and procedures which deal with TRA needs in terms of spectrum management and other technical requirements. Creating new or enhancing the existing division's processes or procedures will ultimately result in cost savings or the seizure of new revenue; and can be considered a form of innovation. Employees with innovative ideas will be considered as exceeding the expected KPI and evaluated as outstanding in their final year appraisal. *“Enhancing the organisation's profit by a creative idea, saving costs, enhancing the organisation in total in terms of performance; it means that the company owns more dynamic capabilities. The company's vision is connecting society through innovation, so it's a company vision actually to reward and look for innovation as something of essence and importance to the company. It is very important to our organisation to bolster and reward new ideas, which will encourage others to do so, but we*

need to find more means of rewarding to be utilised as tools, in order to force more innovation” - Interviewee no.2, 2014 (C2-PE5, C2-PE21).

Two important skills are required of managers to help their team’s capabilities become more dynamic: strong communication skills, and being a good motivator. Moreover, the manager must inspire their team, be task oriented and an authentic leader (C2-PE18). The employees are aware of the company's future plans and projects, and engaged in decision-making processes by giving their opinions directly to top management. The CEO and top management encourage this type of communication and employee gatherings by arranging workshops, business dinners with employees, and open days across the country. *“Communication between the top management and the staff is very important, and I guess our CEO is excellent at that. You can find the CEO talking to normal staff and working with them. Employees feel how are they engaged in the decisions making processes?” - Interviewee no. 2, 2014 (C2-PE17, C2-PE18).*

The LGL develops capabilities continually through learning, on the job training and job rotation (C2-PE28). Organisational context and social networking increase professional networking and build a strong organizational culture, which enhances and develops capabilities. A dynamic organizational context challenges the status quo, existing processes and procedures, and is especially important (C2-PE21). It can also help eliminate negative feelings caused by change and give employees more comfort (C2-PE9).

RQ2: How do DRC support the concurrent approaches to strategy deployment?

The table in Appendix (4) summarises the results of this case study and shows the relevance of C2-PE (and corresponding PT) in support of concurrent approaches to strategy deployment. These C2-PE / PT are aligned to those relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not the practices of development and improvement).

Planned approach

The LGL is developing DRC as part of a long-term plan to implement organisational rules and regulations and inspect the spectrum ahead of the TRA’s regular, random inspections. This stops the company having to pay penalties; and therefore enhances the whole company’s performance in terms of profitability and reputation. *“We do our own inspection before the TRA inspection as we have in-house capability of reviewing and updating frequencies. This saves the company’s image by not paying TRA penalty, as losing the*

company's image in the competitive market is more expensive than paying the TRA penalty itself” - Interviewee no.1, 2014 (C2-PE6).

Long term planning is very effective in identifying gaps well in advance and developing the required DRC. Moreover, it utilises resources such as technological equipment appropriately: achieving targeted KPI and long-term strategic objectives. Setting these objectives take lessons learnt, market condition, performance and profitability, capability development and current resources all into account (C2-PE23). These objectives are not static, but fixable: matching the business environment (C2-PE19).

Unplanned approach

In the telecommunications sector, there are always unplanned cases or never-considered scenarios which come about. Accordingly, unplanned planning is needed; it cannot be 100% avoided, even though it is expensive. It can be done in a smaller context to mitigate risks, provide solutions and options to resolve problems, and grab opportunities faster than long-term planning and bureaucratic processes will allow. Unplanned plans are implemented to serve wireless equipment to unplanned new customers or resolve pop-up wireless network congestion by obtaining a TRA equipment license for new sites, modifying transmission power and frequency bands. *“Unplanned plans can be reduced well in advance by a proper masterplan, which will fit with the company's long-term KPIs” - Interviewee no.1, 2014 (C2-PE24).*

Customer requirements and rapid technological change requires telecom operators to be more creative and innovative in developing new products to meet market trends. Currently, Skype or any voice over IP (VoIP) apps are reducing international call revenue; while Whatsapp is killing the SMS business. Thus this division is working with TRA to develop rules and regulations for VoIP and other new apps. These development processes enhance skills and adaptability to new technologies. *“The company is adopting VoIP and going to launch an application for VoIP in Oman soon; we are not resisting change” - Interviewee no.2, 2014 (C2-PE2, C2-PE4, C2-PE5).*

Emergency

Managing and attending spectrum meetings nationally and internationally are the best ways of obtaining and maintaining accurate knowledge. Up-to-date knowledge is an obligatory requirement of avoiding any interference or other technical issues with other telecom operators. *“Knowledge gives more confidence to our team as we are dealing with risks and errors are not acceptable” - Interviewee no 1, 2014.* Managing emergency activities require

empowerment and authority from low-level management and staff. This division empowers employees to manage such activities, with the process followed after normalising affected services:

"In case of emergency, the Regulatory Affairs Division reverses the process of TRA spectrum registration and approvals to allow field engineers to restore the affected services immediately by utilising any frequency band or wireless equipment based on their best judgment. Thereafter, the division will apply for modifications to TRA with justifications. These processes are considered as very risky processes, as it could create interference with other frequencies within the company or with other external entities. However, the field engineers are competent and knowledgeable enough to provide immediate solutions and options with minimum negative impact" - Direct observation 2014 (C2-PE25).

4.3.5 Case study summary

The case study shows that the practices embedded within the LGL function contribute to all phases of DRC, with a particular emphasis on the deployment phase. The LGL practices which display the largest impact of DRC are: enhance and shape organisational strategy (PT15), focus on performance and profitability (PT16), and develop organisational approaches for continuous process improvement (PT17).

This case shows that the LGL plays an important role in all approaches to strategy deployment (planned, unplanned, emergency). Key practices which support the concurrent strategy deployment process are: manage and maintain a database of the frequency spectrum and wireless equipment registrations (C2-PE8), mitigate threats and grab unplanned business opportunities (C2-PE24), and reconfigure frequency spectrum and other resources to manage emergency activities (C2-PE25).

4.4 Case Study 3: Corporate Strategy Unit

4.4.1 Summary introduction

The Corporate Strategy Unit (CSG) provides business insights to the organisation, enabling management to make informed decisions with regards to the current and future strategic direction of the company group. The unit comprises three divisions: business planning, regulatory affairs, and strategic marketing and branding. This case study covers two divisions only, as regulatory affairs already covered in Case Study 2.

The unit led the development of a new vision, mission, and values for the company. It influences the resource base in meeting the whole organisation's mission and vision. This entails a coordinated, dedicated effort: spanning content development, approval from the Board of Directors, and communication within the organisation at several levels. Their main roles are as follows:

- Implementing corporate performance management process and reporting. This results in periodic insights on strategy implementation; highlighting problem areas in a timely, meaningful manner; helps resolve issues pertaining to cross-functional processes; and helps the management team make tactical decisions.
- Developing a comprehensive investment strategy and policy.
- Leading the development of the enhanced brand.
- Leading the mapping, streamlining and documentation of the critical product development process.

Two within-case study qualitative data analysis techniques are used: coding and causal network diagram. The following sections set out the CSG's within-case study analysis process and results.

4.4.2 Coding results from Corporate Strategy Unit

4.4.2.1 Level-1 coding results:

The researcher conducted a content analysis of the CSG case study data to remove unrelated data and identify new themes. 239 key statements are highlighted from the case study data, and categorised based on thematic factors: resulting in 22 summary statements, grouped into thematic factors. In the process of categorising the 239 statements into thematic factors, the researcher identified new themes emerging from the data. Several statements had a strong emphasis on issues related to *Rewarding and Recognition, and Branding*; these were identified as themes not addressed or explicitly explained in the literature review.

Rewarding and recognition help management and individuals build more capabilities. The KPI system is linked with the bonuses system as rewards. Recognition, not merely financial rewards, is required; it should be part of the culture to recognise high performing individuals. *“It all comes hand in hand with a good performance management system that rewards good performance and disapproves of bad performance. However, there are always individuals, both at the managerial level and individual level that would do it without the need to have performance-based incentives, but the majority of people require to be incentivised.*

Everybody should feel motivated to perform better and continuously improve their performance. It should be part of the culture that supports and rewards high-performing people, encourage people to perform well and disapproves or demotivates people that are not performing” - Interviewee no 3, 2014 (C3-PE10).

This unit maintains **brand** strength by developing the required capabilities. They believe it is very important that the employee is part of the brand, as it boosts their institutional belief in the company. Therefore, they build capabilities to match the brand’s expectation. Likewise, customers trust it as the company has provided telecommunications service for a great deal of time. Thus employees contribute to maintaining brand strength by developing their capabilities. *“Brand is an important part of boosting people's belief in the company as an institution. Our company’s brand is the only brand that started with the word Oman. They feel that they are associated with it, part of it and they can contribute to it, and the brand value. When it comes to the customer, they have trust in the brand and the experience. As a promise is part of the brand, the services will be delivered, and the customers’ experience will be close to their expectations” - Interviewee no.4, 2014 (C3-PE16).*

The analysis of these 22 summary statements enabled the identification of 24 practices from empirical work related to the development, deployment and improvement of DCs. 3 of these were related to sensing DC and therefore excluded from the next stage of the analysis. These practices were coded with unique codes of C3-PE# as they emerged. The 21 C3-PEs considered for the next level of analysis are listed below in Table 4.7, and further explained in the narrative section by unique codes.

Table 4.7: 21 Practices from empirical work C3-PE

C3-PE#	Case study 3 - Practices from empirical work
C3-PE3	Learn from new technology implementation, on the job training, best practice, and engagement in external knowledge sharing
C3-PE4	Learn from previous experiences and mistakes
C3-PE1	Seize business opportunities or threat and regularly update top management
C3-PE8	Explore opportunities to exploit non-core capabilities under new markets conditions
C3-PE9	Mentoring and coaching to develop the right skills and behaviours
C3-PE7	Develop and manage individual employee development programme (IDP)
C3-PE2	Exploit knowledge from vendors about technology trends to support decision-making processes, enhance existing infrastructure and strategy

C3-PE14	Build a technology roadmap
C3-PE18	Conduct trials for new products
C3-PE17	Enhance skills development by exploiting organisational history, path and experience, and manage change
C3-PE15	Manage transition to privatisation while maintaining market position
C3-PE16	Build awareness of the link between individual roles and organisation brand
C3-PE13	Bring external expertise to support the development of strategy
C3-PE5	Balance between outsourcing and insourcing, and manage knowledge transfer from external experts
C3-PE12	Develop and implement strategy aligned with the organisation's capabilities
C3-PE6	Introduce KPIs to support execution of strategy
C3-PE10	Reward and recognise skills and behaviour to encourage others
C3-PE11	Build a high-performance culture and proactive open knowledge sharing
C3-PE19	Build adjustable long term planning to build the required capabilities
C3-PE20	Balance between unplanned and planned planning
C3-PE21	Consider emergency situations for future planning

4.4.2.2 Second level coding results

These 21 DRC practices from empirical work (C3-PE) will be compared and contrasted with practices from theory (PT) listed in Table 4.2, then associated with DRC lifecycle phases. This analysis identified 49 interrelations between C3-PE and PT (some C3-PEs address more than one PT).

Figure 4.11 below shows that 57.4% of practices within the CSG are related to the deployment phases of the DRC lifecycle, with 27.8% and 14.8% related to development and improvement respectively. This means that the CSG is conducting more deployment practices as part of its responsibilities. The researcher's interpretation summary report will provide more details on how this graph contributes to answering the research questions.

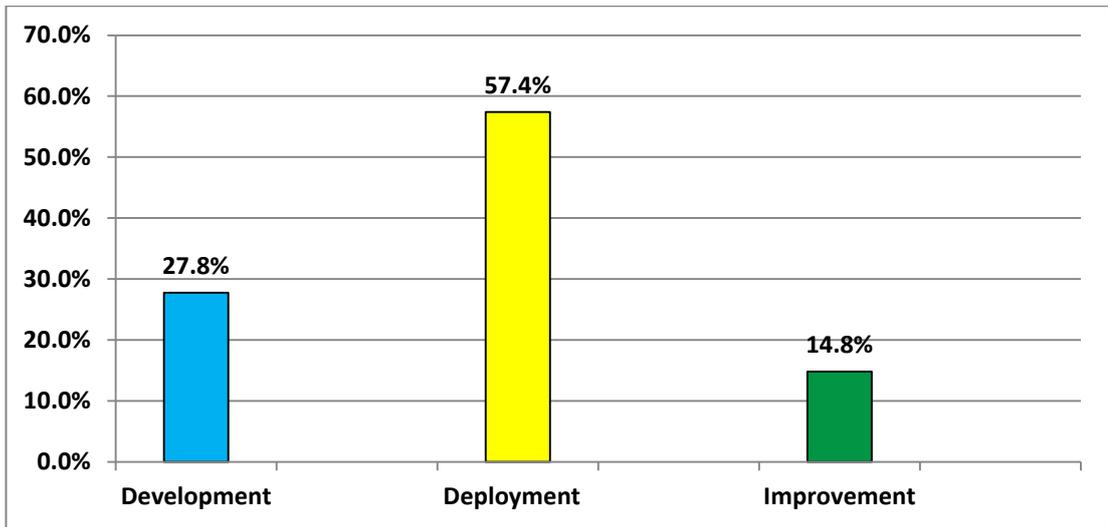


Figure 4.11: Frequency of C3-PE per DRC lifecycle phase

Figure 4.12 below displays the emphasis and interrelation between theoretical and empirical practices. The percentage figure represents the number of C3-PE (from the total of 49 in this case) related to each PT. It provides a view of the most frequent PT for that particular organisational function (the CSG in this case).

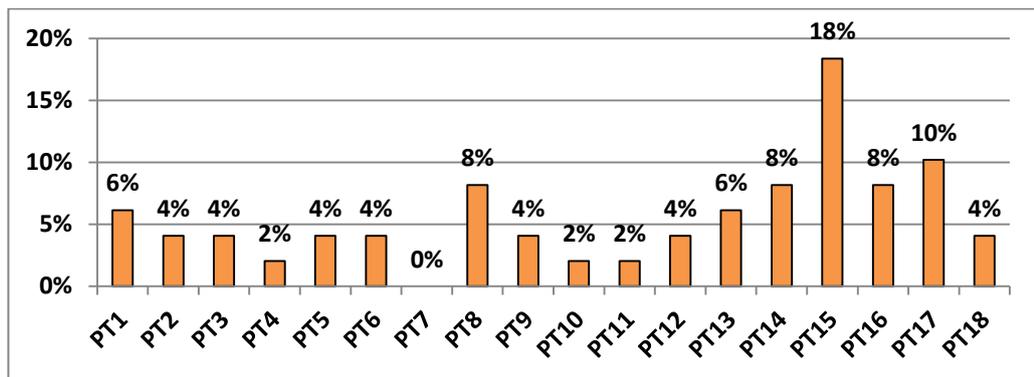


Figure 4.12: Frequency of interrelations between theoretical and empirical practices

The analysis revealed that **most frequent practices ($\leq 10\%$)** within the CSG related to: *enhance and shape organisational strategy (PT15)*, *develop organisational approaches for continuous process improvement (PT17)* (representing 28% of total practices). These figures suggest that the CSG focuses on developing the whole organisation's strategy and setting high-level KPIs. Their roles are strategically important in aligning all function units with the vision and mission.

Other practices: here, we identify PEs that have a value of $\leq 5\%$; *Learn how to learn (PT1), Provide options to decision makers (PT8), Obtain required capabilities in different ways (PT13), Manage transformation and change (PT14), Focus on performance and profitability (PT16).* These represent 36% of total practices.

Least frequent practice: *Exploit IT and other complementary assets (PT7).* This represents 0% of total practices.

4.4.3 Causal network diagram

The tables in Appendix (5) compare and contrast DRC practices from theory (PT) with those from empirical work (C3-PE), based on the research question. The causal network diagram identifies patterns and the relationship between the 21 DRC practices (C3-PE). This will enable the researcher to provide an explanation which helps answer the research questions. The causal map in Figure 4.13 shows all C3-PE: colour-coded based on the lifecycle phase, and numbered with associated PT.

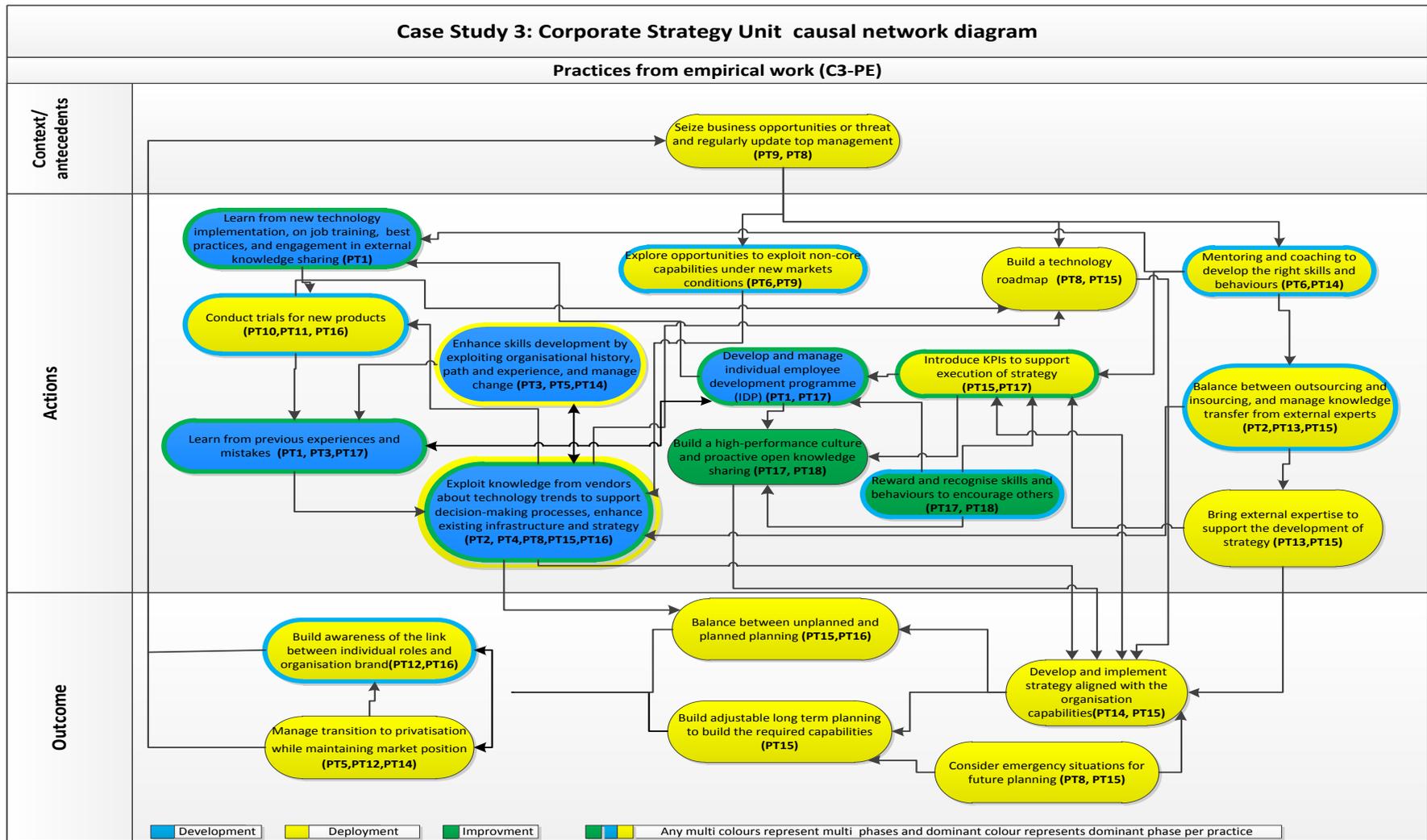


Figure 4.13: Corporate Strategy Unit causal network diagram

4.4.4 Researcher's interpretation

The main roles of the CSG involve business alignment toward the organisational strategy; and setting high-level KPIs for the whole organisation's units. The aim of this narrative is to set out the qualitative data findings and answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

The tables in Appendix (5) summarise the results of this case study and show the C3-PE (and corresponding PT) in relation to DRC lifecycle stages.

Development

The telecommunications market is changing rapidly and requires organisations to constantly update themselves. The CSG conducts continuous market research to identify the latest market trends nationally, regionally and globally. Managers use information from the Business Intelligence Department within the unit to make decisions on developing capabilities and building assets (**C3-PE1**). Some of these decisions lead to the development of irrelevant capabilities; but these will be used in the future and constitute extra knowledge (**C3-PE8**). Managers in the CSG play a major role in enhancing dynamic capabilities development. Their skills include good vision, business environment interpretation, anticipating future skill requirements, and making quick decisions (**C3-PE9**). *“Every decision you make is right at the time you make it. As it was based on certain parameters you had and always back up your decision with facts”* - Interviewee no.2, 2014 (**C3-PE8**).

The CSG learns from conferences and different strategic courses. It oversees on-the job training with newcomers, which helps fill capability gaps. New technology trials and best practice are additional ways of learning which enhance their team's capabilities (**C3-PE3, C3-PE18**). *“If it is a new technology, then we are trialling it in our network with a vendor, who had implemented the solution elsewhere. When we are trialling new equipment or new technologies, it is not just about learning from the best practice, but it is something new that we want to bring it into our network. It is also adding more talent and more capabilities into our teams”* - Interviewee no 2, 2014.

“We did a trial of the 900 Mhz in one of the remote areas, and it becomes as a product to be used elsewhere if required. Theses trail processes enhance our team capabilities” - Interviewee no 2, 2014 (**C3-PE18**).

Additionally, they regularly organise vendors' workshops to transfer knowledge of new technologies to their staff. Vendors also inform their staff about telecoms infrastructure in the company (C3-PE2). Path, history and experience have a positive impact on developing capabilities as experience is built upon. *"The long-term service employees have made more mistakes in the past, but they have learned from their mistakes. The better they will be able to deal with their mistakes, the better they will know how to react in the future to surprises"* - Direct observation 2014 (C3-PE17).

Deployment

The CSG is responsible for many strategic roles in the company, including market analysis. Its Business Intelligence Department monitor market changes and reporting it periodically to the top management. *"We are the central hub, as we get information from all units and review it with the top management. If we notice anyone of the telecom operators is doing something differently which we can do, then we bring it to the top management in weekly sessions"* - Interviewee no 1, 2014 (C3-PE1).

Initially, competitors had more advantages at the entry stage in grabbing more customers, as they entered the market with new capabilities: in contrast to an old government company. However, the incumbent invested heavily in its infrastructure to improve quality substantially: which led customers to favour it over new competitors. *"Our company is one of the few in the world that has been able to take back market share from the challenger. There are three or four telecom operators in the world that once a challenger came into the market, the older telecoms operator lost market share"* - Interviewee no.3, 2014 (C3-PE15).

Moreover, it continues to assess market events and behaviour. *"Last year we noticed for a couple of weeks that customers were porting out, more than porting-in. So we brought that matter to the management's attention and then they instructed the sales team to focus on getting back these customers. Likewise, we noticed that there were many disconnections and then we found out that these disconnections were because the tourist customers during Kharif season (autumn season) and they left the country after the season"* - Interviewee no 1, 2014 (C3-PE1).

The company has more than 90% of the corporate market, especially on the fixed services side. *"It has the largest fixed network in the country plus different submarine cables which connect the entire world. Furthermore, it is very difficult for the corporate customers to shift their business to another telecom operator, as the switching cost is very high"* - Direct observation 2014.

The company owns and continues developing capabilities to maintain existing assets, its customer base and market position. *“We are succeeding specifically in the consumer market because we are not continuing as the incumbent, political and governmental company which would hinder us more. We have been able to convince the market that we are no longer the old, big, slow incumbent operator. We have transformed into a dynamic operator that has a good position in the market, capable of competing, offers a good value, price and service”* - Interviewee no.3, 2014 **(C3-PE15)**.

On the other hand, being a long-term service company has negative impacts as well: mainly in terms of resistance to change. Most long-term service employees are in a comfort zone, do not want to change, or have difficulties in coping with it. *“You have people who seek comfort, and they will never develop because they are trying to find a comfort zone. So everything has to stay the same because every single change will put them out of their comfort zone and they will not be happy”* - Interviewee no 3, 2014 **(C3-PE15, C3-PE17)**.

The CSG obtains the required capabilities internally within the organisation to fill any gaps. If these are not available internally, the CSG outsources to vendors and consultancy companies. Similarly, regarding long-term strategy, they hire a consultant with vast international experience, to reflect this in the organisational strategy. *“They also do full-time managed service contracts with vendors to fill the required gaps”* - Direct observation 2014 **(C3-PE13)**.

However, they balance between outsourcing and insourcing capabilities by managing knowledge transfer to their internal teams **(C3-PE5)**. *“Internally, we might have the capabilities, but since we all work in the same company, then we all think in the same way. We need the consultants to guide and inform us about the new strategy based on their vast experience of different companies. The fact that most of the big companies, especially any companies who is dealing with the very dynamic market are doing the same. For example, when we launched 3G, we worked with a consultancy company. The company did everything from A to Z including e.g.; marketing, product, and pricing. However, we select the type of support that is relevant to our company at each point in time. Then we always claim back the control when we have given away part of the control to the consultants”* - Interviewee no.1, 2014 **(C3-PE13)**.

The unit nominates a team of employees to work with consultancy companies and vendors, learn new ways of operating telecommunication processes and understand new levels of business. This facilitates the decision-making process, knowledge transfer and enhances

capabilities. *“So I think the vendors’ presentation changed the mindset of the management and the network planning team. They wanted to replace the 2G network as it is an old technology and the equipment is out of support. Vendors proposed to reuse the equipment differently with their support, and now we can milk the cow further. So we can use the money meant for replacement in expanding more 3G sites or expand second, third and fourth carrier”* - Interviewee no.2, 2014 **(C3-PE2)**.

The top management own some capabilities required to develop the strategy. However, they also involve a consultant in filling any capability gaps. *“I think we developed a good set of strategic capabilities for the new organisation and we are attempting to evolve some new people. We do not have potential to have more inclusive strategic planning and definition process, but we will seek help from external consultants as per the plan. You need to have good analytical skills and sensing”* - Interviewee no.3, 2014.

“I do not think we would have reached this stage of successes without the consultant. The strategy outcomes and recommendations were that every business unit must focus on a particular segment, so the consumer, corporate and wholesale had to have separate units” - Interviewee no.2, 2014 **(C3-PE13)**.

Employees with high skill levels help develop and adjust the strategy towards achieving the organisation’s ultimate objectives **(C3-PE12)**. The resulting strategy is implementable, as it been created and adjusted by the employees themselves. *“Within strategic planning, you steer your organisation in a specific direction, and you need to make sure that your organisation can follow and ready to go into that direction”* - Interviewee no 3, 2014 **(C3-PE12)**.

“You could have the best strategy in the world, but your people do not have the capabilities of executing it” - Interviewee no.1, 2014 **(C3-PE12)**.

This unit is responsible for introducing Key Performance Indicators (KPI) processes in the organisation, to execute the strategic objectives. It did it together with a consultant; while at later stages, the KPI linked with a bonus system. These processes were crucial to the organisation and performed in stages. *“What we did at the initial stage, we asked VPs to report the number of KPIs as many as they can to start with and whatever were easier to report. Whatever were difficult to report e.g. the measurement criteria, unified report and frequency reporting, were tackled in later stages and cascaded down to all levels”* - Interviewee no.2, 2014 **(C3-PE6)**.

Improvement

This CSG is part of the organisational processes of the Individual Development Programme (IDP) (C3-PE7). The managers believe that this programme puts the responsibility on both the management team in finding knowledge and capability gaps; and employees, who must show more initiative in getting the maximum from the programme (C3-PE9). They nonetheless balance between static organisational processes and developing dynamic capabilities. *“As an employee, you continuously need to look at how can I build my capabilities and utilise whatever tools available within the organisation to continuously improve myself, which is something that is driven by me. You can ask the management to support you in doing that, but the driver and the initiator in that perspective are yourself. It all needs to fit together with a good performance management system, as well as to build the required dynamic capabilities. It is often contradictory when we say the process is dynamic. So it is always about finding a good balance between processes to make things move smoothly and gaining the capability”* - Interviewee no 3, 2014 (C3-PE9).

Employees believe that learning from previous experiences and especially mistakes will enhance their capabilities and improve the process. They figure out patterns of events; and based on this, create a response strategy for future use. The more they are exposed to similar situations, the easier they respond to them. *“It is about learning from these mistakes that we made and then trying to improve the processes and capabilities. It is focusing typically on not making the same mistake twice and learning from it. Continuously building and making mistakes are part of the training. It all comes down to find a good balance for the organisation to function, because if you only make mistakes, then the company will go wrong as well”* - Interviewee no 3, 2014 (C3-PE4).

Creating a high performance culture allows employees to perform well in a dynamic environment. Social activities and networking should be part of this culture. When the employees notice how others obtain benefits from the high performance culture, this will encourage and motivate them to perform in the same way (C3-PE11). However, it needs to be consistent across the whole organisation: as employees live specific values and should be rewarded for significant achievements (C3-PE10). *“From my point of view, dynamic capabilities are inherently part of the high-performance culture. So you do not talk about dynamic capabilities any more because it’s dynamic culture that will automatically deliver the right set of capabilities with some steering. As you always need to see a couple of people that define the cores of opinion and this is the direction we need to go into, this is where we*

need to invest and build further capabilities from there” - Interviewee no 3, 2014 (C3-PE11).

On the other hand, culture cannot change unless context changes sufficiently. Both the competition and the dynamic market can change that context. *“In the strategy department, you should learn to figure out and to contextualise, because you always need to contextualise your response every time that you have a new situation, then figure out what is the relevant context for this situation, and part of the context is the capabilities” - Interviewee no 4 2014 (C3-PE11).*

Moreover, the incumbent is bound to have more difficulties in building capabilities, as it used to be a governmental organisation with static processes; such institutions are rarely pushed to innovate. Everything is new for the newcomer, so it does not have any legacy to deal with, and has no collective mindset to challenge, so it is much easier for it to focus on building the required capabilities. *“There are zero capabilities available with new players, so they enter into a situation which easier from the beginning to have and build the required capabilities. Once they have come into the market, they will have less restriction regarding political elements, legacy, employees and the whole thing is about being more flexible regarding hiring additional people and the competencies. From that point of view, they have an edge theoretically compared to the incumbent”- Interviewee no.3&4 2014 (C3-PE15).*

RQ2: How do DRC support the concurrent approaches to strategy deployment?

The table in Appendix (5) summarises the results of this case study and shows the relevance of C3-PE (and corresponding PT) in supporting concurrent approaches to strategy deployment. These C3-PE / PT are aligned to those relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not the practices of development and improvement).

Planned approach

The CSG is responsible for the whole organisation’s business alignment at the same time as technology continues to change rapidly. Thus, it conducts technology mapping of all existing and future services and technologies to meet the strategic objectives. It identifies capability gaps and develops a technology roadmap. *“When we did a technology roadmap, there were two schools of thought within the company. Should we go into 3G or WiMax which was on the horizon as well? So we launched the 3G. After that, we saw that there was a boost in the revenue and morale as well because people were getting too frustrated with a competitor. I*

think we have regained, let's call it the trust in ourselves. We know how to manage brand, and we even trust that we can manage better than the competitor” - Interviewee no 4, 2014 (C3-PE14).

The top management creates the organisation strategy as it owns the skills within their teams. It also engages employees to be part of the strategy development team. The strategy consists of elements including KPIs: which cascade down all the way from Vice President (VP) level to the unit's staff. *“Everyone, whether they are a Vice President or a GM or a senior manager or down forth is implementing the KPIs because this is part of the strategy. It will help the company in the long run and will make the company much more profitable and successful” - Interviewee no.1, 2014 (C3-PE6).*

Long-term planning is sufficient in building long-term capabilities and cost savings; but it should be adjustable to match changes in the dynamic market. *“Planning should be dynamic and should remain dynamic, but it does not mean that you do not need to follow it. You need to allow your plans to change because we are in a very dynamic sector and there are different reasons why a plan can change; either the plan was wrong in itself or something happened externally or internally, that triggered a change in focus or change in direction” - Interviewee no.3, 2014 (C3-PE19).*

Unplanned approach

The CSG believes that unplanned planning is costly and sometimes distracts from long-term planning. However, it sometimes does this to grab any business opportunities which go unrecognised at the long-term planning stage. The company is operating in a dynamic business environment; accordingly, it owns the capabilities to sense and implement unplanned plans in a productive way. However, it insists on maintaining a balance between the long term and unplanned planning, and on linking any unplanned plans with long-term objectives as much as possible. *“You need some strategic planning to define a direction that needs to be followed. The danger is if everything becomes ad-hoc, you only look at what's happening today, and you lose the long-term vision. It might be a short-term opportunity and short-term benefit, but it might hurt you for the long term. As we are living in a dynamic environment as well, we have to accept the unplanned planning without sacrificing on the long term because we cannot anticipate all changes. We need to find a balance between setting long-term objectives and allow the organisation to implement the unplanned planning. There's no problem in linking our unplanned plans and actions with those longer-term objectives that we set earlier” - Interviewee no.3, 2014 (C3-PE20).*

The unit exploits their knowledge and experience in detecting technological trends, innovation and providing options for decision-makers. *“For example, we paid 10 million Omani Rials to TRA for the spectrum license of 2.3 GHz. The plan was to use this spectrum for the new technology of 4G (LTE) as fixed telecommunication services. In the implementation stage of the 4G (LTE), we found this spectrum no longer required as the 4G (LTE) implemented as mobile services by using /tuning the existing spectrum to 1800 MHz. It led us to some advantage at the end, and not completely lost. Even though we paid the 10 million, we cannot get a direct revenue benefit from it, but indirectly we implemented a very strong LTE network, and we were the first in Oman to have 4G (LTE) network. Moreover, we block this frequency band not to be used by the competitors, and we can use it for future fixed services”* - Interviewee no.2, 2014 (C3-PE20, C3-PE2).

Emergency

In cases of emergency, this unit is not directly involved in resolving issues. However, its employees document the events as a lesson learned: to consider them as part of long-term plans. They also adjust long-term plans to fit new emergency situations. They provide advice and re-align the long-term strategy to counter such emergency activities. *“They reprioritize projects to address any temporary emergency solutions”*- Direct observation, 2014.

“The company operated the best when it had fires as an emergency. Therefore, I figured out that if I should use that as a competence, because if we are a bunch of firemen, then the best way to use that skill is to create some fires” - Interviewee no 4, 2014 (C3-PE21).

4.4.5 Case study summary

The case study shows that the practices embedded within the CSG contribute to all phases of DRC, with a particular emphasis on the deployment phase. The CSG practices which display the greatest impact of DRC are: enhance and shape organisational strategy (PT15); and develop organisational approaches for continuous process improvement (PT17). Exploit IT and other complementary assets (PT7), which the literature highlights as critical for DRC, does not display significance in this particular case. The reason for this is that PT7 is not a core function here.

This case shows that the CSG plays an important role in all approaches to strategy deployment (planned, unplanned, emergency). Key practices which support the concurrent strategy deployment process are: Build a technology roadmap (C3-PE14), Conduct trials for

new products (C3-PE18), Manage transition to privatisation while maintaining market position (C3-PE15), and Consider emergency situations for future planning (C3-PE21).

4.5 Case Study 4: Corporate and Consumer Units

4.5.1 Summary introduction

In today's competitive environment, whereby attracting, supporting and retaining customers require a different way of doing business, Corporate and Consumer Units (C&C) meet this challenge by providing a customer experience that is reliable, consistent and valuable. Their main responsibilities are as follows:

- Provide the sales team with effective communication tools to aid them in managing a strong business relationship.
- Provide corporate customers with creative and innovative products and services.
- Increase awareness of the company's corporate and consumer products and services.
- Develop products and services to suit customers' needs.

Although corporate and consumer units have a similar division structure, covering marketing, sales customer care, product development, etc., they are responsible for two different market segments: consumers, and corporate customers. This case study represents both units in a single study. These units provide market intelligence and information to other units: enabling them to reconfigure their resources. They develop products to match the current market status and future trends.

Two within-case study qualitative data analysis techniques are used: coding and causal network diagram. The following sections explore corporate and consumer units within the case study analysis process and results.

4.5.2 Coding results from Corporate and Consumer Units

4.5.2.1 Level-1 coding results

The researcher conducted a content analysis of the C&C case study data to remove unrelated data and identify new themes. 116 key statements are highlighted, and categorised based on thematic factors: resulting in 32 summary statements grouped into thematic factors. In the process of categorising the 116 statements into thematic factors, the researcher identified new emerging themes. Several statements had a strong emphasis on issues related to

Employee Engagement and *Job rotation*; these were identified as themes not addressed or explicitly explained in the literature review.

Managers engage and encourage their teams to produce new business ideas and be part of developing future plans. Their teams will believe in that future plan when it consists of their ideas. Managers should be engaged with their employees' activities and understand the basics and fundamentals of how the system functions. *"We deliver a very clear communication message because usually, the mistakes happen when the mission and vision are not clear to the employees, but if the employees themselves brings these ideas then the message will be very clear"* - Interviewee no.3, 2014 (C4-PE28).

Job rotation provides employees with an overview of everything in the organisation and enhances their capabilities. Managers in C&C believe that employees, especially at management level, must not stay in one place for more than three to four years. There are two types of rotation: vertical rotation between departments; or horizontal rotation within the same department.

"The company is adopting this type of practice on several staff levels such as managers, senior managerial and GM level. The rotation in the company is taking place every two or three years by rotating them across or within the units which help them to gain more experience and knowledge for example; engineers can use their knowledge and technical experiences to work as a salesman. However, the challenge is that sometimes if you allow some employees to leave the unit for rotation purpose, then the work can be affected because there is a limitation of skills and resources in the unit. Therefore, they do overlapping with newcomers by handing over the job, knowledge transfer and then within three to four months they are separated completely" - Interviewee no.3, 2014, (C4-PE29).

The analysis of these 32 summary statements enabled identification of 32 practices from empirical work related to the development, deployment and improvement of DCs. 3 related to sensing DC and were therefore excluded from the next stage of the analysis. These practices were coded with unique codes of C4-PE# as they emerged. The 29 C4-PEs considered for the next level of analysis are listed below in Table 4.8, and further explained in the narrative section by unique codes.

Table 4.8: 29 Practices from empirical work (C4-PE)

C4-PE #	Case study 4 - Practices from empirical work
C4-PE8	Learn from delegation, coaching and shadowing with senior staff
C4-PE7	Learn from vendors, conferences, and other external knowledge engagement practices
C4-PE6	Manage knowledge transferred from external experts
C4-PE5	Enhance absorptive capacity through knowledge management
C4-PE29	Implement job rotation
C4-PE9	Build business-critical capabilities internally
C4-PE10	Closely manage outsourcing of gaps in capability
C4-PE12	Managers mentor and influence on skills development
C4-PE13	Explore opportunities to exploit non-core capabilities under new markets conditions
C4-PE2	Continuous seizing market threats or opportunities
C4-PE21	Enable culture of new ideas to develop new products
C4-PE4	Drive innovation
C4-PE24	Exploit long-term experience, market knowhow, and network assets
C4-PE22	Assign product managers for each product to monitor product lifecycle
C4-PE19	Collaborate across functional units to develop new products
C4-PE20	Promote and launch new products
C4-PE3	Develop customised solutions
C4-PE1	Implement TRA rules and regulation for product development and reporting on active subscribers
C4-PE18	Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support
C4-PE11	Delegate decision-making processes and empower people
C4-PE14	Build a working environment that supports a culture of knowledge sharing
C4-PE15	Align salary schemes and employees benefits with appraisal system
C4-PE23	Manage transition to privatisation while maintaining market position
C4-PE28	Engage employees in the strategy formulation process
C4-PE16	Top management develop flexible long-term strategy
C4-PE17	Develop strategy and plans in line with organisational capabilities
C4-PE26	Implement long-term planning to save cost and to be proactive
C4-PE25	Implement unplanned planning to grab unplanned business opportunities
C4-PE27	Inform and advise consumers about emergency events

4.5.2.2 Second level coding results:

These 29 DRC practices (C4-PE) will be compared and contrasted with practices from theory (PT) listed in Table 4.2, then associated with the DRC lifecycle phase. This analysis identified 70 interrelations between C4-PE and PT (some C4-PEs address more than one PT).

Figure 4.14 below illustrates that 59.3% of practices within the C&C are related to the deployment phases of the DRC lifecycle, with 24.7% and 16.0% related to development and improvement respectively. This means that the C&C are conducting more deployment practices as part of their responsibilities. The researcher's interpretation summary report will provide more details on how this graph contributes to answering the research questions.

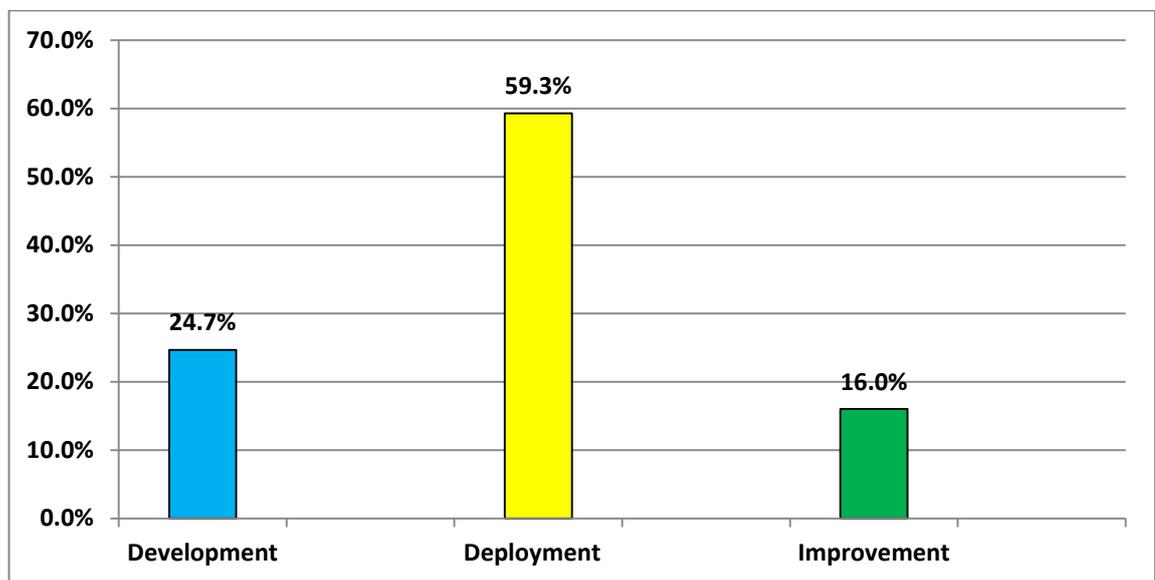


Figure 4.14: Frequency of C4-PE per DRC lifecycle phase

Figure 4.15 below illustrates the emphasis and interrelation between theoretical and empirical practices. The percentage figure represents the number of C4-PE (from the total of 70 in this case) related to each PT. This provides a view of the most frequent PT for the particular organisational function (C&C in this case).

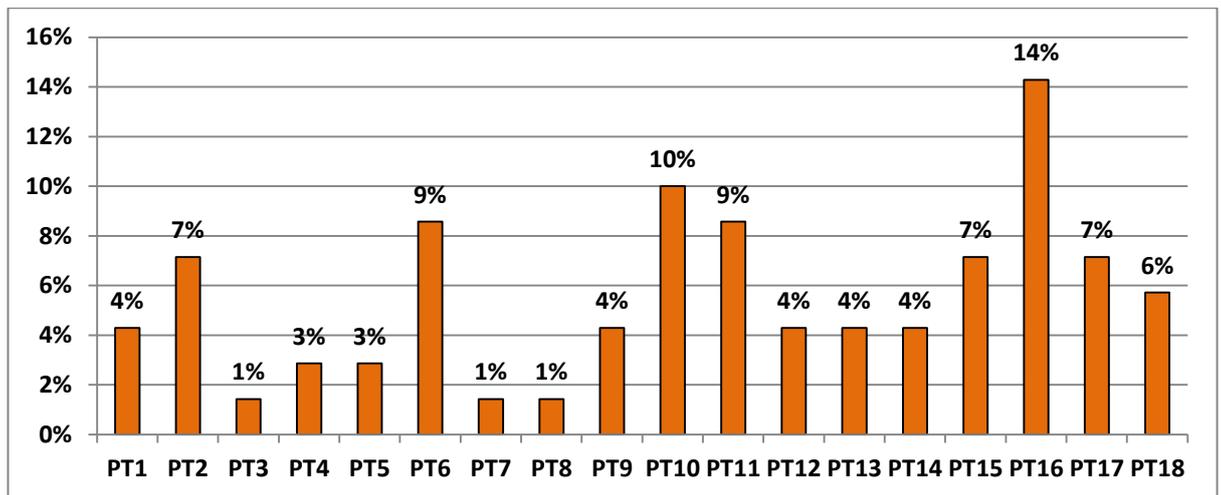


Figure 4.15: Frequency of interrelations between theoretical and empirical practices

The analysis revealed that **most frequent practices ($\leq 10\%$)** within the C&C related to: *Enable innovation (PT10)*, *focus on performance and profitability (PT16)* (representing 24% of total practices). These figures suggest that the C&C focus on analysing market data, developing new products and extending product lifecycles, to suit the market environment. Their roles are strategically important in terms of competing in the dynamic market, maintaining profits and generate new revenue streams.

Other practices: here we identify PEs that have a value of $\leq 5\%$; *Manage knowledge (PT2)*, *Build on managers' perceptions (PT6)*, *Develop and commercialise new products (PT11)*, *Enhance and shape organisational strategy (PT15)*, *Develop organisational approaches for continuous process improvement (PT17)*, *Enrich culture and social networking (PT18)*. These represent 45% of total practices.

Least frequent practice: *Build on experience (PT3)*, *Exploit IT and other complementary assets (PT7)*, *Provide options to decision makers (PT8)*. These represent 3% of total practices.

4.5.3 Causal network diagram

Tables in Appendix (6) compare and contrast DRC practices from theory (PT) with those from empirical work (C4-PE), based on the research question. The causal network diagram identifies patterns and relationship between the 29 DRC practices (C4-PE). This will enable the researcher to provide an explanation which helps answer the RQs. The causal map in Figure 4.16 shows all C4-PE; is colour-coded based on the lifecycle phase, and numbered with associated PT.

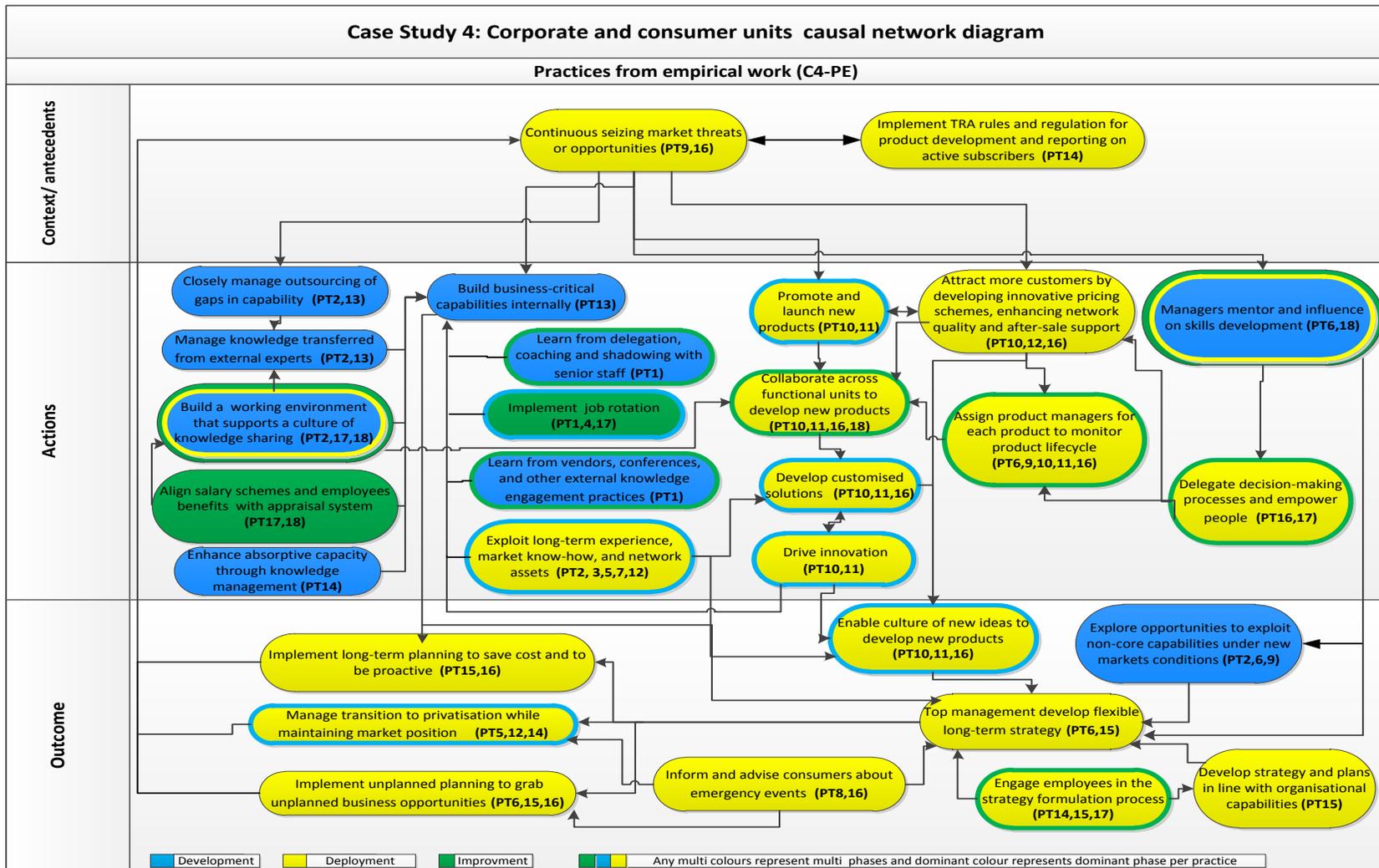


Figure 4.16: Corporate and consumer units' causal network diagram

4.5.4 Researcher's interpretation

Corporate and consumer units focus mainly on developing new products and providing market intelligence to other units. The aim of this narrative is to discuss the qualitative data findings and answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

Tables in Appendix (6) summarise the results of this case study and show the C4-PE (and corresponding PT) in relation to the DRC lifecycle stages.

Development

The C&C develop and enhance internal capabilities by learning from delegation, coaching, job rotation, and shadowing senior staff. All new employees are engaged in a very detailed coaching exercise for the first six months, and have no work delegated to them. They will be involved in projects with senior staff who mentor them; with coaching reduced and delegation increased gradually. *“The best way to learn is to let them do things to gain experience. If you work on real projects which you can take some challenges and you are able to deliver output to the clients, then it means that your internal capabilities are improved. Once we feel you reached a level where you can fly alone, then we delegate the work to you. Afterwards, we reduce the level of coaching and we increase the level of delegation”* - Interviewee no.3, 2014 (C4-PE8).

These units encourage their staff to attend conferences, learn from vendors and other international operators' experience: so enhancing their skills. They periodically ask their vendors to present current and future market trends from a technological perspective; and consider what is already present in the company's networks (C4-PE7). This means they can plan for additional features and benefits which can be built from these existing networks. Product development and innovation processes increase employees' knowledge and experience. This enhances their absorptive capacity to build more capabilities: which will automatically allow them to move to the next level of their career plans. *“Employees may have ideas but they just lack the confidence, so motivation and providing them with all data in a proper absorbable manner will enhance their capabilities”* - Interviewee no 2, 2014 (C4-PE5).

Managers direct employees' capability development based on their perceptions and current market information (C4-PE12). However, the market might change rapidly, which may lead

capabilities to become irrelevant. Such capabilities will be considered in terms of obtaining new resources. *“It’s not a total loss because capabilities cannot be built in one or two days as it will take time. If you keep a gap between you and the market, then you will lose the market position”* - Interviewee no 2 2014 (C4-PE13).

This means that managers must be dynamic, to capture all market requirements well in advance. Technology is changing so rapidly that this involves a constant learning processes. *“In mobile, for example, there is not much time gap between 2G and 3G, and there is not much time gap between 3G and 4G. Now the technology is going to 5G so things are moving very fast and every time a new technology is introduced in the market there are new things that need to be learned. I believe more dynamism in the market will create an environment to learn more and to react quickly to the market conditions”* - Interviewee no 3, 2014 (C4-PE2, C4-PE7).

Deployment

C&C monitor market changes to plan for product promotion and launches. These are accompanied by various assumptions, which include: is this product going to be suitable for the market? Will it be accepted by the targeted segment? Is it the right product launch at the right time? *“The person who is managing a prepaid product (Hayyak product) is evaluating the market figures e.g. data predictions show that next month we will have lower numbers in terms of people adopting purchasing compared with this current month, so we need to put a promotion there”* - Interviewee no.2, 2014 (C4-PE2, C4-PE20).

To attract more customers and dominate the market, three major aspects should be focused on: network quality, after-sale support, and smart (not necessarily cheap) pricing. *“The company is investing a lot to enhance their network. It has a very big team responsible for after sales support, specific account manager assigned to each corporate client and account support sale manager assigned for the customers. We are also giving customers innovative pricing schemes and providing them with the tools to monitor their bills. So if you combine all these together you will dominate the market. Resources usually come from the organisation but skills come from staff, combining these rightly will get you good values”* - Interviewee no.3, 2014 (C4-PE18).

These units develop specific capabilities internally. They define capabilities and skills which impact on their business: such as market research and strategic development. These capabilities must be built within the company to control the business; outsourcing means giving up control, which is not recommended. They therefore recruit people with multiple

skills to fill identified gaps. *"We select people whose career must show some experience in both fields, technical and commercial. From our experience, we found that usually people who graduated as engineers or Bachelor of Science have more capabilities to capture customers' requirements and converted to the commercial part"* - Interviewee no.3, 2014 **(C4-PE9)**.

Additionally, they focus on capability strengths and identify gaps to be filled internally. If this cannot be done, it is outsourced externally: a normal practice for all telecoms companies. Outsourcing is managed via knowledge transfer, to enhance internal capabilities. *"Building a specific capability which does not exist in the organisation is also costly and probably will not be utilised after completing that specific project, so why should I spend so much money and bring this capability which will be lying in the corner? It will be more cost effective for me to outsource it. I'm sure you will find some good skills and capability in the market to be hired and let them be part of your team. Fast reaction in the dynamic market is important as building capabilities is a long process. You don't even need to tell the outsourced company to share their knowledge, the employees will learn and next time they will come to you saying that boss, don't outsource it again because we can do it by ourselves"* - Interviewee no.3, 2014 **(C4-PE10)**.

Consultancy companies come into play when they launch new products, such as youth plans. Their main role is to provide C&C with benchmark analysis based on their experiences with other operators. *"When we talk about systems, business rules and processes, then ideally there is a person who's specialised in that field internally, but when we are building something new then a consultant is required. We make sure that the consultants work with the team that is going to manage that product. The team should be involved from the day one to gain knowledge, so the capabilities are built in that process"* - Interviewee no.2, 2014 **(C4-PE6)**.

These units view product development and innovative telecommunications solutions as non-routine jobs which enhance their capability development. The rapidly changing market forces telecom operators to change their way of thinking and come up with competitive solutions and products. *"A thinking out of the box exercise will make you more skilled and experienced by time. As you deal with many different challenges, so your skills will be very sharp and you will gain a lot of experience. It will give you self-satisfaction and with time you will start feeling that you are a very valuable person to your organisation"* - Interviewee no.3, 2014 **(C4-PE4)**.

Innovation increases profits, as the company creates more customized solutions. Corporate customers renew their existing customised solution contracts, as they trust the company's capabilities. *"They gave us the period commitment but they renew their customised solution contract. We also found that once their business grows, then you will be the first choice for new services. We sometimes view the solution as a strategic entrance to that client. In one way it is a challenge, in the other way our company is growing much faster because the Average Revenue Per Unit (ARPU) profit level generated from the customized solution is much higher than gaining it from a single product"* - Interviewee no.3, 2014 (C4-PE3, C4-PE4).

The company used to be an incumbent and has considerable accumulated market data, covering customer requirements and behaviour. C&C exploit long-term experience to convert market data into information, and take a competitive lead. Experience, path, and accumulated data enable them to develop more capabilities. *"The competition will always enrich what you got and what you are going to do. The mindset and market strategy will be completely different, as the new competitor will change the whole working environment. The incumbent will build more capabilities because they have experience. Their network is more stable so they will add additional value to their networks. We are the fixed service provider and we are considered as the monopoly in terms of the services that we offer. The competitor cannot offer these service because they don't have fixed network everywhere unless they decide to pull ADSL (Asymmetric Digital Subscriber Line) connectivity and fibre around"* - Interviewee no.2, 2014 (C4-PE24).

On the other hand, the incumbent has some drawbacks: such as change resistance and privatisation challenges. Changes in the business environment have a major impact on the incumbent's ability to manage change resistance when compared to the newcomer. *"Some people don't like change, especially deadwood: people who have rusted for a long time in the company... and now the company is moving from incumbent to privatisation in order to compete in the market, so this is a huge change in their life"* - Interviewee no.3, 2014 (C4-PE23).

Managers in these units believe that the top management team must develop the strategy. This team should have the capabilities to forecast market trends, and the vision to predict market conditions for the upcoming three or four years. *"They must not be rigid in their thinking, as the strategy is considered at planning level and they have to build a flexible strategy"* - Direct observation, 2014.

Their thinking must be dynamic and willing to explore new areas. It is very rare to find a top management team with the combined capabilities of sensing, seizing and reconfiguration: the main pillars of strategy building **(C4-PE16)**. Thus, most successful leaders are surrounded by smart people, and keep engaging their employees in strategy development. *“Before they start building the strategy, the top management have to know their strength, resources, assets, and the market condition. You will not find any person who can do everything but you will find employees who are smarter than you as a leader. So leaders need to select smart people around them because they will advise them in resources reconfiguration, market analysis and they will tell them what is the right thing to do”* - Interviewee no.3, 2014 **(C4-PE28)**.

To define a strategy in the dynamic market, analysis is required to provide the right information: which will lead to the development of a clear vision and mission. It is not difficult to develop the right strategy; but the main challenge is implementing this across the organisation. Many companies failed to do so, even when the strategy is correct. *“90% of the companies fail not because of they don't have the right strategy but they are unable to implement their strategy. So implementing the strategy is a challenge and leaders should have capabilities to implement the right vision and mission across the organisation. To be successful you need to own very good capabilities and skills in the implementation stage”* - Interviewee no.3, 2014 **(C4-PE17)**.

Improvement

C&C perform marketing assessment for every new product before launching it. They evaluate current market conditions and the success rate of particular products. They also promote any new product and monitor market changes on a daily basis as a continuous process **(C4-PE2)**. Each product must have an owner which manages its stream and lifecycle. Product managers are involved in its lifecycle from the formulation stage. Thereafter, they monitor how it performs, how to enhance it if it is not performing well, and when to promote it to increase revenue. Product lifecycles vary considerably, as market perceptions are what drive its launch. Thus a product lifecycle monitoring culture is necessary for continuous improvement. *“When we came up with a new tariff plan, the product's price automatically dropped because in those days the company had expensive Hayyak (prepaid mobile product). Then, Nawras launched their Mousbak prepaid plans, so we dropped our price plan again to match it as we were flexible. It was coming to the price war then the TRA had to step up to make sure that there was no price war”* - Interviewee no.2, 2014 **(C4-PE22)**.

Strong culture and open communication allow knowledge sharing and the development of more capabilities. Fixed and mobile services merged together as one company, with all employees shifting into a single building for easy communication and flexible processes. *“Corporate and consumers units leverage and communicate with other units and expertise to facilitate strategy implementation processes”* - Direct observation 2014.

Facilities were put in place to ensure that employees were working in a good environment. It was easy to build a culture of open ideas and networking to enhance knowledge sharing and capability development. This facilitated more communication between departments and business units, especially commercial and technical units. *“You spend more time here than at home, so it was a major step for them to make sure that there was community culture established. From what I have seen to date, you have the doors open, so that culture of being approachable allows people to share knowledge and ideas which will enhance their capabilities”* - Interviewee no.2, 2014 **(C4-PE21)**.

Organisational context and structure also enhance capability development. From the organisational perspective, the company improved salaries and benefit structures, and created a comprehensive staff appraisal. *“These processes impact positively on employees as they start to trust more in the company”* - Direct observation 2014.

A different type of process was adopted: allowing staff to grow and improve their skills, and generating more value for the company and themselves. This automatically creates a dynamic environment which can easily cope with changes in the market **(C4-PE15)**.

There is a demarcation between customised solutions and products; products are usually sought by a large segment of customers who share the same needs, and the price must be approved by the TRA, which regulates all products. Customized solutions, though, are intended for a small segment of clients with special needs; if TRA approval is not forthcoming, a mutual agreement can be made between the company and a particular party **(C4-PE1)**. Product development requires much collaboration with other units, i.e. network and technology for technical solutions; finance for financial approval; regulatory for TRA approval, etc. *“We as marketers don’t necessarily have technical expertise in certain areas so we do cross function practice. We need to leverage our relationships with other units and expertise”* - Interviewee no.2, 2014 **(C4-PE19)**.

Employees meet with network units very frequently to update their knowledge of new technologies and learn new approaches to mitigate technical challenges. *“POC (proof of concept) is used whenever we have some complex project. Consequently, we request the*

customer to allow us to do a proof of concepts, to test a customized solution. At the end, we are using some expertise internally and if not available internally then we involve vendors” - Interviewee no.1, 2014.

They also engage externally to learn about upcoming products in the market. Thus they arrange conferences, present webinars, and research benchmarking with other markets and operators in terms of product promotion and launching **(C4-PE7)**.

The best organisations have fast processes, quick decision-makers, and assign the right person to the right position through the right process. The C&C expedite their processes to obtain more customers and build more capabilities internally. *“We tried to minimise the processes by having an authority matrix at a certain level to make sure things happen immediately. Compared with the last authority matrix in the company, the new one has reduced many processes, fasten the decision-making processes and empower people. This will satisfy our clients and investors and will increase our shareholders and profitability”* - Interviewee no.1, 2014 **(C4-PE11)**.

Managers understand which problems are facing their teams, so they engage with them before developing any marketing strategy. They have clear, transparent communication with their teams to explain the mission and vision clearly. They create a good working environment and challenge their teams to be more innovative. *“You are dealing with humans, you need to create a good working environment and also you need to put them under challenge so they can be inspired. You have to give them the resources, tools, information to ensure that they are able to produce 100%. If you create a good working environment with challenges, then they will automatically enhance their skills and they will be more dynamic”* - Interviewee no 3, 2014 **(C4-PE14)**.

At quarterly meetings, management invite employees from different areas of the organisation to speak about their experiences and new ideas. Such is the culture of open ideas, any employee can come up with them; a team will analyse whether these will suit the market. These ideas might become new products: which will enhance performance, organisational image and profitability. *“Whenever employees develop a new product, then they learn something new about the market and enhance their own capabilities”* - Direct observation 2014.

“Employees have their ear to the market and they should understand any product better than me. They understand what can be done based on the system and market condition, so we know they can enhance the product by adding a new layer on it. For example, there’s one

idea that was pretty controversial but the guy who brought it, he was really believed in that idea, and his beliefs were based on his understanding of how the market is shaped. So it will pick up and we will be able to generate money out of it. The decision that we were going to agree with the idea and the floor was open for him. Producing a product enhances your capabilities and your team's capabilities to be more dynamic” - Interviewee no 2, 2014 (C4-PE21).

RQ2: How do DRC support the concurrent approaches to strategy deployment?

The Table in Appendix (6) summarises the results of this case study and shows the relevance of C4-PE (and corresponding PT) in support of concurrent approaches to strategy deployment. These C4-PE / PT are aligned to those relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not those of development and improvement).

Planned approach

The C&C act proactively in the market; in some cases, defining client requirements in advance. *“They create solutions which can capture not only the fixed or mobile services but both services as integrated solution” - Direct observations, 2014.*

All these types of requirements are combined as a customized solution, before clients are approached in order to pre-sell these ideas (C4-PE2, C4-PE3, C4-PE26).

Long term planning will save costs, enabling efficiency and proactivity in the market, which will generate more revenue. *“If you need to do a proper technical assessment, then long term planning will give you more time to sit down with the technical team and understand different options. The person who's managing the product will understand that the product should go through a broker in which they will understand the technical points of how this product functions. Thus even when the product goes on the market they know how to address all the functions” - Interviewee no.2, 2014 (C4-PE26).*

Unplanned approach

The telecommunications market is changing rapidly and increasingly unpredictable. These units react to unpredictable market actions with unplanned planning. Although long term planning is more practical and cheaper, unplanned planning generates unpredictable new revenue streams and new products. To implement unplanned planning, continuous market analysis, business evaluation and assessments from different perspectives are required. *“If*

you assign an unplanned task to a senior person, you will find that person knows exactly what to do because of his built-up capability by experience compared to a junior person. Sometimes they need to exercise the unplanned planning to capture the opportunities in the market as the market cannot wait for long-term planning to build the required capabilities. We meet with the teams on regular basis to evaluate and assess where we have reached and what is happening. If we don't conduct this type of session within the company, then the targets might be missed. We don't wait until the gap becomes bigger between what we planned and what the current market is" - Interviewee no 2, 2014.

"They need to build their own capabilities which impact on their business but they also utilise external capabilities and resources to meet the unplanned planning and urgent opportunities" - Direct observation 2014 (C4-PE25).

The C&C deal with all complex customer requests. After receiving any such request, they form a small team within their unit, together with the pricing team. This team is only responsible for corporate clients' complex requests. They select employees with innovative capabilities to be part of their teams: which have a good understanding of technology and are willing to convert it into commerce. *"We have to make sure that what we are offering as a solution is in-line with our Telco license from the network and commercial side, and not breaching any clause in the license. For example, in some services, the TRA is not allowing us to regulate or to have exclusivity" - Interviewee no.3, 2014 (C4-PE1, C4-PE25).*

In a recent unplanned action, the TRA changed the definition of active subscribers: which will impact on the company. Therefore, the whole organisation - wholesale, finance, strategy, marketing, and corporate units - engaged on how to address and mitigate the TRA resolution with the minimum impact on its market share. *"We have to make sure that the competitors are engaged with the same framework of TRA which will require us to be very dynamic and move very quickly" - Interviewee no.2, 2014 (C4-PE1).*

The competitor entered the market with very innovative products. Consumers had never previously had a choice; but did not want to lose their numbers, which they considered as part of their identity, or face high switching costs. When mobile phone number portability was activated between the two operators by way of TRA direction (customers can switch between operators with the same mobile number), unpredictably, more people ported out from the company than ported in. This trend was reversed in 2012, because the company had better coverage of mobile networks; and almost 95% of fixed services in Oman. *"The company also has a brand equity which is a favourite of the community and some people*

believe in the company as part of the community. From customers' comments: I've been with the company for long and it is part of my community" - Interviewee no.2, 2014 (C4-PE1).

Emergency

This unit has minimal roles in cases of emergency; however, these are critical and could generate new business. Many corporate customers start with very low priced Service Level Agreements (SLAs), where they compromise on service protection. As a result, many SLAs are upgraded after emergency events. *"In the case of emergency events, this unit informs the corporate and consumers about the events. They also try to compensate affected customers and modify some corporate agreements to fit the new situations. In collaboration with the networks unit, they promote new ways of service protections and advise their corporate customers to upgrade their SLA e.g. from bronze (single link protection) to gold network protection (dual link protection)"* - Direct observation, 2014 (C4-PE27).

4.5.5 Case study summary

The case study shows that the practices embedded within the C&C function contribute to all phases of DRC, with a particular emphasis on deployment. The practices that display the greatest impact of DRC are: Enable innovation (PT10), and Focus on performance and profitability (PT16).

This case shows that C&C play an important role in all approaches to strategy deployment (planned, unplanned, and emergency). Key practices that support the concurrent strategy deployment process are: Continuous seizing market threats or opportunities (C4-PE2), Collaborate across functional units to develop new products (C4-PE19), Implement unplanned planning to grab unplanned business opportunities (C4-PE25), and Inform and advise consumers about emergency events (C4-PE27).

4.6 Case Study 5: Integrated Network & Technology Unit

4.6.1 Summary introduction

The Integrated Network & Technology unit (IN & T) is the largest unit in the company and consists of more than 60% of its total workforce. The IN & T provides cutting edge network services to fit business needs. Its key responsibilities include providing security for organisational information; planning, design, development, implementation, operation and maintenance of the network for fixed and mobile services; and service delivery.

The IN & T unit consists of five divisions, which play key roles in providing highly competitive and sophisticated telecommunication services to the company's customers. They facilitate smooth collaboration between business and technology, to ensure customer satisfaction. They influence and reconfigure the company's resources to meet the dynamic business environment. This case study covers four main divisions:

- Information Technology division deals with e-applications, IT software and hardware, billing systems, ERP (enterprise resources program), portals and other applications.
- Network planning and design division is responsible for providing the company's networks with the latest technology, designing customised solutions and developing a technology roadmap.
- Network deployment division implements network plans and reconfigures existing network resources to meet these new plans.
- Network operation and maintenance division (O&M) is responsible for network fault indication, performance monitoring, network optimisation, field maintenance, security management, diagnostic functions, quality of service (QoS), configuration, and user service management.

Two within-case study qualitative data analysis techniques are used: coding and causal network diagram. The following sections explore the Integrated Network & Technology unit within the case study analysis process and results.

4.6.2 Coding results from Integrated Network & Technology unit

4.6.2.1 Level-1 coding results:

The researcher conducted a content analysis of the IN & T unit case study data to remove unrelated data and identify new themes. 253 relevant statements are highlighted, and categorised based on thematic factors, resulting in 25 summary statements. In the process of categorising the 253 statements into thematic factors, the researcher identified new emerging themes. Several statements had a strong emphasis on issues related to *Employee Engagement* and *Job rotation*; these were identified as themes not addressed or explicitly explained in the literature review.

The top management *engages employees* and customers frequently to obtain information from both ends. This enables the company to build more capabilities, enhance its strategy and serve customers in better ways. Employee engagement promotes communication across different units, enriching the communication culture to the extent that it became a KPI for

the management team. *“Engaging more with your employees and customers will help you to identify problems and recommend solutions to enhance the strategy. The customers will give their feedback, and the employees will come up with proper products and services to fit the market”* - Interviewees no 3, 5, 10; 2014.

“They engage employees and customers in their technology roadmap. Customers will express their future requirements and their current challenges. The employee will propose some options to overcome these challenges and future enhancements. The strategy is not static, which can be tuned to fit any new inputs” - Direct Observation 2014 (C5-PE23).

Job rotation has been implemented recently by all units in the organisation. This enables them to become more knowledgeable, gain experience and be able to deal with multiple tasks. *“Job rotation is considered as a knowledge transfer process, where you take a guy who has been in one function for ten years and reached a point where he cannot add any more and rotate him to a different unit or division. It enables multi-angle thinking, enhance absorptive capacity and it is crucial for employees to sustain growth”* - Interviewees no 2, 6, 8; 2014 (C5-PE22).

The analysis of these 25 summary statements enabled the identification of 26 practices from empirical work related to the development, deployment and improvement of DCs. 3 were related to sensing DC and therefore excluded from the next stage of the analysis. These practices were coded with unique codes of C5-PE# as they emerged. The 23 C5-PEs considered for the next level of analysis are listed below in Table 4.9, and further explained in the narrative section by unique codes.

Table 4.9: 23 Practices from empirical work C5-PE

C5-PE#	Case study 5: Practices from empirical work
C5-PE3	Develop annual training plan
C5-PE4	Mitigate and overcome learning challenges
C5-PE22	Implement job rotation
C5-PE10	Coach and mentor employees
C5-PE5	Develop and maintain knowledge sharing database
C5-PE13	Enhance networking and communication
C5-PE1	Act in line with market trends and technology changes
C5-PE6	Design customised solutions for corporate customers with careful consideration of asset efficiency
C5-PE7	Develop in-house products and services
C5-PE2	Continuous improvement of network project management and operational processes
C5-PE12	Certify and standardise processes for continuous improvement
C5-PE11	Build flexibility in network operation processes
C5-PE8	Outsource capability gaps and manage outsource process
C5-PE9	Develop recruitment and secondment process
C5-PE14	Build on experience and historical path
C5-PE15	Manage resistance to change
C5-PE16	Continuous review and evaluation of capabilities in line with market position and strategy
C5-PE21	Continuous review and refinement of organisational strategy
C5-PE20	Align all resources, processes and employees with strategic direction
C5-PE23	Engage employees and customers to enhance strategy
C5-PE17	Develop long-term planning for better resources utilisation
C5-PE18	Deploy unplanned strategies to grab business opportunities and mitigate threats
C5-PE19	Respond to emergencies and consider lessons learned in the long-term plans

4.6.2.2 Second level coding results:

These 23 DRC practices from empirical work (C5-PE) will be compared and contrasted with practices from theory (PT) listed in Table 4.2; then associated with DRC lifecycle phases. This analysis identified 79 inter-relations between C5-PE and PT (some C5-PEs address more than one PT).

Figure 4.17 below illustrates that 53.3% of practices within the IN & T unit are related to deployment phases of the DRC lifecycle, with 29.9% and 16.8% related to development and improvement respectively. This means that the unit is conducting more deployment practices as part of its responsibilities. The researcher's interpretation summary report will provide more details on how this graph contributes to answering the research questions.

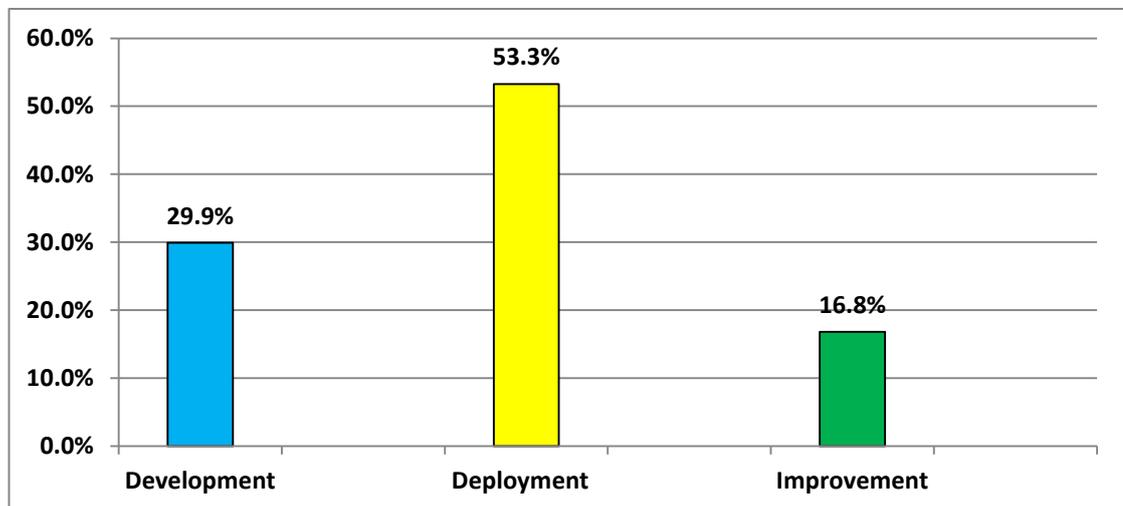


Figure 4.17: Frequency of practices per DRC lifecycle phase

Figure 4.18 below demonstrates emphasis and the interrelation between theoretical and empirical practices. The percentage figure represents the number of C5-PE (from the total of 79 in this case) related to each PT. It provides a view of the most frequent PT for the particular organisational function (Integrated Network & Technology unit in this case).

The analysis revealed that **most frequent practices ($\leq 10\%$)** within the IN&T related to: *focus on performance and profitability (PT16)*, *develop organisational approaches for continuous process improvement (PT17)* (representing 28% of total practices). These figures suggest that the IN & T unit focuses on driving technology to meet end user expectations. It frequently reconfigures the company's resources and processes to meet the dynamic business environment.

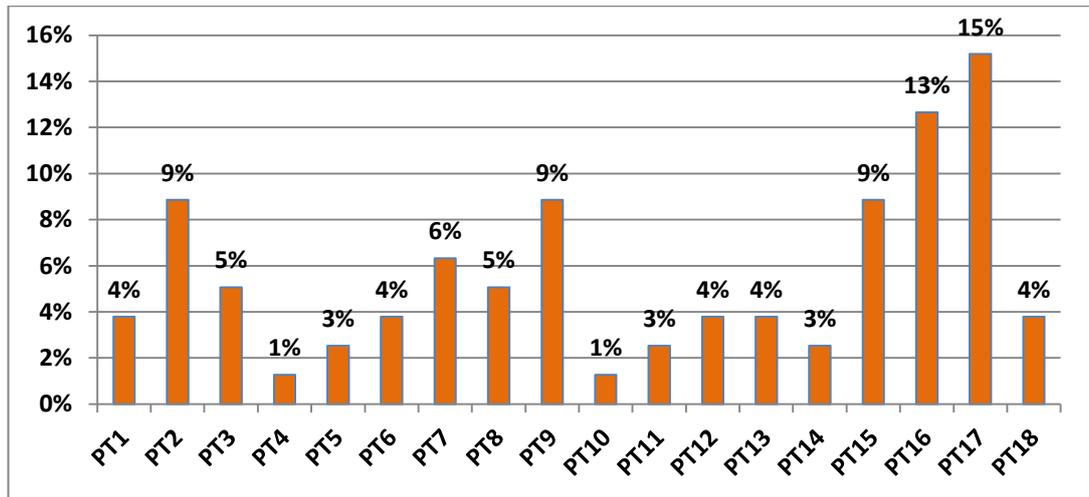


Figure 4.18: Frequency of interrelations between theoretical and empirical practices

Other practices: here we identify PEs that have a value of $\leq 5\%$: *Manage knowledge (PT2)*, *Build on experience (PT3)*, *Exploit IT and other complementary assets (PT7)*, *Provide options to decision makers (PT8)*, *Seize business opportunities or threats (PT9)*, *enhance and shape organisational strategy (PT15)*. These represent 43% of total practices.

Least frequent practice: *Exploit absorptive capacity (PT4)*, *Enable innovation (PT10)*. These represent 2% of total practices.

4.6.3 Causal network diagram

The tables in Appendix (7) compare and contrast DRC practices from theory (PT) with those from empirical work (C5-PE), based on the research question. The causal network diagram identifies patterns and the relationship between the 23 DRC practices (C5-PE). It will enable the researcher to provide an explanation which helps answer the research questions. The causal map in Figure 4.19 shows all C5-PE; is colour-coded based on the lifecycle phase, and numbered with associated PT.

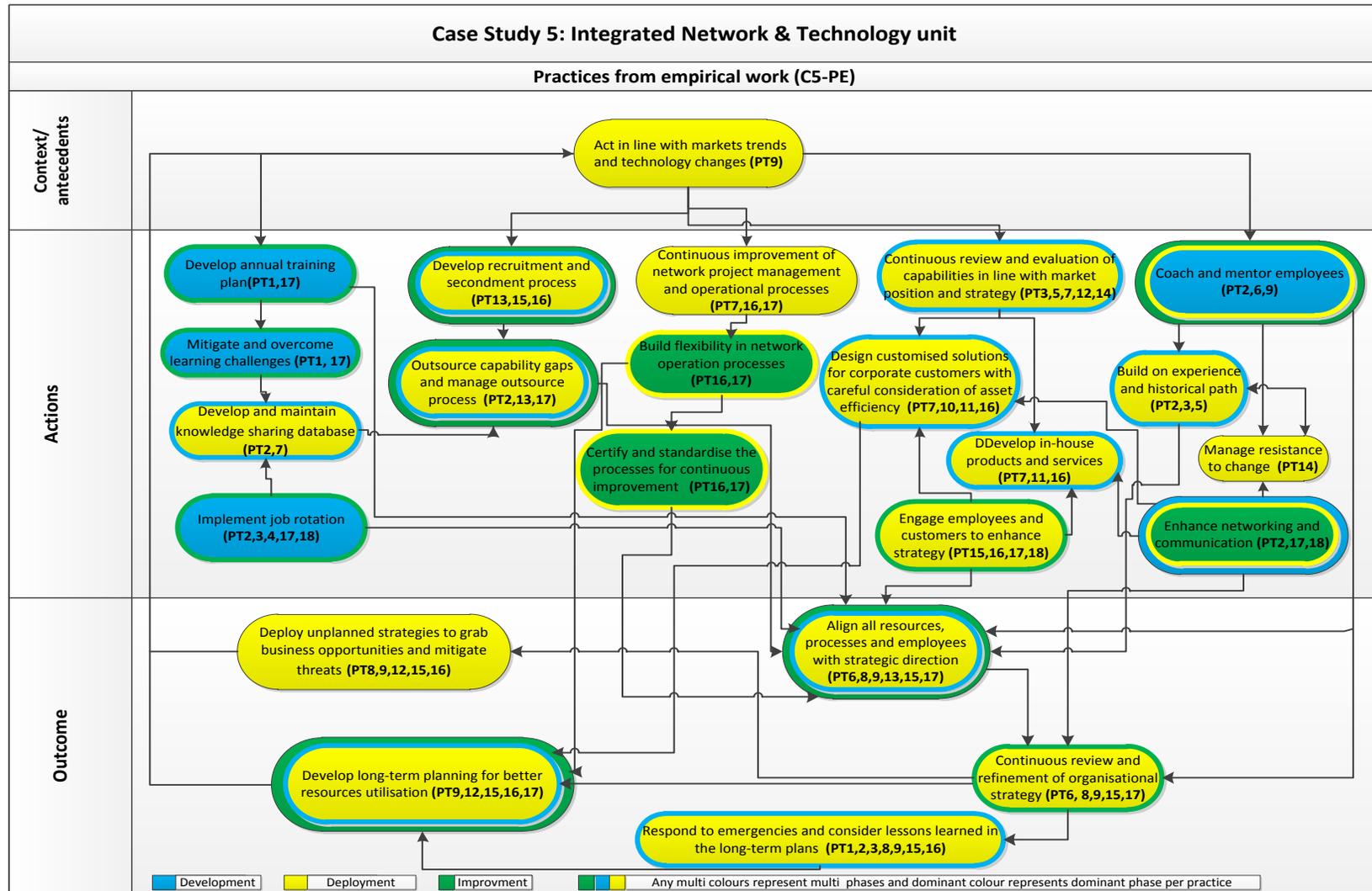


Figure 4.19: Integrated Network & Technology Unit causal network diagram

4.6.4 Researcher's interpretation

The Integrated Network & Technology unit (IN & T) aligns the latest technology with the whole company's vision and mission, and sustains service availability round the clock. The aim of this narrative is to discuss the qualitative data findings and answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

Tables in Appendix (7) summarise the results of this case study and show the C5-PE (and corresponding PT) in relation to the DRC lifecycle stages.

Development

The IN&T unit provides on the job training, conferences, workshops and professional certifications to their employees. They also develop an annual training plan for continuous learning processes. Newly recruited employees are involved in projects: exposing them to real work and challenges. One of the hands-on learning processes applied in the unit is proof of concept activities. *"We have training plans, where we take into account our existing and future technology requirements. We also expose our staff to know different kinds of problem-solving techniques, and we send them to different conferences to learn from other people's experience internationally. The best learning practices to overcome telecom challenges are to link them with the standards"* - Interviewees no. 2, 3,4,7,8, 11 2014, **(C5-PE3)**.

The unit has shared folders: anyone who attends a conference, workshop or has useful documents should share these in the folders. Knowledge is obtained from vendors during the project implementation phase. The Network Operation Centre (NOC) is another source of information: it automatically sends messages to the technical team, informing them of faults, network upgrades and events **(C5-PE5)**.

While the unit has training plans, it faces some challenges in implementing them. Training candidates often have poor English, yet most of the technical training is in English. Thus, candidates must be sent to study English language courses before receiving any training. Similarly, most IT training is software driven; the IT team struggles to cope with the changing pace. *"Some of them are facing problems as their English is poor. The main problem is most of the courses are in English. So, I have to send them for a six month*

English programme at the British Council before attending any technical training” - Interviewee no 9, 2014.

“The IT field is very dynamic as everything is software driven. We do training for many employees, but some of them have to take a personal interest to cope with the speed of change” - Interviewee no. 11, 2014 (C5-PE4).

Deployment

Technology is changing rapidly, and service providers are struggling to cope with new devices and applications. All new devices are independent of providers, but drive the market nowadays. The IN&T acts proactively by building network infrastructure to support the current circumstances and address future technological trends. *“Globally there is a shortage of IPv4 addresses (Internet Protocol version 4 addresses) and the ITU-T recommendation is to shift to IPv6 gradually. The IN&T is moving forward in that direction by installing equipment that is ready to work for both IPv4 and IPv6. The applications and devices like Apple and Samsung are independent of the service providers, and they are influencing a lot on the technology side compared with old days whereas the service provider was providing the service with telephone devices” - Interviewee no. 3, 2014 (C5-PE1).*

The access network (last mile cable connection to the subscriber) implementation team introduced new processes to enhance implementation performance. They created competition: rewarding the vendor and supervisor of the month. *“We have introduced a contest, and it was the first competition of its type in the Middle East. It is to appreciate a vendor as the vendor of the month. We have certain criteria to evaluate which include the number of installed customer cables, the cost of the project, project delivery time, accuracy, and then project closing phase. The supervisors who are looking after that vendor are appreciated as supervisors of the month. It was a very successful experience, and we enhanced the performance from 80 to around 96%” - Interviewee no. 8, 2014 (C5-PE2).*

The asymmetric digital subscriber line (ADSL) team revised its processes to address gaps and challenges. It managed to increase the number of ADSL connections per month and enhanced the performance and revenue of the whole company. *“We did a new process to address all gaps, which showed an excellent result. A success of that process boosted installation of ADSL lines from 2,000 to 9,000 per month, and now we are aiming for 12,000 ADSL lines per month” - Interviewee no. 8, 2014 (C5-PE2).*

The customer solution design team is responsible for designing customised solutions to meet corporate clients' requirements. They invent solutions to meet complex requirements and utilise network assets efficiently. *"We provide innovative solutions for ATMs and petrol stations in remote areas via a mobile network of 3G and 4G, or utilise mobile networks as a backup. We save on the physical copper lines, civil work and associated equipment"* - Interviewee no 5, 2014, **(C5-PE6)**.

They develop some items internally as in-house products to enhance the existing system or add new services to it. In some cases, vendors are involved: for example, Microsoft implemented web hosting with telephone sets for six exchanges; its first time in the Middle East. These products generate revenue and enhance the company's capabilities. *"A prepaid mobile service (Hayyak) initially was developed in-house, and it was not standardised. It generated revenue and then moved to a standard product. Similarly, for broadband, billing systems were developed in-house and then moved to a new system"* - Interviewee no 11, 2014 **(C5-PE7)**

Whenever there is a capability gap, they will try to fill it internally within the unit or across units. If not available internally, it will be outsourced externally, based on outsourcing processes. Vendors are first to be approached, as they know the existing networks and are up to date regarding technology. Outsourcing processes include knowledge transfer as the main element. *"If we cannot do it internally, then we will look for any employee who can help us from other divisions and departments. We always approach vendors, who normally tend to be on the better side of the technologies. We outsource some tasks, but at the same time, we engage our staff to work with them. Many companies failed in outsourcing because they did not have internal frameworks, processes and procedures"* - Interviewees no. 3, 7, 8; 2014 **(C5-PE8)**.

This unit has another outsourcing strategy: short-term recruitment and secondment. This is cheaper than outsourcing the whole task. In some cases, employees of the outsourced company will be recruited internally. *"If it is a new solution then we have to outsource it to a company, but not fully outsourcing as we take a secondment of somebody who is experienced for a couple of years. A worst case scenario was in the billing system; we had a contract for almost ten years where we are not able to build the required capabilities internally. In the end, we recruited the outsourced resources internally because it was cheaper for us to have them as full-time employees in the company than outsourcing"* - Interviewee no 11, 2014 **(C5-PE9)**.

Managers in this unit believe that management skills are essential in enhancing capability development. Some of these skills include: innovativeness, risk taking, excellent communication, teaching skills, knowledge sharing, and understanding employees' requirements **(C5-PE10)**. They also introduced KPI, and a traffic light system for project management teams. The change of direction in developing capabilities due to market changes is considered a lesson learned, and the gaining of extra knowledge. *"I was heavily involved with the team during discussions when we had to buy the spectrum license for WiMAX. However, it saved us from deploying WiMAX which was not matured yet. Instead, we deployed LTE later on. At least we did not spend that money on WiMAX"* - Interviewee no. 4, 2014.

"If there's a change in direction at the end it is still knowledge that we learnt. We have learnt something in that area, so it will not be a waste. We can use it again in the future when we might need to go into that direction again" - Interviewee no. 11, 2014 **(C5-PE10)**.

Processes in this unit are developed and frequently updated to match the market situation. Managers argue that the process is rigid and cannot be dynamic; however, how to adapt and affect the process is considered dynamic. *"There is no point in introducing a process if you behave dynamically in the process. However, the day I introduce the process you will become dynamic in implement it in whatever way you want. The dynamic is what affects the process and how do you adopt that process?"* - Interviewee no 4, 2014.

"The most important is to reach the aim without fully compromising the processes. Therefore, they develop flexible processes which can be adjusted or amended with justifications to fit the business environment" - Direct Observation 2014, **(C5-PE11)**.

The IN&T unit builds its capabilities through experience, historical ways of doing things and knowledge gained previously. They consider these clear strengths when compared to newcomers **(C5-PE14)**. Yet this could also lead to resistance to change. The incumbent must manage the external business environment and internal resistance to change; whereas newcomers start with updated, newly recruited resources **(C5-PE15)**.

"We are utilising our experiences as our strengths, which differentiate between incumbents and a newcomer. The incumbent has to deal with the external market and with his internal workforce. They try to make them dynamic and moving away from the governmental ways of management. Initially, people resistance to change, and they want to stay in a comfort zone. The idea is to continue educating them, and then they will hopefully see the benefits in the long term" - Interviewees no. 3, 4, 5, 7; 2014 **(C5-PE12, C5-PE15)**.

This unit believes in developing a flexible, long-term strategy: which identifies risks, opportunities and interdependencies. It is important to have an organisational structure which supports continuous adjustments to the long term strategy. *“Having a dynamic organisational culture especially at higher management level has a huge benefit for the strategy development even if the strategy is semi-static. If managers are rigid, then they might be able only to evaluate the short-term reflection in their strategy. Likewise, if you do not have the required capability, then you might see a very narrow path to the goal and struggle so much with operational issues. On the other hand, it sounds contradictory to say that long-term strategy requires dynamic thinking. Therefore, the more dynamic your organisational structure can be, the more you can determine the extent of the zig-zag path between now and the future. Taking into consideration all of these factors to design a mission and vision for your company which can accommodate deviations from the norm?”* - Interviewees no 3, 4, 8; 2014.

“The top management meetings are structured in a way that they can call engineers or any employees with knowledge to seek their opinion to determine the path ahead before making any decision” - Direct Observation, 2014 (C5-PE21).

Improvement

This unit certifies some of its processes with standards, e.g. ISO certification. This helps identify capability gaps, secure more customers’ trust, mitigate risks and enhance continuous improvement processes. *“We engaged with a local company who are associated with the ISO certification to certify certain processes in the company. We certify these processes, and it impacted positively on our team’s career because they work with ISO certified processes now. It also affects our share price positively as the customers become more confident with products, which are ISO certified. ISO helped me a lot to identify the capability gap and kill it”* - Interviewee no. 10, 2014; (C5-PE12).

Social networking and communication eliminates barriers between divisions in this unit or across units. Project managers rely greatly on networking to get their projects delivered. It also enhances knowledge sharing, which enables skill development. *“The networking inside the organisation has an opportunity to enhance our team capability specifically project manager, as they deal with a broad range of stakeholders”* - Interviewee no. 4, 2014 (C5-PE13).

The company has the broadest mobile coverage and infrastructure in the country. It also owns huge resources, both human and networks, accumulated over 45 years in the field. As

a national company, it is favoured by customers and employees: who want to be part of its family. It is one of the largest companies on the Muscat Stock Exchange. Therefore, this unit keeps developing capabilities to maintain this infrastructure, compete and sustain its market position. *“The company has the largest and widest coverage in the country compared to our competitor who is still building up their resources. The company established around 64 outlets in a different region to reach their customers more easily. Everyone wants to work for our company as it is a leader in the country and we noticed that many people came back after he or she moved to our competitor. The customers are continuing to use our service as they trust the company”* - Interviewees no 2, 4, 5, 7, 8, 10; 2014 (C5-PE16).

The managers of this unit believe that top management must own the capabilities to develop an effective strategy. This should consist of continuous development processes, to avoid capability rigidity. They also hire a consultant to support them in developing a strategy. *“The most important thing for the dynamic executive management team is to build a strategy that supports the development of capabilities. If your strategy does not support the development of capabilities, then today's capabilities will become tomorrow's legacy capabilities. We had a huge amount of help from consultants on cross-functional initiatives, e.g. job evaluation, and job titling”* - Interviewee no 4 2014 (C5-PE20).

RQ2: How do DRC support the concurrent approaches to strategy deployment?

The Table in Appendix (7) summarises the results of this case study and shows the relevance of C5-PE (and corresponding PT) in support of concurrent approaches to strategy deployment. These C5-PE / PT are aligned to those relevant to the deployment phase: as when it comes to strategy implementation, deployment practices are relevant (not those of development and improvement).

Planned approach

This unit develops long-term planning and a technology roadmap to address current and future requirements. Long-term planning will allow capabilities to be developed gradually and cost to be distributed over a longer period. The unit is committed to long-term contracts with vendors to manage the networks, business support and other services. This is more cost efficient and provides for better resource utilisation. *“Long term planning is more cost-effective because you build your capabilities gradually and distribute your costs among the planned period. It enables us to estimate the market requirements and deliver them properly. Technology roadmap helps us to sign long-term contracts with vendors e.g. security, billing*

systems, mailing solution and some of other business support systems as well like the ERP and the finance platform” - Interviewees no 1,3, 4, 6, 7, 9, 11; 2014.

“The long-term planning enables this unit to save costs a lot by negotiating better contract prices with vendors. They are also able to plan capabilities development programme in a very cost effect way” - Direct Observation, 2014 (C5-PE17).

Unplanned approach

Unplanned planning cannot be avoided in a dynamic market. This unit believes that it brings both threats and opportunities: it has to utilise resources in an expensive way to mitigate threats or seize business opportunities. Unpredicted opportunities from customer requirements also drive unplanned planning. Most of these requirements are in remote areas: especially oil field companies, which request satellite communication very frequently, and whose requirements cannot be predicted.

To manage unplanned activities in a cost-effective way, the unit outsources some of its services. *“Due to dynamic markets, you are forced to do the unplanned planning, and it cannot be avoided. A competitor may blow up something which you have to have the capability to deal with it immediately to save your business. To meet some of the customers’ unpredicted requirements, we have to outsource it to vendors. For example, we outsourced the VSAT solutions, and we have agreed with some specific contractors who are not even available in the region to provide such services” - Interviewee no 1, 3, 4, 6, 7, 8, 11; 2014 (C5-PE18).*

Emergency

This unit has the majority of the company’s workforce, and is the first to notice and react to emergencies. Routinely, it deals with faults, network provisioning and problem-solving. A Network Operation Centre (NOC) monitor the whole network’s elements. The NOC generates escalation reports via SMS and emails; the escalation process starts from the line manager and goes all the way up to CEO level, based on events and impact factors. *“In a preventive maintenance contract, the contractor will have a monitoring system connected to your network. If any incident happens they will send you SMS or email, e.g., we noticed a hard disk is going to fail after six hours, so their engineer will ask for permission to enter your data centre to fix it remotely” - Interviewee no. 11, 2014 (C5-PE19).*

In cases of emergency, an emergency response team, led by the Chief Operating Officer (COO) or CEO, evaluates all possible options on the spot. The team consists of employees

directly involved in the event, experts, vendors, or any employee who can add value. Emergencies could result from weather conditions, earthquakes, software bugs, or any unpredicted situation. Each emergency event is a unique situation and will impact the whole network to some extent.

However, some of these events generate extra revenue: for example, by providing emergency satellite links to some customers and neighbouring countries, and upgrading corporate customer protection from Bronze (single link) to Gold (dual link protection). The unit learns from emergencies, and turn these lessons into action in their long term plans. They also prioritise some projects to address emergency situations, in coordination with other units **(C5-PE19)**.

“In case of emergency events, they form a team of employees who has experience, knowledge, competence to think out of the box and vendors. The country had many floods in the last ten years and cut the fibre cables in many areas particularly in the water crossings. Therefore, they changed many specifications: such as the cable trench at the water crossing must be deeper with extra protection or horizontal drilling, and provide microwave links (wireless links) to protect sensitive services. All plans must include new specifications and modify the current networks. There was an earthquake in Mediterranean

Sea (West side) which caused to cut the submarine cable and isolate internet connection in many countries in the Middle East. The company was not affected as they have many backup routes from the Far East (East side) and they used these backup routes to sale a traffic to the affected neighbourhood countries on a daily basis” - Direct Observation, 2014 (C5-PE19).

4.6.5 Case study summary

The case study shows that the practices embedded within the Integrated Network & Technology Unit function contribute to all phases of DRC, with a particular emphasis on deployment. The practices displaying the largest impact of DRC are: focus on performance and profitability (PT16), and develop organisational approaches for continuous process improvement (PT17).

This case shows that the IN&T Unit plays an important role in all approaches to strategy deployment (planned, unplanned, and emergency). Key practices which support the concurrent strategy deployment process are: Design customised solutions for corporate customers with careful consideration of asset efficiency (C5-PE6), Build flexibility in network operation processes (C5-PE11), Develop long-term planning for better resources

utilisation (C5-PE17), and Respond to emergencies and consider lessons learned in long-term plans (C5-PE19)

4.7 Chapter summary

This chapter has set out different types of qualitative data from five case studies. The analysis began with coding techniques: which organised and eliminated unrelated data, and identified a list of DRC empirical strategic practices per case. Causal network diagrams were used to identify patterns and the strategic relationship between DRC empirical practices.

New themes emerged from the within-case analysis which are not addressed or explicitly explained in the dynamic capabilities literature review. The researcher employed his interpretation to report and articulate the case study findings. The next chapter will discuss the cross-case analysis: which in turn, will further lead us towards clear answers to the research questions.

Chapter 5: Cross-Case Analysis and Empirical Findings

This chapter explains the cross-case analysis processes used to investigate this research project. The main purpose of the cross-case analysis is to search for patterns: thereby reducing researcher bias and minimising the probability of reaching false or premature conclusions (Eisenhardt, 1989). The key focus of qualitative research is not to enhance generalisability, but to strengthen understanding and explanation (Miles and Huberman, 1994). Therefore, the researcher explores similarities and differences across the case studies data. Tables, graphs and matrices are used to categorise data, taking into consideration emergent patterns and observations (Miles and Huberman, 1994).

5.1 Cross-case analysis results

The researcher used causal network diagram and coding tables derived from the DRC lifecycle framework to organise data in a sensible way and construct significance from individual case analysis. This helped establish initial insights; however, the main aim is to explore the theoretical categories across-case analysis by answering the research questions. Also, in within-case analysis, the researcher's interpretation report is structured to answer the research questions for each case individually.

The researcher created two types of comparison tables to analyse the cross-case data. The table in Appendix (9) is created to address the first research question. The table in Appendix (10) is created to address the second research question, which is divided into three sections: planned, unplanned and emergency approaches. The researcher grouped the identified patterns from each case by highlighting and assigning a unique number to each. These processes were applied to the HR case first; then compared with the rest of the cases to create a common patterns matrix. Thereafter, this common matrix was applied across all five cases to explore patterns which will enable the identification of empirical practices (PE).

5.1.1 Answers to Research Question 1: How are DRC developed, deployed and improved?

In the previous chapter, practices from empirical works (C#-PE#) of the individual case are mapped versus those from theory (PT#), derived from the DRC lifecycle framework. The

purpose here is to explore key practices from empirical works in terms of their degree of emphasis, and map them with associated phases in the DRC lifecycle.

Figure 5.1 indicates that all case studies display a similar pattern across DRC lifecycle phases. It also demonstrates that more practices are carried out within the deployment phase, compared to the development and improvement phases.

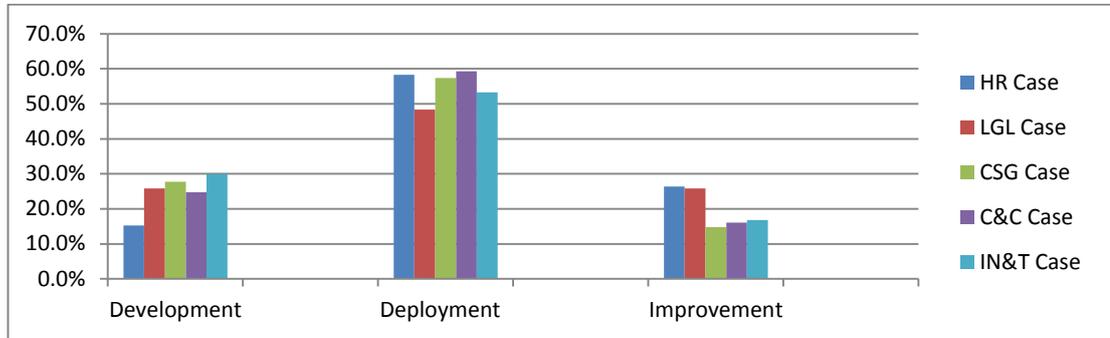


Figure 5.1: Empirical practices emphasis on DRC Lifecycle phases

Figure 5.2 demonstrates where each case has more emphasis, by presenting the frequency of the practices (see Appendix 8).

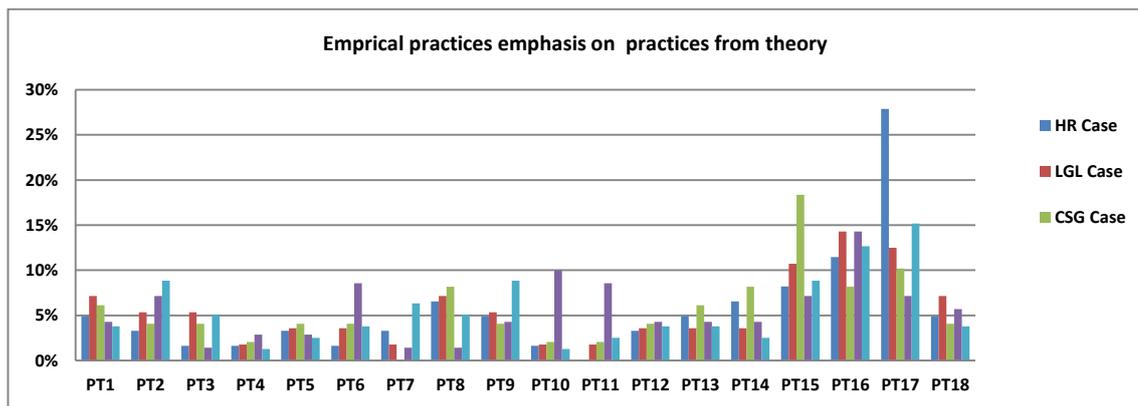


Figure 5.2: Empirical practices emphasis on practices

Figure 5.2 does not display a clear, common pattern across the five cases; however, four cases display a high emphasis (see the speck points) on some practices specifically related to their core functions. These emphases are placed on: Build on managers’ perceptions (PT6) in **C&C case**; Exploit IT and other complementary asset (PT7) and Seize business opportunities or threats (PT9) in **IN&T case**; Enable innovation (PT10) in **C&C case**; Develop and commercialise new products (PT11) in **C&C case**; Enhance and shape organisational strategy (PT15) in **CSG case**; and Develop organisational approaches for continuous process improvement (PT17) in **HR case**.

The table in Appendix (10) is converted into Table 5.1 to analyse the content across cases. The cross-case analysis highlights that in all five cases, more emphasis (medium or high

frequencies) is placed on: Enhance and shape organisational strategy (PT15), Focus on performance and profitability (PT16), and Develop organisational approaches for continuous process improvement (PT17). It also highlights other significant practices (medium or high frequencies) in at least three cases, which emphasise: Learn how to learn (PT1), Manage knowledge (PT2), Provide options to decision makers (PT8), Seize business opportunities or threats (PT9), and Enrich culture and social networking (PT18). Conversely, all five case studies have low (low frequencies) emphasis on: Exploit absorptive capacity (PT4), Build on path taken and history (PT5), and Maintain market position and assets (PT12). Some of these practices address more than one DRC lifecycle phase across-case. This indicates that these practices are not phase specific.

Table 5.1: Practice emphasis on DRC LC: within-case analysis

PT	Practises from theory	HR Case	LGL Case	CSG Case	C&C Case	IN&T Case	Cross cases emphasis
PT1	Learn how to learn	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	Practices from HR, LGL, and CSG emphasise more on PT1 at the development and improvement phases.
PT2	Manage knowledge	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	Practices from LGL, C&C and IN&T emphasise more on PT2 at the deployment (P, E) and development phases
PT3	Build on experience	LOW	MEDIUM	LOW	LOW	MEDIUM	Practices from LGL and IN&T emphasise more on PT3 at the deployment (P, U, E) and development phases
PT4	Exploit absorptive capacity	LOW	LOW	LOW	LOW	LOW	Low emphasis on PT4 from all cases
PT5	Build on path taken and history	LOW	LOW	LOW	LOW	LOW	Low emphasis on PT5 from all cases
PT6	Build on managers perceptions	LOW	LOW	LOW	MEDIUM	LOW	Practices from C&C emphasise more on PT6 at the deployment (P, U) and development phases
PT7	Exploit IT and other complementary asset	LOW	LOW	LOW	LOW	MEDIUM	Practices from IN&T emphasise more on PT7 at the deployment (P, U) and development phases
PT8	Provide options to decision makers	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	Practices from HR, LGL, CSG and IN&T emphasise more on PT8 at the deployment (P, U, E) phase
PT9	Seize business opportunities or threats	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	Practices from HR, LGL and IN&T emphasise more on PT9 at the deployment (P, U, E) and improvement phases
PT10	Enable innovation	LOW	LOW	LOW	HIGH	LOW	Practices from C&C emphasise more on PT10 at the deployment (P, U) and development phases
PT11	Develop and commercialise new products	LOW	LOW	LOW	MEDIUM	LOW	Practices from C&C emphasise more on PT11 at the deployment (P, U) and development phases
PT12	Maintain market position and assets	LOW	LOW	LOW	LOW	LOW	Low emphasis on PT12 from all cases
PT13	Obtain required capabilities in different ways	MEDIUM	LOW	MEDIUM	LOW	LOW	Practices from HR and CSG emphasise more on PT13 at the deployment (P, U, E) phase
PT14	Manage transformation and change	MEDIUM	LOW	MEDIUM	LOW	LOW	Practices from HR and CSG emphasise more on PT14 at the deployment (P) and development phases
PT15	Enhance and shape organisational strategy	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM	Practices from HR, LGL, CSG, C&C and IN&T emphasise more on PT15 at the development, deployment (P, U, E) and improvement phases
PT16	Focus on performance and profitability	HIGH	HIGH	MEDIUM	HIGH	HIGH	Practices from HR, LGL, CSG, C&C and IN&T emphasise more on PT16 at the deployment (P, U, E) and improvement phases
PT17	Develop organisational approaches for continuous process improvement	HIGH	HIGH	HIGH	MEDIUM	HIGH	Practices from HR, LGL, CSG, C&C and IN&T emphasise more on PT17 at the development, deployment (P) and improvement phases
PT18	Enrich culture and social networking	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	Practices from HR, LGL and C&C emphasise more on PT18 at the development, deployment (P) and improvement phases

LOW= Low emphasis on the DRC LFC (any Freq. of C#-PE# related to PT **lower** than 5%); **MEDIUM** = Medium emphasis on the DRC LFC (any Freq. of C#-PE# related to PT **greater or equal** to 5%)
HIGH= High emphasis on the DRC LFC (any Freq. of C#-PE# related to PT **greater or equal** to 10%); **P, U, and E**: Planned, Unplanned and Emergency practices at the deployment phase.

The next step in answering the first research question is to analyse the DRC lifecycle content from the researcher’s interpretation of the empirical data. The researcher analyses the content by searching for thematic patterns across cases in the DRC lifecycle phases of development, deployment and improvement. Practices from empirical works (PE) across cases emerged from this thematic pattern content analysis, as is shown in Appendix (9). New themes emerged from the within-case analysis with a strong emphasis on the DRC lifecycle. These are considered new practices emerging from empirical works (PE), because they were not addressed or explicitly explained in the dynamic capabilities literature review. Table 5.2 shows these new practices across five cases.

Table 5.2: New themes emerging from within-case analysis

Emergent themes from empirical data	HR Case	LGL Case	CSG Case	C&C Case	IN&T Case
People engagement	✓	✓		✓	✓
Job rotation		✓		✓	✓
Reward and recognition		✓	✓		
Branding	✓		✓		

Some practices were eliminated from the analysis as they were weak, and only briefly mentioned by one individual. That said, other useful practices were considered even if only mentioned by a single individual, as an interviewee’s particular role within the case gave a unique insight. Some practices from interviewees’ statements were not reliable enough to be included in the analysis, as they amounted to no more than throwaway comments.

The emerging new practices from within-case and pattern searching across-case analysis led to a definitive list of practices from empirical works (PE) which impact on the DRC lifecycle being identified. Some of these practices are specific to cases with high emphasis, so they were included in the list.

As a result of the above findings, the answer to the first research question is as follows:

All five case studies perform most of the practices in the DRC lifecycle with different degrees of emphasis (frequency from empirical practices), mainly in the deployment phase. DRC development, deployment and improvement in the telecommunications industry has a particular focus on the empirical practices (PE), illustrated in the following section:

PE1: Engagement in external knowledge sharing and building networks

In the five cases, managers encourage their employees to obtain external knowledge and build networks as part of their capability development process. This is achieved by attending and presenting at conferences, workshops and functional meetings; obtaining knowledge and best practice from consultants; and building networks, especially with other international telecommunication operators. *The addressed DRC lifecycle phase is development.*

PE2: On the job training, delegation, and exposure to new technologies

All cases highlight that on the job training, delegation and exposure to new technologies enhance capability development. Managers consider on the job training as a key process in developing capability, as it involves real work and exposes the employee to new technologies. They also delegate additional responsibilities: empowering their employees, enhancing their self-confidence and ability to cope with the dynamic market. *The addressed DRC lifecycle phases are: development and improvement.*

PE3: Management skills and perception influence on skill development

Managers direct their teams to develop capabilities based on their business perception and current market information. Management skills are essential to enhance and inspire capability development. Managers' perception might lead to non-core capabilities being developed, given that market conditions change very rapidly. Managers consider these capabilities as new skills: providing advantageous knowledge for the organisation, which can be exploited under new market conditions. *The addressed DRC lifecycle phases are: development and deployment.*

PE4: Learning how to learn and coaching

All cases view learning as a core element in capability development. Learning from innovation and product development increases employee capabilities. Proof of concept activities and new technology trials with vendors are useful and rare learning processes. Learning how to learn and develop competencies, and be ready for any changes, are the main challenges addressed in the cases. Management teams consciously coach their employees, and are taking more initiative in learning. Continuous learning is achieved through obtaining certification regularly, proofing of concepts, learning from mistakes, and how to figure out and contextualise responses. *The addressed DRC lifecycle phases are: development and improvement.*

PE5: Seize business opportunities or threats to enable being proactive

The cases highlight the importance of seizing business opportunities or threats to enhance a strategy in the dynamic market. Market changes are reported periodically to top

management, enabling it to make decisions and be proactive. *The addressed DRC lifecycle phases are: deployment and improvement.*

PE6: Exploit employee experience to enhance performance and manage change resistance

Interviewees noted the positive role played by experience and previously obtained knowledge in developing capabilities. Employees with long-time service utilise their experience to save costs and the time involved in doing trials. They also train new employees, share their knowledge and provide advice to the management team at the strategy development stage. Their participation and regular communication with top management minimises change resistance and mitigates obstacles at the implementation stage. *The addressed DRC lifecycle phases are: development and deployment.*

PE7: Build awareness of the link between individual roles and organisation brand

The HR and CSG cases highlighted that employees contribute to maintaining brand strength by developing their capabilities. They understand the importance of their roles matching brand expectation: which reflects their capabilities in the market. *The addressed DRC lifecycle phase is deployment.*

PE8: Outsource capability gaps and develop recruitment process

There is agreement in all cases that in a dynamic market, rapid reaction is important; but building the required capabilities is a long-time process. Therefore, these capabilities are outsourced: with processes mainly consisting of knowledge transfer. This may be required for only a short time. In parallel, people with multiple skills are recruited long term to fill the identified gaps. A competency framework is developed to support the recruitment process. *The addressed DRC lifecycle phase is deployment.*

PE9: Encourage innovation, product development and conduct trials for new products

Four out of five cases emphasised that, new innovative products generate revenue and enhance employee capabilities. Employees develop some products internally: enhancing the existing system or adding new services. They also conduct trials for new products, in collaboration with vendors. The C&C units assign product managers to manage product lifecycles; this entails marketing analysis, promotion and launching. The LGL unit works with internal departments and TRA in adopting new technologies, which can compensate for falls in other revenue streams. *The addressed DRC lifecycle phases are: development and deployment.*

PE10: Design customised solutions with careful consideration of asset efficiency

The C&C and IN&T cases show the importance of designing customised solutions to meet complex customer requirements in a dynamic market. The organisation generates high revenue via careful consideration of network asset efficiency. *The addressed DRC lifecycle phase is deployment.*

PE11: Improve processes and challenge the status quo

To avoid process rigidity, top management encourage their employees to challenge and change current processes. These changes can involve improving working styles or organisational productivity and performance. ERP is deployed to expedite the process and reduce the workforce. All units studied continually improve their capability development processes to adapt to the current market. Managers highlighted the importance of building a culture of challenging the status quo. Some of the activities carried out by way of continuous improvement include: career development and talent management programmes, enhanced salary schemes and other employee benefits, and certifying some processes, e.g. through ISO certification. *The addressed DRC lifecycle phases are deployment and improvement.*

PE12: Continuous review and refinement of organisational strategy

All cases highlighted that the strategy should be dynamic, flexible and responsive enough to the dynamic market. Top management reviews plans periodically with their teams. *The addressed DRC lifecycle phases are deployment and improvement.*

PE13: Build strategy in line with organisational capabilities and align all resources, processes and employees with strategic directions

Top management develop a general strategy based on SWOT and PESTAL analysis, and set the whole organisation's objectives in tandem with the company's vision and mission. They align all resources, processes and employees with strategic directions, and set KPI to execute strategy. *The addressed DRC lifecycle phase is deployment.*

PE14: Access to external expertise to support strategy development

The CSG unit seeks support from a consultant to develop and review the strategy. All telecommunication companies do this, as it entails external skills and knowhow. *The addressed DRC lifecycle phase is deployment.*

PE15: Engage employees and customers in strategy development.

The units discussed the importance of employee engagement at the beginning stage of strategy formulation, to build required capabilities. This enhances employee loyalty and connects them with the organisational values, vision, and mission, which will help generate a stable culture. Top management engages customers, to get information from both ends.

This helps identify problems and solutions. *The addressed DRC lifecycle phases are deployment and improvement.*

PE16: Encourage communication and create a culture of high-performance

Managers highlighted that strong culture and open communication enable knowledge sharing and the development of more capabilities. Top management regularly lead this type of communication across the country. Social networking, open ideas and knowledge sharing are activities of a high-performance culture, which encourage continuous development of capabilities. *The addressed DRC lifecycle phase is an improvement.*

P17: Implement Job rotation

Three cases highlighted that job rotation provides employees with an overview of many tasks: with the experience and knowledge obtained during this enhancing their capabilities. Job rotation, especially at management level, is implemented by these three units every two or three years as a continuous development process. *The addressed DRC lifecycle phase is an improvement.*

PE18: Reward and recognise the individual to build more capabilities

The LGL and CSG cases highlighted that rewarding and recognition encourage individuals to build more capabilities. They also explained the importance of building a culture which recognises high performing people, by linking the KPI in employee appraisals with a bonus system. *The addressed DRC lifecycle phase is an improvement.*

5.1.2 Answers to Research Question 2: How do DRC support the concurrent approaches to strategy deployment?

To answer the second research question, the researcher investigated the interpretation content across five cases. Following the same analysis steps as for the first research question, the researcher analysed the content by searching for thematic patterns across cases (Appendix 10). These across-case patterns led to empirical practices (PE) emerging from the empirical data being identified.

The analysis illustrates that all five cases deploy planned, unplanned and emergency approaches concurrently to support strategy deployment, with different empirical practices (PE) based on their core functions. These empirical practices (PE) emerge as answers to the second research question. Deploying concurrent approaches to support strategy deployment in the telecommunications sector has particular focus on the following empirical practices (PE):

Planned:

PE19: Build the required capabilities, utilise resources efficiently and enhance performance

All cases agree that long term planning is very effective in identifying gaps and developing required capabilities well in advance. This is more cost efficient, as capabilities can be developed gradually, and costs distributed over a longer period. It utilises the resources appropriately: achieving the targeted KPI and long-term strategic objectives. It also enables proactive action: in some cases, employees define the client requirements in advance, then they approach the client to pre-sell customised solutions.

P20: Build technology roadmap and sign long-term contracts with vendors

The IN&T and CSG cases show how they build a technology roadmap by mapping current and future services and technologies to meet strategic objectives. This means they can commit to long-term contracts with vendors to manage networks, business support and other services.

PE21: Develop employee performance programme

The HR case shows that the unit is responsible for developing a career development programme and job progression plans. They have created a talent management system, which has a full competency framework. The Individual Development Programme (IDP) is implemented across the units. Managers are responsible for their team's IDP, while employees monitor their competency development progress through ERP. A special programme for employees with long-time service has also been developed: which enhances their productivity and utilises their experience.

PE22: Implement rules and regulations

In the LGL case study, the division develops and implements long-term processes to maintain rules and regulations. These processes save the company from TRA penalties, maintain its reputation and enhance performance.

Unplanned

PE23: Build flexibility within the strategy planning process to implement unplanned strategies, grab business opportunities and mitigate threats

All cases concur that unplanned planning is needed and cannot be avoided. However, it can be done in a smaller context to mitigate risks and grab opportunities faster than what is offered by long-term planning and bureaucratic processes. Although unplanned planning

generates an unpredictable new revenue stream in most cases, continuous market analysis and business evaluation are required.

PE24: Analyse capability requirements to manage unplanned strategy and provide options to the decision makers

Three cases highlighted that unplanned planning is costly and sometimes distracts from long-term planning. To deploy unplanned activities, a team of employees, with a good understanding of technology and the willingness to convert it efficiently into commerce, is selected. Internal resources are utilised as far as possible before resource gaps are outsourced. Moreover, unplanned activities are considered new situations, and the management team will seek the best possible options. Thus it exploits their team's knowledge and experience to provide the best options with minimum negative impact. They also receive support from external experts.

PE25: Balance and link the deployment of unplanned strategies with long-term objectives

The IN&T and CSG cases emphasise the importance of balancing between setting long-term objectives; and allowing the organisation to implement unplanned planning to address unpredicted business opportunities. Managers also stressed linking unplanned plans and actions with longer term objectives.

Emergency

PE26: Respond to emergencies and consider lessons learned in long term plans

All cases demonstrated how they respond to emergency events based on their core functions. In cases of emergency, top management form an emergency response team. These events could be caused by weather conditions, earthquakes, software bugs, or any unpredicted situations. Each emergency is a unique situation and will have at least a degree of impact on the whole organisation: which learns from these and turn lessons into action in its long term plans.

PE27: Provide best possible options on how to manage emergency activities

The case studies highlighted that the CEO or VP lead emergency response teams in evaluating the best possible options on the spot. The teams generally rely on field engineers, as they are competent and knowledgeable enough to provide immediate solutions and options to decision-makers, with minimal negative impact on the organisation.

PE28: Adjust long term plans to fit new emergency situations

The IN&T and CSG cases highlight that in cases of emergency, the long-term strategy is realigned to fit emergency activities. Later, long term plans and designs are improved: to suit the new specifications emerging from emergency activities.

PE29: Provide extra service protection to corporate customers

The IN&T and C&C cases showed how emergency events generate extra revenue from corporate customers. Many upgrade their SLA (service level agreement) after emergency events: adding extra protection (e.g. satellite links) to their services.

PE30: Empower operational teams to reconfigure resources

The LGL case illustrated that managing emergency activities requires empowerment and authority for low-level management and employees. Although frequencies are regulated by the TRA to avoid any interference with other telecom operators, field engineers are empowered to change frequencies and restore services based on their best practice.

PE31: Build capacity to secure the required human resources and manage emergency activities

The HR case showed that in cases of emergency, it exploits its internal experience and abilities to identify the right capabilities, and hire individuals with these on an urgent basis for short-term contracts. They also increase working hours, suspend leave and off-days.

5.2 Chapter summary

The main objective of this chapter was to search for cross-case patterns: essential in enhancing the generalisability of conclusions drawn from the cases. The analysis identified a definitive list of practices from empirical works (PE), which impact on DRC lifecycle (thereby answering research question 1). All case studies have similar patterns across DRC lifecycle phases; some practices are not phase-specific. Finally, all five cases are deploying planned, unplanned and emergency approaches concurrently: to support strategy deployment with different empirical practices (PE) based on their core functions (thereby answering research question 2).

The next chapter is a research discussion which compares and contrasts the empirical findings with the current literature.

Chapter 6: Discussion

The previous chapter met the research objectives by providing answers to the research questions. This chapter will discuss findings emerging from the empirical data, and explain them under various themes. It refers back to the literature, to relate the findings to current knowledge: discussing how they confirm, extend or provide new insight not explicitly mentioned in the dynamic capabilities literature. The chapter also recaps the theoretical contributions of this thesis.

The main objective of this thesis is to theoretically and empirically contribute to the field of DRC in the telecommunications sector. Telecommunication operators are faced by rapid technological change, and struggling to manage and deploy planned, unplanned and emergency strategies concurrently. The dynamic capabilities approach provides a significant response to this critical question for both managers and researchers. The comprehensive findings of this research make an empirical contribution to enhancing the knowledge of how to manage and deploy these strategic approaches concurrently. They also explain how these DRC emerge.

6.1 Theoretical contributions related to DRC development, deployment and improvement

The findings confirm, extend and generate new insights about practices which support the development, deployment and improvement of DRC. Findings which confirm previous knowledge are related to the following practices: Engagement in external knowledge sharing and building networks (*PE1*), Management skills and perception influence on skill development (*PE3*), Learning how to learn and coaching (*PE4*), Outsourcing capability gaps and developing the recruitment process (*PE8*), Encouraging innovation, product development and conducting trials for new products (*PE9*), Improving processes and challenging the status quo (*PE11*), Building strategy in line with organisational capabilities and aligning all resources (*PE13*), Access to external expertise to support strategy development (*PE14*), Encouraging communication and create a culture of high-performance (*PE16*).

In addition, findings that extend previous knowledge in relation to the particular impact on DRC include: On the job training, delegation, and exposure to new technologies (*PE2*),

Seize business opportunities or threats to enable being proactive (*PE5*), Exploiting employee experience to enhance performance and manage change resistance (*PE6*), Designing customised solutions with careful consideration of asset efficiency (*PE10*), Continuous review and refinement of organisational strategy (*PE12*).

Finally, this research has identified practices not explicitly discussed in the literature, including: Building awareness of the link between individual roles and organisation brand (*PE7*), Engaging employees and customers in strategy development (*PE15*), Implementing Job rotation (*PE17*), Rewarding and recognising the individual in building more capabilities (*PE18*).

The following sections analyse these practices in more detail: contrasting them with the extant literature, so enabling elicitation of the research contribution.

6.1.1 Findings confirming previous literature

Learning is an important element in capabilities development, and considered a continuous development process (*PE4*). Learning how to learn and developing competencies to avoid capabilities becoming rigid are major concerns in a dynamic market. O'Reilly and Tushman (2008, p.200) agree that organisations have to learn how to learn, and invest in learning to avoid rigidity. Eisenhardt and Martin (2000, p.1112) suggest ways of learning, including prototyping repeated practice and learning from mistakes. The findings from this research confirm the literature in many ways: for example, proofing of concepts as prototyping, how to figure out and contextualise responses as repeated practice, and learning from mistakes. The findings also highlight the importance of collaborating with vendors to generate new technology and product trails in organisational networks. This type of learning process is very occasional and enhances competitive advantage. The findings support Zahra et al. (2006, p. 949): which encourages experimentation and trial-and-error learning when appropriate.

Managers in the case studies continually coach and guide their employees to obtain the best ways of learning (*PE4*). The research recommends investment in continuous learning, so an organisation can be ready for any change; rather than investing in a particular change. Teece et al. (1997), Zollo and Winter (2002), Winter (2003), Anand et al. (2009), and Zeng et al. (2017) argue that continuous learning enhances readiness for any change.

The findings underline the importance of knowledge management and the development of networks of professionals, which can enhance capability development (*PE1*). Employees engage in external knowledge sharing by attending conferences, workshops and meetings, and obtain best practice from consultants. They created a shared database, which includes all conferences attended and technological information. Sher and Lee (2004), Zollo and Winter (2002), Nieves and Haller (2014), and Eisenhardt and Martin (2000) suggest that knowledge creation and codification processes increase flexibility, as they depend on newly generated knowledge. Sher and Lee (2004) suggest that managing and maintaining knowledge requires IT: which can minimise risks of losing knowledge and reliance on a specific employee. Sharing knowledge with vendors and building professional networks with other telecommunication operators to update capabilities' knowledge is also important. Managing knowledge internally within the organisation and externally with alliances, e.g. suppliers, enhance organisation capabilities' development (Eisenhardt and Martin, 2000, Macpherson et al., 2004, Sher and Lee, 2004, Marsh and Stock, 2006, Teece, 2007, Hofmann et al., 2012). That said, the findings were not explored extensively in terms of the absorptive capacity role (Cohen and Levinthal, 1990, Zahra and George, 2002), as this could become mixed up with learning and knowledge management processes.

Managers' perceptions of the business environment were derived from their experiences and market information analyses: which influenced capability development and determined a path ahead (*PE3*). This corresponds with the argument that managers' perception of the business environment is an important element in deciding the necessity of developing capabilities (Augier and Teece, 2009, Ambrosini et al., 2009, Barrales-Molina et al., 2012, Helfat and Martin, 2015). This finding may help explain why some organisations develop irrelevant capabilities: as these are based on perceptions, whereas markets change very rapidly. As a result, they exploit these capabilities under new market conditions.

The units outsource some capabilities to fill identified gaps quickly or obtain temporary capabilities to cope with market conditions (*PE8*). It is more cost effective to outsource these gaps, as rapid reactions are required, and building capabilities is a long process. This concurs with the literature, which states that outsourcing is required for new market conditions to be adapted to quickly, and flexibility in responding to the business environment to be increased (Parente et al., 2011, Teece, 2007, Hofmann et al., 2012).

Another applied outsourcing strategy is that of short-term recruitment or secondment from vendors. This defines capabilities and skills critical to their business; these are built internally for reasons of control. They also balance between outsourcing and internally

building capabilities by following internal outsourcing processes, which mainly consist of knowledge management. In parallel with outsourcing, they developed a recruitment process supported by a complete competency framework. Capron and Mitchell (2009) suggest that processes of selecting internal and external capabilities are the key mechanisms which enable a firm to change its capabilities perspective and mitigate social challenges. Developing internal capabilities allows firms to exploit and protect internal knowledge, and get control of their business.

Innovation increases an organisation's readiness to deal with market change (**PE9**). The units encourage their employees to be innovative; enhancing their capabilities forms part of annual employee appraisals. Many authors consider innovation an essential element in developing dynamic capabilities and strategically dealing with market change: including Kyläheiko et al. (2002), Marsh and Stock (2003), Smart et al. (2007), Teece (2007), Wang and Ahmed (2007), O'Reilly and Tushman (2008), O'Connor (2008), Augier and Teece (2009), Ellonen et al. (2009), Barrales-Molina et al. (2012), Hofmann et al. (2012), Lichtenthaler (2012), and Vogel and Güttel (2012).

Innovation also sustains and generates new revenues for the organisation by developing new products (**PE9**). The IN&T and CSG units conduct trials of new products in collaboration with vendors, so their employees develop capabilities from this infrequent process of learning. After successful trials, some products are launched on the market. The C&C units assign product managers to manage the product lifecycle: which includes marketing analysis, promotion and product launching. These findings confirm the literature; new product development processes help firms develop dynamic capabilities and respond to market conditions (Newey and Zahra, 2009, Barrales-Molina et al., 2012, O'Connor, 2008, Wang and Ahmed, 2007).

The top management in the case studies encourage their employees to improve processes continually. These include challenging the status quo and developing individual skills to avoid rigidity (**PE11**). However, the CSG unit advises maintaining a balance between being static and implementing changes in organisational processes. The units continually enhance processes to adapt to market changes, current organisational context and culture: which reflects positively on their working environment, organisation productivity and performance. Eisenhardt and Martin (2000, p.1107) suggest that firms can survive if "the firm's processes that use resources, specifically the processes of integrating, reconfiguring, gaining and releasing resources to match and even create market change, as markets emerge, collide, split, evolve and die".

Teece (2007) suggests that organisations are no longer competing in the process but in terms of their ability to constantly improve processes. ERP and other IT applications are deployed to expedite the process, reduce the workforce, improve supply chains and manage knowledge databases. Parente et al. (2011), Sher and Lee (2004), Anand et al. (2009), and Augier and Teece (2009) suggest that dynamic capabilities enable IT as a complementary asset to improve processes, knowledge management, learning, dynamic supply chain management, etc.

Managers encourage their employees to challenge the status quo in the name of continuous improvement (*PE11*). They invite employees to quarterly management meetings as key speakers: where they talk about their experiences and discuss new ideas. The units implemented many activities for continuous improvement: IDP, career development and talent management programmes, enhanced salary schemes and other employee benefits. They also provide some processes, such as ISO, with certification: which helps identify capability gaps, gain more customers and mitigate risks well in advance. This confirms the literature's suggestion that continuous improvement processes create changes in operational capabilities; and facilitate the integration of current processes, learning of new processes and enhance organisational readiness for change (Teece et al., 1997, Zeng et al., 2017, Zollo and Winter, 2002, Winter, 2003, Anand et al., 2009).

Top management develops a general strategy with clear strategic directions, as per the company's vision and mission (*PE13*). This strategy is adjusted towards achieving the ultimate organisational objectives. Most important of these are to reach the strategic goals without completely compromising current processes. Strategic objectives are translated into SMART KPIs to align all resources, processes and employees with directions to reach the strategic goals. KPIs cascade down to the company's units, divisions and staff, and linked to a bonus system. Anand et al. (2009, p.449) suggests that "to achieve dynamic capabilities through operations, it is critical for organisations to translate their overall strategic direction into operational goals while allowing for flexibility to respond to changes in their operational environment". Teece (2007) also mentions that reconfiguration capabilities constantly align all strategic organisational operations to fit the current dynamic business environment, and manage transformation.

Teece (2014a) claims that to achieve good performance, the organisation should have strong capabilities of sensing, seizing and reconfiguration: required to build and implement its strategy. This is confirmed by the research findings: the CSG unit hires a consultant to fill the capabilities gap, develop and review the strategy (*PE14*). It is very rare for any

organisation to own all required capabilities, so it is important to seek external skills and know-how. Most telecommunications companies access external expertise; a practice followed globally.

The CEO leads a communication team across the country at the beginning of every year (*PE16*). Employees meet the team at workshops and business dinners. The team encourages open communication and discusses achievements and plans. This type of transparent communication minimises resistance to change and enhances employees' adaptation to market changes. Ambrosini and Bowman (2009), O'Reilly and Tushman (2008), and Teece (2007) argue that path dependencies and organisational history are not easy to break or change. Management abilities and skills are essential in overcoming these issues.

Adner and Helfat (2003) suggest that managers' relationships and networks allow them to access essential information needed to manage their human resources. Strong communication and social networking create a high-performance culture of knowledge sharing and open ideas for continuous improvement. Competition and market dynamism changes the organisational context, which drives the organisational culture to change. Firms with strong social networks and cultures are more likely to be successful in their business, especially in developing dynamic capabilities (Macpherson et al., 2004, Kuo-Feng et al., 2012, Bowman and Ambrosini, 2003, Augier and Teece, 2008, Anand et al., 2009, Fainshmidt and Frazier, 2016).

6.1.2 Findings extending previous literature

Managers deploy many ways of learning to develop their employees' capabilities, including on the job training, delegation and exposure to new technologies (*PE2*). They shadow any new employee with senior staff for the first six months, and gradually reduce coaching and increase delegation. Both this and empowerment increase employee capabilities and build self-confidence. These findings are not explicitly covered in the literature. However, they can be considered as an extended approach which classifies dynamic capabilities as firm's capacity "to learn how to learn" (O'Reilly and Tushman 2008, p.200).

Zollo and Winter (2002, p.344) argue that capabilities are developed from tacit experience of accumulation processes, combined with knowledge management. This is in line with the finding that experience combined with knowledge enhances capability development (*PE6*). On the other hand, long-term experience may hinder the pace of transformation, and create conflict and change resistance (O'Connor, 2008, Eisenhardt and Martin, 2000, King and Tucci, 2002, Zahra et al., 2006). The finding also highlighted ways to overcome these

challenges: utilising employees' experience to train others, saving time and cost by conducting trials, and providing advice to top management. This finding may extend the literature by explaining how the management team manages change resistance by exploiting long-term experience to enhance development and deployment approaches.

Corporate customers always require special, complex telecommunications solutions to fit their business demands (**PE10**). The cases showed how these requirements are met via collaboration between different business units, which come up with customised solutions. These are unique to particular corporate customers and considered a strategic entry to clients: generating a new revenue stream. Also, customised solutions processes are learned from, with network assets carefully utilised to meet these requirements.

The design of customised solutions with careful consideration of asset efficiency practices is not explored extensively in the literature. However, Sher and Lee (2004) suggest that dynamic capabilities are required for timely decisions to be made in developing new products to respond to market changes. Moreover, Ellonen et al. (2009) posit that, in the reconfiguration stage, it is useful to re-deploy and re-use existing assets whenever possible.

The strategy in the dynamic market must be flexible and adjustable (**PE12**). Teece (2014a), (2014b), Teece and Leih (2016), O'Reilly and Tushman (2008) hold that the role of management is vital in enhancing processes, so grasping business opportunities and adopting long-term ideas directed by strategy. The management team in the case studies review organisational plans periodically with their teams: adjusting long-term plans to match current market trends and acting proactively in the market. The SGS unit has a business intelligence department, responsible for collecting information from all units, monitoring market events and behaviour and reporting it periodically to top management to speedily seize business opportunities or threats in dynamic market (**PE5**). This shows overlapping between sensing and seizing practices, and in line with Teece's suggestion (2007, p.1343) that "Sensing activities need to be decentralised with the information rolling up to top management. Tight planning will be a part of seizing, but less so of sensing"

Accordingly, IN&T unit acts proactively by building network infrastructure to support current circumstances and addressing future technology trends. They also create an organisational structure and culture which continually supports the refinement of organisational strategy. The literature does not explain explicitly how to achieve flexibility in strategy and enable proactivity in the market. Thus these findings extended ideas from the literature.

6.1.3 New insights not explicitly deliberated in previous literature

Managers' job rotation between functional units is a core element in learning and developing managers' skills (*PE17*). It also transfers their knowledge to other units within the organisation. This job rotation facilitates multi-angle thinking and allows managers to deal with multiple tasks. This research also highlighted that all units implement job rotation periodically, as a continuous development and improvement process. This finding is highlighted in the HR and employee performance literature, which considers job rotation as a learning mechanism (Ortega, 2001). However, it is not explicitly addressed in the dynamic capabilities literature, as the issue with DC is lack of integration of different fields.

The research emphasised the positive role played by the organisation's brand in developing capabilities (*PE7*). The organisation under study maintains brand strength by developing employee capabilities and building brand awareness, which boosts employees' institutional belief in its work. They feel that they associate with the brand, contribute to maintaining it, and its brand value. For example, many people would like to work for Google, which has a culture and working environment which supports employees' capabilities: matching their brand expectations in delivering new innovative ideas to the market.

The organisation in this study keeps developing its capabilities and enhancing its working culture to match brand expectation. It also increases customer trust in the company's brand. The strong brand and market position is reflective of the correct dynamic reconfiguration capabilities being owned by the company. As evidence, the organisation rank as the number 1 brand in the country; number 33 in Middle East and Northern African (MENA) countries.

Many studies in marketing literature address brand roles in organisations, e.g brand research into non-consumer relations and their role in brand value creation (Jones 2005). However, it is not explicitly addressed in the dynamic capabilities literature, as the issue with DC is its lack of integration of different fields, such as marketing management.

The management team engage employees to be part of strategy development and decision-making processes (*PE15*). They advise the management based on their experience and lessons learnt from previous years' strategies. This mitigates risk at the implementation stage, minimises obstacles and enables the organisation to have a stable culture. Moreover, it boosts employees' loyalty and connects them with the values, vision, and mission. The HR unit established an employee engagement department to promote these types of engagements. Top management also engages customers to be part of strategy formulation. At this stage, the customer will share their plans; the organisation will identify the required

resources and address these plans in their strategy well in advance. This type of engagement maintains customer loyalty, satisfaction and a long term business relationship. C&C units encourage their teams to bring new business ideas and involve customers in being part of the business' plans. This is highlighted in the strategy literature (Mintzberg 2000), Mintzberg et al. 2005); but not explicitly addressed in the dynamic capabilities literature. The issue with DC is lack of integration of different fields.

Reward and recognition encourage the individual to build more capabilities and inspire others (*PEI18*). KPIs emerge from the organisational strategy and are included in the final year appraisal report. Staff evaluations are based on KPIs achievement, linked to the bonus system. This culture of recognising high-performing individuals impacts positively on the organisation's performance. For example, employees with innovative ideas will be regarded as exceeding the suggested KPI and rewarded more than others. It is also part of the company's vision to encourage employees to be more creative and innovative. This finding is highlighted in the HR, knowledge management and employee performance literature: including the impact of reward and recognition on job satisfaction and motivation (Danish and Usman, 2010); and organisational support for employees: encouraging creative ideas for environmental sustainability (Ramus, 2001). Again though, it is not explicitly addressed in the dynamic capabilities literature, as the issue with DC is a lack of integration of different fields.

6.2 Theoretical contributions related to concurrent approaches to support strategy deployment

This section discusses findings on the second research question:

RQ2: How do DRC support the concurrent approaches to strategy deployment?

Dynamic reconfiguration capabilities enable telecommunications service providers to deal with different strategic approaches in sustaining service continuity. The findings of this research extend understanding about practices which support planned, unplanned and emergency concurrent approaches to strategy deployment. Even though all types of companies might need to deal with three types of approaches, telecommunications service providers must plan for these as part of their business. Strategic deployment of concurrent approaches is not explicitly mentioned in the literature. Thus, the practices discussed in this section are considered as extended insights to the literature on the role of dynamic capabilities in strategy deployment.

Augier and Teece (2009), and Coen and Maritan (2011) suggest that dynamic capabilities' roots are generated in the strategic management field: demonstrating the importance of managing the resource allocation process during strategic renewal, and shaping long term resource stocks to sustain competitive advantage. Managerial orchestration is a key element in enhancing processes and grasping opportunities, which must be directed by a strategy; dynamic capabilities are stronger when the leadership is wiser (Teece, 2014a, 2014b, Teece et al., 2016).

These findings address the limitations of the Resource Base View (RBV) in terms of why competitive advantages in some firms are maintained even while business environments are changing very rapidly (Teece et al., 1997). The RBV breaks down when the market is at high velocity (Eisenhardt and Martin, 2000). The following section will analyse these practices in more detail.

6.2.1 Planned approaches

Long-term planning combined with strategy identifies capability gaps at the strategy development stage and enables the organisation to develop necessary future capabilities for requirements ahead (*PE19*). It also utilises organisational resources effectively, with financial resources distributed to match the plans. It optimises network resources and builds the required assets as per the plans to avoid technology becoming outdated. It enables the achievement of the targeted KPI and long-term strategic objectives. The C&C and IN&T units collect customers' requirements in advance and begin developing products or designing customised solutions for corporate clients; pre-selling these designs.

Bowman and Ambrosini (2003), Wang and Ahmed (2007), Augier and Teece (2009), Fainshmidt et al. (2016), and Ringov (2017) agree that when dynamic capabilities development is aligned with strategy, it can enhance firm performance, competitive advantage and profitability by providing more opportunities for long-term profitability. Sher and Lee (2004) and Eisenhardt and Martin (2000), moreover, identify that dynamic capabilities are located in the main processes of strategic management, and contain specific strategic processes such as product development, alliances and strategic decision-making - which enable the firm to survive in a dynamic market by transforming the resource base into new, value-creating strategies.

Network asset assessment, internal and external monitoring, and market analysis provide insights required to build a technology roadmap (*PE20*). This roadmap takes current network situations, capacities, optimisation parameters, utilisation, and future services

requirements into account, as per the strategic objectives. The CSG unit conducts analyses and, together with IN&T, develops the technology roadmap to align all business units with strategy. The roadmap also helps IN&T and other units to save cost and commit to long-term contracts with better prices: such as network maintenance, IT services and software license contracts. This extends Cetindamar et al. (2009)'s suggestion that technology selection should follow organisational decision-making processes: which take into consideration all strategically related aspects, such as strategic business objectives (Døving and Gooderham, 2008). It is important to align the technology with the whole business strategy.

All employees are required to implement assigned KPIs; the organisation will ensure they can achieve their KPIs (*PE21*). Therefore, each line manager should agree the required development with their employees at the beginning of each year, as part of the Individual Development Programme (IDP). The line managers have access to the ERP to monitor their employees' development progress. The HR unit developed a career development programme, which includes job progression procedures; and a talent management system with a full competency framework to support IDP and the career development programme. Again, this builds on the literature: dynamic capabilities investment is an essential long-term commitment; organisations should focus more on learning, which helps capabilities be more flexible to market changes (Rahmandad, 2012, Winter, 2003, Zollo and Winter, 2002).

Moreover, the HR unit developed a special five day programme for employees with long-term service, and the CEO attended. This programme aimed to keep them updated, motivated, engaged with plans, utilise their experience and increase their productivity. This echoes O'Reilly and Tushman (2008)'s explanation that the overall business vision and values allow longstanding employees to adopt long-term plans and share common understandings, regardless of their differences in terms of business strategies.

The organisational rules and regulations are included as part of the long-term plans (*PE22*). These regulations may require modification and adjustment to current and future parameters and network assets. Furthermore, the TRA imposes huge penalties for any mismanagement in the frequency spectrum, to avoid interference with other entities. Any such penalties will impact negatively on the organisation's financial records and reputation. The LGL department developed internal processes to audit the frequency spectrum, and avoid any risk of being penalised by the TRA or interfering with other operators.

The TRA issued a resolution to change the definition of active subscribers. This will reduce how the company defines active subscribers and affect its market share negatively.

Therefore, the LGL department engaged with other units to minimise the impact and mitigate it long term. The government is reviewing the market to introduce new operators, so the company has started preparing to deal with newcomers and adapt to the new business environment. This finding is very specific to telecommunications service providers, and not mentioned explicitly in the literature review. However, it could be considered as part of the organisational strategy literature in terms of adapting to market changes.

6.2.2 Unplanned approaches

Long-term plans are developed based on the information provided at that particular time: with flexibility to grab any unforeseen business opportunities and mitigate threats (*PE23*). The dynamism of the market creates unpredicted business opportunities, and the organisation deploys unplanned planning to seize them fast. Continuous market analysis and business evaluation are necessary before deploying any unplanned planning, and should be done in smaller contexts as required. C&C and IN&T units deal with all complex customer requests which are not off-shelf, to generate unpredictable new revenue streams and products.

The literature refers to problem solving but not how to grab unplanned business opportunities. Therefore, this finding builds on Teece (2014b)'s idea that problem-solving can be considered as a dynamic capabilities activity in a dynamic market; he cites an example of dynamic innovation processes as neither purely routinized nor ad-hoc processes. Likewise, Winter (2003) suggests that ad-hoc problem-solving cannot deliver long term sustainability or competitive advantage.

Managers deploy and manage the unplanned plans in a cost-effective way, and minimise the risk of diverting from long term plans (*PE24*). They form a team, consisting of engineers with a strong technical background, and employees from commercial departments with strong analytical skills. This team will conduct feasibility studies including strategic evaluation before deploying any unplanned plans. The team also evaluates how to utilise internal resources, e.g. network asset and HR, as much as possible, before deciding to outsource any resource gaps. In some cases, unpredicted business opportunities or threats are not feasible financially, but considered as strategic projects to be implemented.

The C&C units form a small team within their units: including a pricing team, which addresses the unplanned plans. The IN&T unit manage network resources to meet the unplanned plans with optimum cost. This finding is not explicitly referred to in the DC

literature review, but could be blended with organisational strategy or emergent strategies to adapt to market changes (Mintzberg, 2000).

The unpredictable business environment creates new situations which have never been considered at the planning stage (**PE24**). These will require scenario building, which can set out possible options. The management team will seek many possible options by utilising employees' knowledge and experiences. It will evaluate all options and consider the options which have minimum negative impact. This expands on Kyläheiko et al. (2002, p. 72)'s proposal that dynamic capabilities can provide management with real options: including relevant analytical information, which helps them be proactive and understand the market situation. He also recommends that in a high technology market, "it is necessary to exercise the real option and to invest immediately in path-dependent routines and capabilities".

In a dynamic market, unplanned business opportunities and threats cannot be avoided. However, strategic planning defines directions which need to be followed (**PE25**). Something may represent a short-term opportunity and benefit, but have a negative effect on long term organisational performance. The IN&T and CSG units recommend balancing between setting long-term objectives and allowing the organisation to implement unplanned planning. They also align unplanned plans with longer-term objectives. This finding explained how to seize unpredicted business opportunities and link them with long term plans. Agility theory illustrates the speed of seizing business opportunities, but fails to link these unplanned plans with long term plans (Doz and Kosonen, 2008, Doz and Kosonen, 2010, Dove, 1994).

6.2.3 Emergency approaches

Telecommunication service continuity is the main challenge for service operators (**PE26**). The networks are designed with protection and self-recovery. A network monitoring system is in place to prevent any failures; maintenance contracts are signed with vendors for continuous support. Emergency events might be beyond network capabilities and disturb services, regardless of the prevention and protection setups. These events could be new scenarios and impossible to avoid. Service disruptions might be caused by weather conditions, earthquakes, software bugs, or any unpredicted situations.

In cases of emergency, top management will form an emergency response team, which consists of knowledgeable employees from different units, depending on the nature of the emergency. They learn from emergencies and reflect this in their long-term plans. Each unit will have actions based on their core function: for example, CSG documents events to learn

from and consider them in long-term planning; C&C inform corporate customers and consumers about the events; IN&T is first to notice and react to field networks. This partially extends Sher and Lee (2004), and Eisenhardt and Martin (2000)'s suggestion that knowledge creation improves the flexibility of dynamic capabilities in reacting to changes. They rely on newly created, situation specific knowledge, combined with experience of similar situations (Nieves and Haller, 2014).

In cases of emergency, time factors are very important. Thus the CEO and VPs are part of the emergency response team, which evaluates all options and makes immediate decisions (**PE27**). These options emerge from field engineers: who are capable, knowledgeable, and supply immediate solutions and options to decision-makers. Also, they can manage emergency activities without compromising or affecting services. Senior employees are the main participants: they learned from previous emergencies and keep learning from the new one. This demonstrates clear lines of communication and interchange between different levels.

Krsto et al. (2003, p. 1013) define real options as “investments in physical and intangible resources that provide the firm with contingencies in an uncertain environment”. A web of assets, complex pool of resources, skills and capabilities (i.e. dynamic capabilities) provides real options for the management team to run their business amid the dynamic environment. Employees learn from these events and implement temporary solutions to expedite service delivery. Some lessons will be used to modify network design specifications, impacting current and future networks. These temporary solutions will be converted to projects, leading to the long-term projects list being re-organised (**PE28**). The CSG unit realigns the long-term strategy to counter such emergency activities. IN&T unit prioritises some projects to address the emergency and change specifications: say, the cable trench at the water crossing must be deeper than before, with extra protection. This finding overcomes the limitations of agility theory by explaining how to adjust long-term plans to fit new emergency situations or short-term plans.

Most corporate customers sign a Service Level Agreement (SLA) with basic service protection, to save costs. In cases of emergency, many services are affected; these customers ask to upgrade their SLA protection schemes to protect their businesses (**PE29**). Upgrading SLA protection schemes generates extra revenue for the organisation. During emergencies, C&C units advise corporate customers to upgrade their SLA from bronze (single link protection) to gold network protection (dual links protection) for service continuity. IN&T

unit provides emergency satellite links and upgrades corporate customer protection schemes. As the literature notes, when dynamic capabilities align with organisational strategy, it can enhance firm performance and competitive advantage (Wang and Ahmed, 2007), and provide more opportunities for long-run profitability (Bowman and Ambrosini, 2003, Augier and Teece, 2009).

The TRA regulates the frequency spectrum and all wireless equipment to avoid interference with other operators. Field engineers are up-to-date regarding frequency utilisations in their concession areas, and can change these frequencies and equipment in case of emergency without causing any interference. Thus the LGL division empowers operational teams to reconfigure resources in cases of emergency (*PE30*). After the emergency is over, the division will follow routine processes of frequency registration with the TRA, and update their internal records. This finding is very specific to telecommunications service operators; but may be regarded as building on the literature in terms of how knowledge management is useful in dealing with business uncertainties.

Emergency events are unique situations; an organisation may not have the required resources to deal with it. Therefore, the HR unit utilises its internal experience and abilities to find the right external capabilities, and hires them on an urgent, short-term basis until the emergency is over (*PE31*). They also manage internal resources by increasing working hours, suspending leave and off days, and compensating employees accordingly. Parente et al. (2011), Teece (2007), and Hofmann et al. (2012) agree that external capabilities may increase innovation, produce economic value, adapt quickly to new markets and increase flexibility in responding to changes in the business environment.

6.4 Chapter summary

This chapter contributed to knowledge by identifying and explaining 18 organisational practices which are vital to DRC development, deployment and improvement. It also explained 13 organisational practices which support concurrent strategic approaches to strategy deployment. These practices confirm or extend current knowledge, or were not explicitly mentioned in the DC literature review. This underscores the lack of integration of DC literature with other management fields. The next chapter will illustrate the managerial implications, assess the quality of the research, its limitations and make recommendations for possible further work.

Chapter 7: Conclusion

This chapter demonstrates the contributions and managerial implications of this thesis. It also assesses the quality of the research and, will discuss limitations and further work.

7.1 Contribution to knowledge

The intention of the thesis was to answer the following research questions:

RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

RQ2: How do DRC support the concurrent approaches to strategy deployment?

Telecommunication service providers are responsible for sustaining service continuity. Dynamic reconfiguration capabilities enable these organisations to deal with different strategic approaches to achieve this. Many other sectors have the same requirements, but to a different degree: including health services, aviation, or government sectors. However, the telecommunication service providers sector is unique; with special dynamic reconfiguration capabilities requirements to deploy planned, unplanned and emergency strategic approaches concurrently.

The literature provides a general description of dynamic capabilities (DC), but lacks focus on particular micro-foundations of dynamic capabilities: sensing, seizing, and reconfiguration. Few empirical studies have analysed the specific roles of dynamic reconfiguration capability (DRC) in different contexts. DRC requires in-depth strategic data, which is very difficult to obtain from the organisations. Moreover, the literature is limited in terms of how DRC emerge and how these can be used to manage concurrent strategy approaches. The review of the literature identified a lack of DC research in this context, and a clear need for empirical studies to advance this field.

7.1.1 RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?

The first research question (RQ1) contributes to knowledge by identifying and explaining 18 organisational practices which support the development, deployment and improvement of DRC. Figure 7.1 shows how these practices are distributed in the DRC lifecycle. These

practices are not specifically related to a single lifecycle phase; but some address more than one phase. For example, learning how to learn and coaching practice (PE: 4) address development and improvement phases, though are more related to the former. An additional example is from innovation and product development practise (PE: 9), which addresses all DRC phases.



Figure 7.1: Organisational practices supporting DRC development, deployment, and improvement

This research project identified theoretical practices which emerged from a critical analysis of the literature; some of which contribute to the DRC lifecycle. Afterwards, these practices were compared and contrasted with those emerging from empirical work. This allowed for the identification of empirical practices which confirm existing knowledge (colour coded orange in Figure 7.1), or extend it (colour coded purple in Figure 7.1).

This study also identified more organisational practices which contribute to the DRC lifecycle but are not explicitly mentioned in the dynamic capabilities literature (colour coded blue in Figure 7.1). These practices are: Build awareness of the link between individual roles and organisation brand (PE7), Implement job rotation (PE17), engage employees and customers in strategy development (PE15), and Reward and recognise the individual to build more capabilities (PE18). Alternatively, the practices were not explored extensively or refuted in terms of the absorptive capacity role as this could become mixed up with learning and knowledge management processes (colour coded yellow in Figure 7.1). Finally, the research provided an explanation of how these practices contribute to the development, deployment and improvement of DRC.

7.1.2 RQ2: How do DRC support the concurrent approaches to strategy deployment?

The second research question (RQ2) contributes to existing knowledge by identifying and explaining 13 organisational practices from DRC deployment phases critical in supporting concurrent strategic approaches to strategy deployment. These practices extend current knowledge (see Chapter 6). Figure 7.2 shows how they are distributed along the strategy planning horizon; and support planned (colour coded pink), unplanned (colour coded orange), and emergency (colour coded blue) concurrent approaches to strategy deployment.

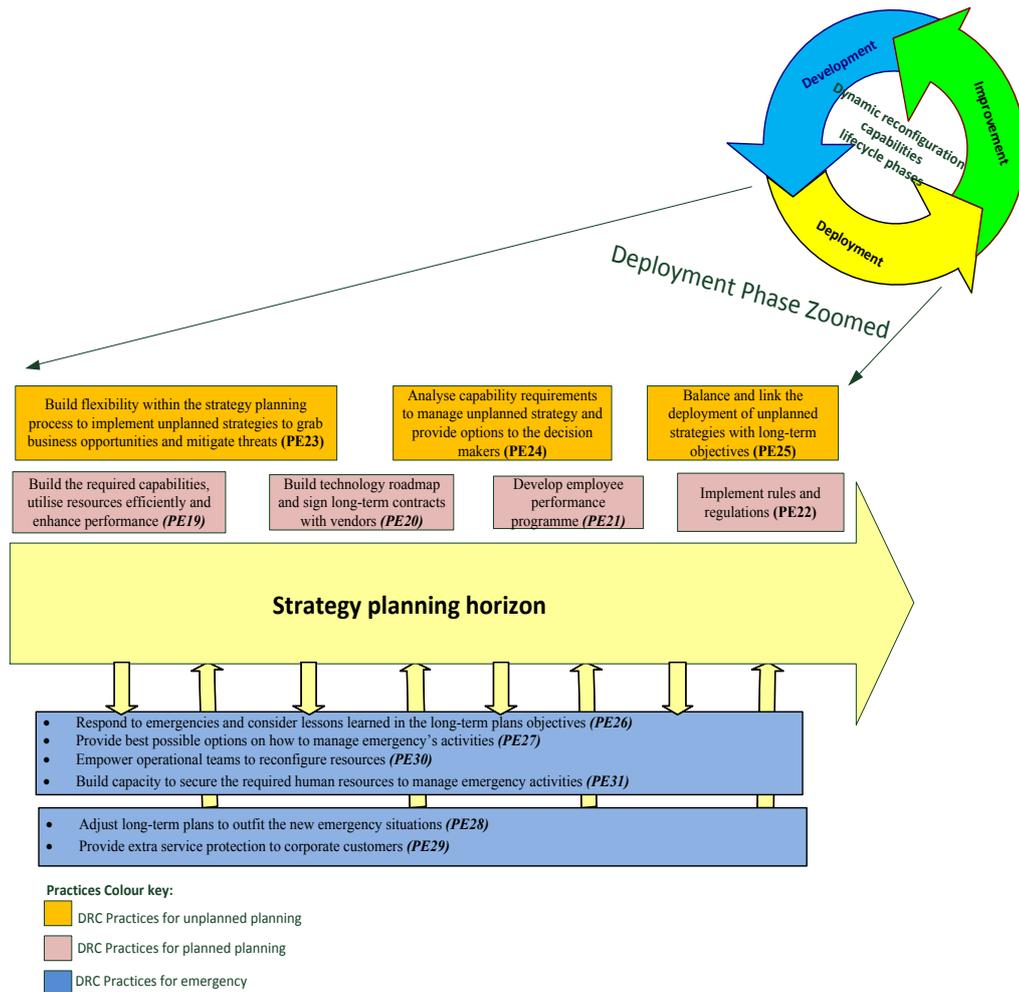


Figure 7.2: Organisational practices supporting concurrent approaches to strategy deployment

The strategy planning horizon in the telecommunications sector has an average period of five years (Figure 7.2), as technology and the market are changing rapidly. DRC organisational practices related to planned approaches are deployed to support five-year plans and allow the organisation to achieve its ultimate strategic objectives. These practices are: build the required capabilities, utilise resources efficiently and enhance performance (PE19), build technology roadmap and sign long-term contracts with vendors (PE20), develop employee performance programme (PE21), and implement rules and regulations (PE22).

However, there are also unplanned activities never considered at the planning stage. These activities could be business opportunities or threats. Therefore, the organisation is usually prepared to deploy unplanned strategic approaches to tackle unforeseen market behaviours concurrently with planned approaches. The DRC contributes to the unplanned strategic

approach through the following practices: build flexibility within the strategy planning process to implement unplanned strategies to grab business opportunities and mitigate threats (PE23), analyse capability requirements to manage unplanned strategy and provide options for decision makers (PE24), and balance and link the deployment of unplanned strategies with long-term objectives (PE25).

The telecommunications sector is also affected and distracted by natural disasters, network failures, cyber-attacks, or human error. These disasters are considered emergency situations which require immediate action for business continuity. The organisation deploys emergency strategic approaches to tackle these situations concurrently with planned and unplanned strategic approaches. In cases of emergency, the DRC contributes immediately to the emergency strategic approach (arrows pointing down in Figure 7.2) through the following practices: respond to emergencies and consider lessons learned in long-term plans (PE26), provide best possible options on how to manage emergency activities (PE27), empower operational teams to reconfigure resources (PE30), and build capacity to secure the required human resources to manage emergency activities (PE31).

To support long-term strategy deployment, the DRC deploy the following practices as part of the emergency strategic approach (arrows pointing up in Figure 7.2): adjust long-term plans to fit new emergency situations (PE28), and provide extra service protection to corporate customers (PE29), which generate extra revenue for the organisation. Finally, this research has identified and provided an explanation of DRC organisational practices which contribute to the deployment of strategic approaches concurrently.

In sum, the contribution to knowledge of this thesis is as follows:

- **It has identified the organisational practices which contribute to the development, deployment and improvement of dynamic reconfiguration capabilities (see chapters 5 and 6).**
- **It has explained how dynamic reconfiguration capabilities are developed, deployed and improved (see Figure 7.1, and Chapters 5 and 6).**
- **It has explained how dynamic reconfiguration capabilities support planned, unplanned and emergency approaches concurrently to strategy deployment (see Figure 7.2, and Chapters 5 and 6).**

7.2 Managerial implications

This thesis has shown how DRC emerges, and highlighted practices which support strategy deployment in the telecommunications industry. The following points summarise practices which may be useful for practitioners, and provide suggestions to telecommunication operators' managers.

This research reflects the importance of encouraging employees to engage with external knowledge and build networking to develop their capabilities. The best ways for employees to develop their dynamic capabilities include learning, on the job training, delegation, and exposure to new technologies. This enables employees to commit to and manage their long-term development. The research suggests that job rotation develops employees' capabilities and enables other units to exploit their knowledge. It recommends the deployment of job rotation plans in optimal ways, without affecting organisational operations.

This research recommends encouraging employees to generate new, innovative ideas and develop new products. These practices are required for organisations to sustain themselves in a dynamic market, which will maximise their performance and profitability. It suggests the designing of more customised solutions in a cost-effective way, to serve corporate customers: generating more revenue compared to off-the-shelf products. These practices enhance and develop employee capabilities.

It also considers the importance of inspiring employees to challenge the status quo and build awareness of the link between individual roles and organisation brand. It suggests building a culture of high-performance which recognises and rewards the best employees. These practices motivate employees to learn how to learn, ensuring continuous development.

This project has also deliberated on the importance of building a flexible strategy, acting proactively during any unplanned events, and continually reviewing the organisational strategy to fit dynamic market conditions. It recognises the importance of utilising resources efficiently and enhancing operational performance to achieve long-term strategic objectives. It recommends that employees and customers should be engaged at the strategy development stage, with more communication between management and employees enabling the development of a comprehensive, fully implementable strategy. It advises a strategic fit between seizing external opportunities and utilising organisational capabilities and resources. Similarly, it considers the importance of prioritising and maintaining a balance between unplanned plans and long-term planning. It recommends converting long term

strategic objectives into KPI: which can be easily linked to bonus systems, rewarding employees based on their appraisals.

In cases of emergency or unplanned events, what are the best ways of tackling them? This research suggests evaluating all possible options provided by employees before deploying any unplanned or emergency plans. Long-term plans should be adjusted to fit new situations; with these events treated as lessons learned.

However, the role of DRC is not entirely clear, as these are blended within the strategy's activities and processes. A manager might benefit more from heeding academic and theoretical implications about DRC development, improvement, and their concurrent roles in strategy deployment in dynamic markets.

7.2.1 Specific recommendations for the company

The company is very strong technically, and should take more advantage of this. Built network equipment, installed as part of system integration, has a great deal of unused added value. The technical teams are loaded with daily routine network operations, and do not have enough time to explore and exploit these additional services. The managers should find the right balance: involving their technical teams in routine operations and developing new products from conception to launch. The same team should be involved in managing the product lifecycle. This will generate more revenue and allow the team to learn how to learn.

Vendors' consolidation is a major task taking place in the company. The company is in a high-powered buyers' position, as it keeps expanding its networks regularly. The managers should ask for more collaboration from vendors. They could request laboratory equipment with which to conduct new products trials, instead of doing so on live networks. This will allow their teams to gain technical exposure, self-confidence, share knowledge, develop innovative ideas and new products.

The company is implementing job rotation at management level only. It should consider doing so across the organisation, encompassing ordinary employees and professional positions. This could be done in a shorter period for a certain KPI; for example, one year's KPI could entail the obtaining and sharing of knowledge with new units; along with proposed changes to the original unit. Other KPIs could be achieved over a shorter period.

Market competition leads to staff shifting between competitors. Consequently, managing knowledge transfer between staff internally or externally from consultants and vendors is

very important for DRC development and continuous improvement. Therefore, the company should consider building a knowledge exchange hub to retain and maintain knowledge. Each staff member should participate in it, i.e. anyone who attends a conference or training should provide a brief presentation and summary documents. Knowledge transfer should be considered as a KPI for managers and senior professionals. This should be evaluated from both sides: staff members should assess how much knowledge they obtained from the top level, and how much they have contributed to the hub. Managers will be evaluated based on how much knowledge is absorbed by lower level staff.

7.3 Quality of the research assessment

This project began with an explanation of the research problem and gaps, before seeking specific answers to the research questions. It is important to assess the quality of this research and identify whether it is valid. The quality assessment criteria was explained in Chapter 3. This section will discuss this in more detail, and summarise it in Tables 7.3 and 7.4.

The study ensured research quality by adopting tactics identified by Eisenhardt (1989), Easterby-Smith et al. (2012), and Yin (2014). According to Eisenhardt and Graebner (2007, p. 26), “Sound empirical research begins with a strong grounding in related literature, identifies a research gap, and proposes research questions that address the gap”. Therefore, this research commenced with a systematic literature review of dynamic capabilities, paying close attention to the role of DRC in supporting strategy deployment in the telecommunications sector. The literature review developed conceptual and thematic frameworks, identified gaps and shaped the research questions. These frameworks were derived from the literature; with the research questions guiding the fieldwork and providing a solid grounding in investigating the role of DRC in supporting strategy deployment in the telecommunications sector. Most importantly, this ensured the quality of the research from the outset.

Four tests are applied to assess the quality of the research process (Table 7.3) (Eisenhardt, 1989, Easterby-Smith et al., 2012, Yin, 2014). Seven processes of building theory from case studies are applied and met (Table 7.2) (Eisenhardt, 1989). Therefore, the author believes that this research project met most of the quality criteria, at least as far as was possible. As a result, it guaranteed the repeatability and validity of the research output subjected to the researcher’s approaches, context and conditions of the organisation under study.

Table 7.3 Summary of evaluation of research quality criteria (Eisenhardt, 1989, Easterby-Smith et al., 2012, Yin, 2014)

Research quality criteria	Case study aim and description	Case study tactic	How was this achieved in the research project?	Where was this addressed in the thesis?
Construct validity	To what extent the researcher established correct operational measures for the concepts being studied	<ul style="list-style-type: none"> • Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report 	Selection of multiple data collection techniques, methodological triangulation, enfolding literature, establishing a chain of evidence, structured reporting. Conceptual and thematic frameworks developed from a systematic literature review enabled the researcher to achieve construct validity	Chapter 2, 3, 4
Internal validity	To what extent the researcher creates a causal relationship	<ul style="list-style-type: none"> • Do pattern-matching • Do explanation-building • Address rival explanations • Use logic models • This research project is more of an exploratory nature, although it has descriptive and explanatory characteristics. 	This standard is intended for explanatory, not exploratory studies. This research is an exploratory theory-building research which used pattern matching, causal maps, narrative and explanation building to ensure internal research validity.	Chapter 3, 4, 5
External validity/ Generalisability	To what extent the research findings can be generalised in multiple contexts	<ul style="list-style-type: none"> • Use theory in single-case studies • Use replication logic in multiple-case studies • Seeking feedback from colleagues for outer control 	A multiple case-study approach was used by deploying replication logic of five case studies from a telecoms company. The findings are more context-specific and may not be completely generalizable. The multi-case studies used the same conceptual and thematic frameworks. Pattern searching was also carried out.	Chapter 3, 4, 5, 6, 7
Reliability	To what extent the study operations can be repeated by other researchers to achieve the same results; and does it follow a clear process to avoid idiosyncrasy?	<ul style="list-style-type: none"> • Use case study protocol • Develop case study database • Seeking feedback from colleagues for outer control 	An early definition of research quality criteria, case study database, case study protocol, case study reports, frequency counting, cross-case analysis and pattern matching, enfolding literature and structured reporting are all aimed at enhancing the reliability of the research findings. Presenting findings of this research in international conferences enhanced validity and reliability of research.	Chapter 3, 4, 5

Table 7.4 Process of building theory from case studies (Eisenhardt, 1989)

Step	Activity	Reason	This research
<i>Getting started</i>	Definition of research question Possibly a prior construct	Focuses efforts Provides better grounding of construct measures	Research questions, conceptual and thematic frameworks were developed
<i>Selecting cases</i>	Neither theory nor hypotheses Specific population Theoretical not random sampling	Retains theoretical flexibility Constrains irrelevant variation and sharpens external validity Focuses efforts on theoretically useful cases – i.e. those that replicate or extend theory by filling conceptual categories	Five case studies were selected of a telecoms service provider in Oman
<i>Crafting instruments and protocols</i>	Multiple data collection methods Qualitative and quantitative data combined Multiple investigators	Strengthens grounding of theory via triangulation of evidence Synergistic view of evidence Fosters divergent perspectives and strengthens grounding	Case study protocol and coding were used. Triangulated data collection from different sources.
<i>Entering the field</i>	Overlapping data collection and analysis including field notes Flexible and opportunistic data collection methods	Speeds analyses and reveals helpful adjustments to data collection Allows researchers to take advantage of emergent themes and unique case features	Data collection and analysis overlapped and were carried out in an opportunistic way to allow emergence of new themes.
<i>Analysing data</i>	Within-case analysis Cross-case pattern search using divergent techniques	Gains familiarity with data and preliminary theory generation Forces researchers to look beyond initial impressions and see evidence through multiple lenses	Within-case analysis performed via two coding levels: mapping and interpretation reporting. Cross-case analysis performed via pattern searching and matching from the narratives.
<i>Shaping hypotheses</i>	Iterative tabulation of evidence for each construct Replication, not sampling, logic across cases Search for evidence for ‘why’ behind relationships	Sharpens construct definition, validity and measurability Confirms, extends and sharpens theory Builds internal validity	N/A
<i>Enfolding Literature</i>	Comparison with conflicting literature Comparison with similar literature	Builds internal validity, raises theoretical debate and sharpens construct definitions Sharpens generalizability and raises theoretical level	Comparison with systematic literature review, which consists of conceptual and thematic frameworks.
<i>Reaching closure</i>	Theoretical saturation when possible	Ends process when marginal improvement becomes small	Common patterns explored among case studies. More case studies may be required for theoretical saturation.

7.4 Research limitations

This project had some limitations which call for consideration before any conclusions or generalisations from the empirical findings can be drawn. First, the researcher’s experience, educational background and philosophical position undoubtedly influenced the approaches deployed. Moreover, the theoretical foundations used in this research emerged from the

structured literature review and were based on Teece (2007)'s definitions of the dynamic capability roles of sensing, seizing and reconfiguration. Other researchers with differing backgrounds and experience might conduct the same subject in different ways.

Second, the systematic literature review had its advantages and limitations. Journal ranking criteria of ABS and SSCI was applied as one of the tools to filter and direct attention towards relevant, peer-reviewed contributions. As a result, the filtering criteria identified highly rated journals, but risked parts of the existing body of literature being overlooked. Initially, 134 papers were reviewed; further filtering criteria were applied, which resulted in 86 papers in total including additional nine further papers from out of boundaries processes. This means that the theoretical foundations adopted in this research are, to a certain extent, restricted to the boundaries of the systematic literature review.

Third, this project carried out five case studies of a single telecommunications service provider. It is difficult to generalise most of the findings to other sectors: including telecom equipment manufacturers. This project is limited in terms of the contribution it can make to the study context.

Finally, the dynamic capabilities framework is still emerging and not well established in the literature. The lack of a unified definition is central to other issues, limitations and challenges. It also lacks integration with other management literature: including strategic management, human resources and change management. Strategic theory does not demonstrate enough reflection of DRC roles.

7.5 Future work

Further research activities and steps might be proposed in response to both the contributions of this research project and its limitations. The author believes that this research provides new insights into dynamic capabilities literature. Therefore, he aims to publish a literature review chapter in the *International Journal of Management Reviews (IJMR)* and the empirical work in the *Strategic Management Journal*.

Many questions for further research have been identified. DRC develop from a continuous learning process: so initial DRC, particularly in the telecommunications sector, could be shaped by trial-and-error learning, best practice, or extensive experimentation. New technology trials on live telecommunications networks are required to develop new products and enhance DRC development; but these must not affect services. Thus further empirical

work is required to advance these learning processes, as the current literature lacks explanation of some context-specific learning processes.

The established path, organisational history and experience influence the development and deployment of DRC, when compared with new knowledge acquisition. Empirical studies are required to explain how incumbent firms utilise their experience and knowledge to develop and deploy DRC and create competitive advantage. Also, how can knowledge be used to tackle a situational base event or change amid the dynamic business environment?

DC studies show that firms struggle to distinguish between situations suitable for internal development (exploitation), and those which might lead to outsourcing DRC (exploration). In addition, there is a lack of explanation of criteria and tools required to measure knowledge transfer in case of outsourcing DRC gaps. Thus there is a need for further studies to explain and identify approaches required to balance between exploitation and exploration of DRC in organisations.

Firms analyse and evaluate market conditions carefully before deciding whether to deploy ad-hoc problem-solving with low risk of losing development investment; or DRC, entailing costly long-term commitment. More studies are required to explain the criteria and circumstances which can lead firms to choose one or the other. Similarly, DRC development is influenced by management perceptions of market conditions, which could lead to irrelevant DRC. Further studies need to explain how to mitigate management perception, and the cost impact resulting from such irrelevant DRC.

Telecommunications service providers deal with planned, unplanned and emergency approaches concurrently to support strategy deployment. Deploying concurrent approaches is also applicable to other service sectors, but with different degrees and practices based on their sector. Therefore, these approaches can be explored further into other sectors dealing with concurrent strategy deployment, such as health services, power, or water. Further research is required to address the role of dynamic sensing and seizing capabilities. How to maintain a dynamic balance between sensing, seizing and reconfiguration is another very important gap which demands investigation in different contexts.

The dynamic capabilities concept is still emerging and lacks integration with other management fields. Does DRC have a role in creating and enhancing organisational strategy; or does organisational strategy create plans to develop DRC; or both? To what extent do DRC enhance and shape competitive strategy and vision? How does a firm improve performance and profitability when exercising dynamic capabilities in building their

strategies? These questions all require further work; some of which could be carried out through an action research or quantitative approach instead.

Also, the following Table 7.5 summarises questions arising from the literature review which can be considered for future work (more details including references and examples are provided in Appendix 1).

Table 7.5 Questions arisen from the literature review

Themes	Questions
1. Learning and development	If DC involves a continuous learning process, how are initial DC created? Is it from trial-and-error learning, best practice, or via extensive experimentation?
2. Knowledge management and absorptive capacity	Lack of studies on how to use knowledge to tackle a situational base event or change, as the whole idea of DC is to be ready for a strategic change to match the rapidly changing business environment. To what extent does absorptive capacity influence the development of DC; and is it possible without it?
3. Innovation	In the dynamic capabilities perspective, the literature review does not adequately explain whether innovation has a direct or indirect impact on firm performance.
4. Path dependence, history and experience	To what extent do the established path, organisational history and experience influence the development of DC, compared with new knowledge acquisition? How do incumbent firms, especially technological companies, utilise experience to develop and deploy DC, survive and create competitive advantage?
5. Position and complementary assets	What is the impact of the political forces on DC development and deployment; and how do the global market circumstances drive and influence other market capabilities, including local markets (e.g. oil price and global financial crises)?
6. Managerial and organisational processes	More managerial process studies are needed to draw a clearer picture of the role of managerial processes in deploying DC.
7. Management role, perception and skills	Are the three DC roles applied to all firms with different environmental dynamism? How management perceptions be mitigated which could lead to the development of irrelevant DC? To what extent do the management roles of employee motivation and enhancement influence the development of DC? How do managers develop the skills required to build DC?
8. Modes of obtaining new dynamic capabilities	Which situations are suitable for the internal or external development of DC? What are the criteria and tools required to measure knowledge transfer in case of outsourcing the DC gaps? To what extent can knowledge transfer influence maintaining cooperation and culture stability between new and existing capabilities? How do the organisations balance between exploitation and exploration of DC?
9. Organisational context, culture and social networking	Does this mean that organisations with strong context, culture and social networking possess can easily create DC?

10. Dynamic business environment	How to distinguish between a low, moderate and high-velocity business environment.
11. Value creation, cost and investment	What criteria and circumstances lead firms to choose between deploying DC and ad-hoc problem-solving?
12. Product development	From a DC point of view, the literature covers this area quite well.
13. Organisational strategy and roles of dynamic sensing, seizing and reconfiguration capabilities	<p>To what extent is sensing, seizing and transforming deployed in practice, especially in technological firms?</p> <p>Must all three processes be deployed in all companies, or just those facing change?</p> <p>Is it the role of DC to create and enhance organisational strategy; or does organisational strategy create plans to develop DC; or both?</p> <p>To what extent do dynamic capabilities of sensing and seizing opportunities and transforming enhance and shape a strong strategy and vision?</p> <p>How can a firm improve its performance and profitability when exercising DC in building its strategies?</p>

7.6 Personal reflections

During almost four years working on this research project, this PhD journey has been challenging, inspiring and stimulating. The lack of a unified definition of dynamic capabilities in the literature “as its framework is still emerging” was central to other issues, limitations and challenges. Therefore, at the beginning of this research project, I felt considerable anxiety, as I had no idea where to start. After many discussions with colleagues and academic staff and reading many papers, I adopted a systematic literature review. Even though the literature scope was too wide, the anxiety and the hard work turned to delight and pleasure, and the knowledge gained was worth the effort. This engagement in a continuous process of learning and exploratory new knowledge both helped and encouraged me, as it enabled an open-minded approach to gathering information and allowed exposure to new ways of gaining knowledge.

At the early stage of the literature review and before consolidating the research questions, I was aiming to conduct this research in many organisations including my employer, competitors, telecommunication equipment manufacturers and telecommunication regulatory authorities. Later, I realised that the information required for this type of research is strategic in nature, which makes it difficult to obtain and could lead to ethical issues when approaching competitors. So, all plans were subject to change as the research progressed and it was not always achieved as originally anticipated.

If I were to start this work again, I would select a different methodology approach, such as action research, in a newly established company instead of an incumbent. This would enable working closely with the organisation under study to explore how the new dynamic capabilities are developed and deployed at the establishment stage. With that said, I cannot deny that I learned a lot from the case study approach, which investigated this research problem in its real-life context. Also, it enabled me to identify and explain organisational practices and their interrelation in the organisation.

Dynamic capability as an academic term was not well understood by managers, and this could lead to collecting irrelevant data. While interviewing managers, I realised that they were practising dynamic capabilities without calling it dynamic capabilities, as a blended part of strategy processes. Therefore, I would advise researchers to explain all academic terms before conducting any interview or survey. Also, if the researcher used to or still works for the industry under study, then it is very important to maintain a data collection plan and establish saturation points. The researcher might feel that all the information is important to the research project, as he/she has know-how about the industry, but then might struggle with this wealth of information at the analysis stage. Focusing clearly on the research questions is the key to guide the data collection.

References

- ADNER, R. & HELFAT, C. E. 2003. Corporate effects and dynamic managerial capabilities. *Strategic Management Journal*, 24, 1011-1025.
- AMBROSINI, V. & BOWMAN, C. 2009. What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, 11, 29-49.
- AMBROSINI, V., BOWMAN, C. & COLLIER, N. 2009. Dynamic Capabilities: An Exploration of How Firms Renew their Resource Base. *British Journal of Management*, 20, S9-S24.
- AMIT, R. & SCHOEMAKER, P. J. H. 1993. Strategic assets and organizational rent. *Strategic Management Journal*, 14, 33-33.
- ANAND, G., WARD, P. T., TATIKONDA, M. V. & SCHILLING, D. A. 2009. Dynamic capabilities through continuous improvement infrastructure. *Journal of Operations Management*, 27, 444-461.
- ARGOTE, L. & REN, Y. 2012. Transactive Memory Systems: A Microfoundation of Dynamic Capabilities. *Journal of Management Studies*, 49, 1375-1382.
- ATES, A. 2008. *Strategy Process in Manufacturing SMEs* Phd thesis University of Strathclyde Department of Design, Manufacture and Engineering Management
- AUGIER, M. & TEECE, D. J. 2008. Strategy as Evolution with Design: The Foundations of Dynamic Capabilities and the Role of Managers in the Economic System. *Organization Studies*, 29, 1187-1208.
- AUGIER, M. & TEECE, D. J. 2009. Dynamic Capabilities and the Role of Managers in Business Strategy and Economic Performance. *Organization Science*, 20, 410-421.
- BARNEY, J. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17, 99-120.
- BARRALES-MOLINA, V., BUSTINZA, Ó. F. & GUTIÉRREZ-GUTIÉRREZ, L. J. 2012. Explaining the Causes and Effects of Dynamic Capabilities Generation: A Multiple-Indicator Multiple-Cause Modelling Approach. *British Journal of Management*, n/a-n/a.
- BARRALES-MOLINA, V., MARTÍNEZ-LÓPEZ, F. J. & GÁZQUEZ-ABAD, J. C. 2014. Dynamic Marketing Capabilities: Toward an Integrative Framework. *International Journal of Management Reviews*, 16, 397-416.
- BARRETO, I. 2010. Dynamic Capabilities: A Review of Past Research and an Agenda for the Future. *Journal of Management*, 36, 256-280.
- BAZELEY, P. 2007. *Qualitative analysis with NVivo*. London: Sage.
- BESKE, P., LAND, A. & SEURING, S. 2014. Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *International Journal of Production Economics*, 152, 131-143.
- BITITCI, U. S., ACKERMANN, F., ATES, A., DAVIES, J. D., GIBB, S., MACBRYDE, J., MACKAY, D., MAGUIRE, C., VAN DER MEER, R. & SHAFTI, F. 2010. Managerial processes: an operations management perspective towards dynamic capabilities. *Production Planning & Control*, 22, 157-173.
- BOWMAN, C. & AMBROSINI, V. 2003. How the Resource-based and the Dynamic Capability Views of the Firm Inform Corporate-level Strategy. *British Journal of Management*, 14, 289-303.
- CAPRON, L. & MITCHELL, W. 2009. Selection Capability: How Capability Gaps and Internal Social Frictions Affect Internal and External Strategic Renewal. *Organization Science*, 20, 294-312.

- CETINDAMAR, D., PHAAL, R. & PROBERT, D. 2009. Understanding technology management as a dynamic capability: A framework for technology management activities. *Technovation*, 29, 237-246.
- COEN, C. A. & MARITAN, C. A. 2011. Investing in Capabilities: The Dynamics of Resource Allocation. *Organization Science*, 22, 99-117.
- COHEN, W. M. & LEVINTHAL, D. A. 1990. Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35, 128-152.
- COLLIS, D. J. 1994. Research Note: How Valuable are Organizational Capabilities? *Strategic Management Journal*, 15, 143-152.
- DANISH, R. Q. & USMAN, A. 2010. Impact of reward and recognition on job satisfaction and motivation: An empirical study from Pakistan. *International journal of business and management*, 5, 159.
- DI STEFANO, G., PETERAF, M. & VERONA, G. 2014. The organizational drivetrain: A road to integration of dynamic capabilities research. *The Academy of Management Perspectives*.
- DIXON, S., MEYER, K. & DAY, M. 2014. Building Dynamic Capabilities of Adaptation and Innovation: A Study of Micro-Foundations in a Transition Economy. *Long Range Planning*, 47, 186-205.
- DOVE, R. Tools for analyzing and constructing agility. Proceedings of the Third Annual Agility Forum Conference/Workshop, Austin, TX, 1994.
- DØVING, E. & GOODERHAM, P. N. 2008. Dynamic capabilities as antecedents of the scope of related diversification: the case of small firm accountancy practices. *Strategic Management Journal*, 29, 841-857.
- DOZ, Y. & KOSONEN, M. 2008. The dynamics of strategic agility: Nokia's rollercoaster experience. *California Management Review*, 50, 95-118.
- DOZ, Y. L. & KOSONEN, M. 2010. Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long range planning*, 43, 370-382.
- EASTERBY-SMITH, M., LYLES, M. A. & PETERAF, M. A. 2009. Dynamic Capabilities: Current Debates and Future Directions. *British Journal of Management*, 20, S1-S8.
- EASTERBY-SMITH, M., THORPE, R. & JACKSON, P. R. 2012. *Management Research*, SAGE Publications.
- EISENHARDT, K. M. 1989. Building Theories from Case Study Research. *Academy of Management Review*, 14, 532-550.
- EISENHARDT, K. M., FURR, N. R. & BINGHAM, C. B. 2010. CROSSROADS—Microfoundations of Performance: Balancing Efficiency and Flexibility in Dynamic Environments. *Organization Science*, 21, 1263-1273.
- EISENHARDT, K. M. & GRAEBNER, M. E. 2007. Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50, 25-32.
- EISENHARDT, K. M. & MARTIN, J. A. 2000. Dynamic capabilities: what are they? *Strategic Management Journal*, 21, 1105-1121.
- ELLONEN, H.-K., WIKSTRÖM, P. & JANTUNEN, A. 2009. Linking dynamic-capability portfolios and innovation outcomes. *Technovation*, 29, 753-762.
- FAINSHMIDT, S. & FRAZIER, M. L. 2016. What Facilitates Dynamic Capabilities? The Role of Organizational Climate for Trust. *Long Range Planning*.
- FAINSHMIDT, S., PEZESHKAN, A., LANCE FRAZIER, M., NAIR, A. & MARKOWSKI, E. 2016. Dynamic Capabilities and Organizational Performance: A Meta-Analytic Evaluation and Extension. *Journal of Management Studies*, 53, 1348-1380.
- GANGULY, A., NILCHIANI, R. & FARR, J. V. 2009. Evaluating agility in corporate enterprises. *International Journal of Production Economics*, 118, 410-423.

- GIROD, S. J. G. & WHITTINGTON, R. 2016. Reconfiguration, restructuring and firm performance: Dynamic capabilities and environmental dynamism. *Strategic Management Journal*, n/a-n/a.
- HELFAT, C. E. 2007. *Dynamic capabilities: understanding strategic change in organizations*, Blackwell Publishing.
- HELFAT, C. E. 2011. Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth. By David J. Teece. *R&D Management*, 41, 217-218.
- HELFAT, C. E. & MARTIN, J. A. 2015. Dynamic Managerial Capabilities. *Journal of Management*, 41, 1281-1312.
- HELFAT, C. E. & PETERAF, M. A. 2014. Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal*, n/a-n/a.
- HELFAT, C. E. & WINTER, S. G. 2011. Untangling Dynamic and Operational Capabilities: Strategy for the (N)ever-Changing World. *Strategic Management Journal*, 32, 1243-1250.
- HOFMANN, K. H., THEYEL, G. & WOOD, C. H. 2012. Identifying Firm Capabilities as Drivers of Environmental Management and Sustainability Practices – Evidence from Small and Medium-Sized Manufacturers. *Business Strategy and the Environment*, 21, 530-545.
- JOHNSON, P. & DUBERLEY, J. 2000. *Understanding Management Research: An Introduction to Epistemology*, SAGE Publications.
- JONES, R. 2005. Finding sources of brand value: Developing a stakeholder model of brand equity. *Journal of Brand Management*, 13, 10-32.
- KING, A. A. & TUCCI, C. L. 2002. Incumbent entry into new market niches: The role of experience and managerial choice in the creation of dynamic capabilities. *Management Science*, 48, 171-186.
- KOR, Y. Y. & MESKO, A. 2013. Dynamic managerial capabilities: Configuration and orchestration of top executives' capabilities and the firm's dominant logic. *Strategic Management Journal*, 34, 233-244.
- KRSTO, P., HORSBURGH, S., GORTON, K. & ANDREJ 2003. A real options approach to managing resources and capabilities. *International Journal of Operations & Production Management*, 23, 1010-1032.
- KUO-FENG, H., LEI-YU, W., DYERSON, R. & CHUN-FU, C. 2012. How Does a Technological Firm Develop Its Competitive Advantage? A Dynamic Capability Perspective. *Engineering Management, IEEE Transactions on*, 59, 644-653.
- KYLÄHEIKO, K., SANDSTRÖM, J. & VIRKKUNEN, V. 2002. Dynamic capability view in terms of real options. *International Journal of Production Economics*, 80, 65-83.
- LEIBLEIN, M. J. 2011. What Do Resource- and Capability-Based Theories Propose? *Journal of Management*, 37, 909-932.
- LESEURE, M. J., BAUER, J., BIRDI, K., NEELY, A. & DENYER, D. 2004. Adoption of promising practices: a systematic review of the evidence. *International Journal of Management Reviews*, 5, 169-190.
- LICHTENTHALER, U. 2012. The Performance Implications of Dynamic Capabilities: The Case of Product Innovation. *Journal of Product Innovation Management*, n/a-n/a.
- MACPHERSON, A., JONES, O. & ZHANG, M. 2004. Evolution or revolution? Dynamic capabilities in a knowledge dependent firm. *R&D Management*, 34, 2,.
- MAKADOK, R. 2001. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal*, 22, 387-401.
- MARSH, S. J. & STOCK, G. N. 2003. Building Dynamic Capabilities in New Product Development through Intertemporal Integration. *Journal of Product Innovation Management*, 20, 136-148.

- MARSH, S. J. & STOCK, G. N. 2006. Creating Dynamic Capability: The Role of Intertemporal Integration, Knowledge Retention, and Interpretation. *Journal of Product Innovation Management*, 23, 422-436.
- MAXWELL, J. A. 2005. *Qualitative Data Analysis: An Inductive Approach*. Sage, Second edition
- MCKELVIE, A. & DAVIDSSON, P. 2009. From Resource Base to Dynamic Capabilities: an Investigation of New Firms. *British Journal of Management*, 20, S63-S80.
- MEREDITH, J. 1998. Building operations management theory through case and field research. *Journal of Operations Management*, 16, 441-454.
- MEREDITH, J. R., RATURI, A., AMOAKO-GYAMPAH, K. & KAPLAN, B. 1989. Alternative research paradigms in operations. *Journal of Operations Management*, 8, 297-326.
- MILES & HUBERMAN, A. M. 1994. *Qualitative Data Analysis*. Thousand Oaks: Sage, Second edition.
- MINTZBERG, H. 1994. The fall and rise of strategic planning. *Harvard business review*, 72, 107-114.
- MINTZBERG, H. 2000. *The rise and fall of strategic planning*, Pearson Education.
- MINTZBERG, H. 2003. *The strategy process: concepts, contexts, cases*, Pearson education.
- MINTZBERG, H., AHLSTRAND, B. & LAMPEL, J. 2005. *Strategy Safari: A Guided Tour Through The Wilds of Strategic Management*, Simon and Schuster.
- NEWAY, L. R. & ZAHRA, S. A. 2009. The Evolving Firm: How Dynamic and Operating Capabilities Interact to Enable Entrepreneurship. *British Journal of Management*, 20, S81-S100.
- NIEVES, J. & HALLER, S. 2014. Building dynamic capabilities through knowledge resources. *Tourism Management*, 40, 224-232.
- O'CONNOR, G. C. 2008. Major Innovation as a Dynamic Capability: A Systems Approach*. *Journal of Product Innovation Management*, 25, 313-330.
- O'REILLY, C. A. & TUSHMAN, M. L. 2008. Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, 28, 185-206.
- ORTEGA, J. 2001. Job Rotation as a Learning Mechanism. *Management Science*, 47, 1361-1370.
- PARENTE, R. C., BAACK, D. W. & HAHN, E. D. 2011. The effect of supply chain integration, modular production, and cultural distance on new product development: A dynamic capabilities approach. *Journal of International Management*, 17, 278-290.
- PENG, D. X., SCHROEDER, R. G. & SHAH, R. 2008. Linking routines to operations capabilities: A new perspective. *Journal of Operations Management*, 26, 730-748.
- PRAHALAD, C. K. & HAMEL, G. 1990. *Harvard Business Review*, 68, 79.
- RAHMANDAD, H. 2012. Impact of Growth Opportunities and Competition on Firm-Level Capability Development Trade-offs. *Organization Science*, 23, 138-154.
- RAMUS, C. A. 2001. Organizational Support for Employees: Encouraging Creative Ideas for Environmental Sustainability. *California Management Review*, 43, 85-105.
- RANDOLPH, J. J. 2009. A guide to writing the dissertation literature review. *Practical Assessment, Research & Evaluation*, 14, 2.
- RINGOV, D. 2017. Dynamic capabilities and firm performance. *Long Range Planning*.
- SALDAÑA, J. 2012. *The coding manual for qualitative researchers*, Sage.
- SCHILKE, O. 2014a. On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, 35, 179-203.
- SCHILKE, O. 2014b. Second-Order Dynamic Capabilities: How Do They Matter? *The Academy of Management Perspectives*.
- SCHREIER, M. 2012. *Qualitative content analysis in practice*, Sage Publications.

- SCHREYÖGG, G. & KLIESCH-EBERL, M. 2007. How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization. *Strategic Management Journal*, 28, 913-933.
- SHER, P. J. & LEE, V. C. 2004. Information technology as a facilitator for enhancing dynamic capabilities through knowledge management. *Information & Management*, 41, 933-945.
- SMART, P., BESSANT, J. & GUPTA, A. 2007. Towards technological rules for designing innovation networks: a dynamic capabilities view. *International Journal of Operations & Production Management*, 27, 1069-1092.
- STADLER, C., HELFAT, C. E. & VERONA, G. 2013. The Impact of Dynamic Capabilities on Resource Access and Development. *Organization Science*, 24, 1782-1804.
- STAKE, R. E. 1995. *The art of case study research*, Sage Publications.
- TEECE, D. 2014a. The Foundations of Enterprise Performance: Dynamic and Ordinary Capabilities in an (Economic) Theory of Firms. *The Academy of Management Perspectives*.
- TEECE, D. & LEIH, S. 2016. Uncertainty, Innovation, and Dynamic Capabilities. *An Introduction*, 58, 5-12.
- TEECE, D., PETERAF, M. & LEIH, S. 2016. Dynamic Capabilities and Organizational Agility. *Risk, Uncertainty, and Strategy in the Innovation Economy*, 58, 13-35.
- TEECE, D. & PISANO, G. 1994. The Dynamic Capabilities of Firms: an Introduction. *Industrial and Corporate Change*, 3, 537-556.
- TEECE, D. J. 2007. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28, 1319-1350.
- TEECE, D. J. 2014b. A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *J Int Bus Stud*, 45, 8-37.
- TEECE, D. J. 2014c. A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies*, 45, 8-37.
- TEECE, D. J., PISANO, G. & SHUEN, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 509-533.
- TRANFIELD, D., DENYER, D. & SMART, P. 2003. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British journal of management*, 14, 207-222.
- VANPOUCKE, E., VEREECKE, A. & WETZELS, M. 2014. Developing supplier integration capabilities for sustainable competitive advantage: A dynamic capabilities approach. *Journal of Operations Management*, 32, 446-461.
- VOGEL, R. & GÜTTEL, W. H. 2012. The Dynamic Capability View in Strategic Management: A Bibliometric Review. *International Journal of Management Reviews*, n/a-n/a.
- VOSS, C., TSIKRIKTSIS, N. & FROHLICH, M. 2002. Case research in operations management. *International Journal of Operations & Production Management*, 22, 195-219.
- WANG, C. L. & AHMED, P. K. 2007. Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9, 31-51.
- WANG, C. L., SENARATNE, C. & RAFIQ, M. 2014. Success Traps, Dynamic Capabilities and Firm Performance. *British Journal of Management*, n/a-n/a.
- WILDEN, R., DEVINNEY, T. M. & DOWLING, G. R. 2016. The Architecture of Dynamic Capability Research Identifying the Building Blocks of a Configurational Approach. *The Academy of Management Annals*, 10, 997-1076.
- WILHELM, H., SCHLÖMER, M. & MAURER, I. 2015. How Dynamic Capabilities Affect the Effectiveness and Efficiency of Operating Routines under High and Low Levels of Environmental Dynamism. *British Journal of Management*, 26, 327-345.

- WINTER, S. G. 2003. Understanding dynamic capabilities. *Strategic Management Journal*, 24, 991-995.
- YIN, R. K. 2014. *Case study research: Design and methods*, Sage publications.
- ZAHRA, S. A. & GEORGE, G. 2002. ABSORPTIVE CAPACITY: A REVIEW, RECONCEPTUALIZATION, AND EXTENSION. *Academy of Management Review*, 27, 185-203.
- ZAHRA, S. A., SAPIENZA, H. J. & DAVIDSSON, P. 2006. Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda*. *Journal of Management Studies*, 43, 917-955.
- ZENG, J., SIMPSON, C. & DANG, B.-L. 2017. A Process Model of Dynamic Capability Development: Evidence from the Chinese Manufacturing Sector. *Management and Organization Review*, 1-31.
- ZHAN, W. & CHEN, R. 2013. Dynamic capability and IJV performance: The effect of exploitation and exploration capabilities. *Asia Pacific Journal of Management*, 30, 601-632.
- ZOLLO, M. & WINTER, S. G. 2002. Deliberate Learning and the Evolution of Dynamic Capabilities. *Organization Science*, 13, 339-351.
- ZOTT, C. 2003. Dynamic capabilities and the emergence of intraindustry differential firm performance: insights from a simulation study. *Strategic Management Journal*, 24, 97-125.

Appendices

Appendix 1: Theoretical findings and practices around dynamic capabilities	241
Appendix 2: Case study protocol.....	251
Appendix 3: Brief summary about Omantel.....	257
Appendix 4: Case Study 2, Regulatory Affairs Division (theory vs empirical practices).....	261
Appendix 5: Case Study 3, Corporate Strategy Unit (theory vs empirical practices).....	267
Appendix 6: Case Study 4: Corporate and Consumer Units (theory vs empirical practices)...	274
Appendix 7: Case Study 5: Integrated Network & Technology Unit (theory vs empirical practices).....	283
Appendix 8: The emphasis of empirical practices on the practices from theory.....	294
Appendix 9: Cross-cases studies patterns searching to answer the first research questions (RQ1).....	295
Appendix 10: Cross-cases studies patterns searching to answer the second research questions (RQ2).....	310

Appendix 1: Theoretical findings and practices around dynamic capabilities

Themes	Authors	Examples	Questions	Theoretical strategic practices	Description
<p>14. Learning and development</p> <p>Dynamic capabilities arise from learning</p> <p>Ways of learning enhance the operation of dynamic capabilities</p> <p>Learning is a continuous improvement process of dynamic capabilities</p>	<p>Teece et al., 1997, Eisenhardt and Martin, 2000, Zollo and Winter, 2002, Bowman and Ambrosini, 2003, Marsh and Stock, 2003, Helfat, 2007, Schreyögg and Kliesch-Eberl, 2007, O'Reilly and Tushman, 2008, O'Connor, 2008, Ambrosini and Bowman, 2009, Ambrosini et al., 2009, Vogel and Güttel, 2012, Nieves and Haller, 2014, Zeng et al., 2017, Zahra et al., 2006, Zott, 2003, Barrales-Molina et al., 2012, Winter, 2003, Anand et al., 2009)</p>	<p>General Motors learned to imitate Toyota's experience over time; this can be adapted to their product development process via efficient imitation (Zott, 2003).</p> <p>Analysis of five unnamed companies shows that dynamic capabilities can deliver continuous improvements once systematic continuous learning processes are in place (Anand et al., 2009).</p>	<p>If DC involves a continuous learning process, how are initial dynamic capabilities created? Is it from trial-and-error learning, best practice, or via extensive experimentation?</p>	<p>Learn how to learn</p> <p>Develop organisational approaches for continuous process improvement</p>	<p>Learning is a core element in developing DC. It can be achieved in many ways, such as prototyping and early testing, repeated practice, learning from mistakes, imitating market leaders, experimentation, and trial-and-error. Investing in learning will prevent core competencies from becoming core rigidities</p> <p>Continuous improvement processes to make changes in operation or ordinary capabilities include repeated cycles of organisational learning. These processes facilitate the integration of current processes, learning of new processes, and enhance readiness for any change. DC can deliver continuous improvements once systematic continuous learning processes are in place. Nowadays, organisations no longer compete on processes themselves, but on the ability to constantly improve processes.</p>

<p>15. Knowledge management and absorptive capacity</p> <p>Deployment of dynamic capabilities rely on knowledge</p> <p>Internal and external knowledge management enhance dynamic capabilities</p> <p>Risks of utilising knowledge in practising dynamic capabilities</p> <p>Absorptive capacity</p>	<p>Eisenhardt and Martin, 2000, Zahra and George, 2002, Zollo and Winter, 2002, Krsto et al., 2003, Marsh and Stock, 2003, Macpherson et al., 2004, Sher and Lee, 2004, Marsh and Stock, 2006, Teece, 2007, Wang and Ahmed, 2007, Augier and Teece, 2008, Cetindamar et al., 2009, Easterby-Smith et al., 2009, Argote and Ren, 2012, Barrales-Molina et al., 2012, Nieves and Haller, 2014 Teece, 2007, McKelvie and Davidsson, 2009, Parente et al., 2011, Hofmann et al., 2012 Cohen and Levinthal, 1990, Zahra and George, 2002, Krsto et al., 2003, Marsh and Stock, 2003, Marsh and Stock, 2006. Wang et al. 2014</p>	<p>Rolls-Royce Aero Engine case study shows how the company used accumulated experiences and knowledge to build new capabilities, which helped it develop more capable resources and expand its current technology.</p> <p>*Corning used its previous product knowledge of glass melting to develop colour television tubes, pyro-ceramic cookware, and fibre optic cables</p> <p>*A telecom company faced some difficulties in training its engineers about new technologies, especially engineers with longstanding experience. Their absorptive capacity was very limited in observing the new technology (Author's example from his experience).</p>	<p>Lack of studies on how to use knowledge to tackle a situational base event or change, as the whole idea of dynamic capabilities is to be ready for a strategic change to match the rapidly changing business environment.</p> <p>To what extent does absorptive capacity influence the development of dynamic capabilities; and is it possible without it?</p>	Manage knowledge	Managing knowledge internally within the organisation in terms of knowledge collection, codification and integration; and externally with alliances, in terms of gaining and sharing knowledge with suppliers: influencing dynamic capabilities' development and deployment.
				Exploit absorptive capacity	Zahra and George (2002, p.186), interrelate absorptive capacity with the dynamic capabilities concept as a "set of organisational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organisational capability".

<p>16. Innovation</p> <p>Innovation as DC and an element of generating capabilities</p> <p>Dynamic innovation to match the dynamic market</p>	<p>Kyläheiko et al., 2002, Marsh and Stock, 2003, Smart et al., 2007, Teece, 2007, Wang and Ahmed, 2007, O'Reilly and Tushman, 2008, O'Connor, 2008, Augier and Teece, 2009, Ellonen et al., 2009, Barrales-Molina et al., 2012, Hofmann et al., 2012, Lichtenthaler, 2012, Vogel and Güttel, 2012</p>	<p>Due to the limitations of providing fixed line phone services in difficult geographical terrain, a telecom company utilised its capabilities to invent a new solution called Wireless Local Loop, in collaboration with suppliers. This new solution overcame the limitation and created a new market (Author's example from his experience).</p> <p>*Mechanical typewriters were eliminated by word processing computers; the electronic watch replaced the mechanical watch, rendering redundant all associated mechanical engineering skills.</p>	<p>In the dynamic capabilities perspective, the literature review does not adequately explain whether innovation has a direct or indirect impact on firm performance.</p>	<p>Enable innovation</p>	<p>DC relates to innovation, as innovative activities are shaped by a firm to deal with uncertainties. Innovation itself can be viewed as a dynamic capability, or may be considered an essential element to generate DC. "The more innovative a firm is, the more it possesses DC".</p>
<p>17. Path dependence, history and past experience</p> <p>Dynamic</p>	<p>Teece et al., 1997, Smart et al., 2007, Teece, 2007, Kyläheiko et al., 2002, Schreyögg and Kliesch-Eberl, 2007, Eisenhardt and Martin, 2000, Rahmandad,</p>		<p>To what extent do the established path, organisational history and experience influence the development of</p>	<p>Build on experience</p>	<p>DC developed from tacit experience and accumulation processes, combined with knowledge management. Development of DC is influenced by the pace of experience, as lessons learned and experience can be obtained faster in a highly changing business environment.</p>

capabilities rely on past experience DC are path and history dependent	2012, Sher and Lee, 2004, Ambrosini et al., 2009, McKelvie and Davidsson, 2009, Ellonen et al., 2009. Leiblein, 2011, Zollo and Winter, 2002, Nieves and Haller, 2014.		DC, compared with new knowledge acquisition? How incumbent firms, especially technological companies, utilise experience to develop and deploy DC, survive and create competitive advantage.	Build on path taken and history	DC are dependent on a path formed by a firm's decisions and activities during its history. A combination of luck, legacy and history may create different types of initial capabilities to enhance future investment; and will have major contributions in shaping the path ahead.
18. Position and complementary assets Firms' position is a build-up of assets through dynamic capabilities Information technology and other complementary assets enhance the development and deployment of DC.	Ambrosini and Bowman, 2009, Teece et al., 1997, Augier and Teece, 2008, Sher and Lee, 2004, Kuo-Feng et al., 2012, Augier and Teece, 2009. Augier and Teece, 2009. Parente et al., 2011, Anand et al., 2009, Teece, 2014b.	A case study on dynamic capabilities in major Taiwanese firms, which proposes that the path and processes of knowledge accumulation and management govern a firm's current position (Sher and Lee, 2004).	What is the impact of the political forces on DC development and deployment; and how does the global market circumstance drive and influence other market capabilities, including local markets (e.g. oil price and global financial crises)?	Maintain market position and assets Exploit IT and other complementary assets	In the DC perspective, firm position is the accumulation of assets: complementary, reputational, technological, financial, market, structural, institutional, difficult-to-trade knowledge and co-specialised; which are required for it to survive and sustain itself in the dynamic market. Well-established DC allows the firm to achieve superior benefits from these assets. IT is an important element in developing DC, involved in many areas: knowledge management, learning, innovation, managing organisational processes, dynamic supply chain management. Building and maintaining knowledge requires IT, which can minimise much of the risk of losing knowledge from employees.
19. Managerial	Teece et al., 1997,	A case study of 146	More managerial	Build on	Management perceptions of the external

<p>and organisational processes DC embedded in managerial and organisational processes.</p>	<p>Helfat, 2007, Anand et al., 2009, Bititci et al., 2010, Kuo-Feng et al., 2012, Lichtenthaler, 2012, Nieves and Haller, 2014, Beske et al., 2014, Helfat and Martin, 2015.</p>	<p>industrial firms shows the importance of linking DC context to the organisational process, which helps to improve firms' performance in R&D and innovation.</p>	<p>process studies are needed to draw a clearer picture of the role of managerial processes in deploying DC.</p>	<p>managers' perceptions</p>	<p>and internal business environment are critical and central in determining the necessity of developing DC. Managers are required to analyse business environment dynamics cautiously. Managers' abilities and perceptions considerably influence the path taken and its consequences.</p>
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<p>20. Management role, perception and skills</p> <p>Management role in shaping DC</p> <p>Management perception and attention role in developing DC</p> <p>Management skills and experiences influence the development of DC</p>	<p>Macpherson et al., 2004, Augier and Teece, 2008, Wang and Ahmed, 2007, Krsto et al., 2003, Zahra et al., 2006, Barrales-Molina et al., 2012,, Teece, 2007. Ambrosini et al., 2009, Ambrosini and Bowman, 2009 Augier and Teece, 2009 Helfat, 2011. Ambrosini and Bowman, 2009, Anand et al., 2009, O'Reilly and Tushman, 2008, Kor and Mesko, 2013, Teece, 2014a, Helfat and Peteraf, 2014.</p>	<p>A survey of 200 CEOs of Spanish firms shows that developing dynamic capabilities is very expensive and requires management commitment (Barrales-Molina et al. 2012).</p> <p>*Newey and Zahra (2009) conducted two case studies on biotechnology and pharmaceutical companies, which show that managers use their skills and experiences to develop processes which routinize collaboration between operation and dynamic capabilities.</p>	<p>Are the three DC roles applied to all firms with different environmental dynamism? How to mitigate management perceptions which could lead to the development of irrelevant DC? To what extent do the management roles of employee motivation and enhancement influence the development of DC? How do managers develop the skills required to build DC?</p>		
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<p>21. Modes of obtaining new dynamic capabilities</p> <p>Importance of selection processes in sourcing dynamic capabilities</p> <p>Obtaining DC internally (exploitation)</p> <p>Obtaining DC externally (exploration)</p> <p>Difficulties in deploying DC</p>	<p>(Capron and Mitchell, 2009, Stadler et al., 2013, Teece et al., 1997, Cetindamar et al., 2009, Coen and Maritan, 2011, Zhan and Chen, 2013) , (Teece, 2014a, Wang et al., 2014) (Parente et al., 2011, Teece, 2007, Hofmann et al., 2012, Beske et al., 2014) . Zahra et al. (2006)</p>	<p>* Telecomm company shows that modes of selecting internal and external capabilities are the key mechanisms by which enable the firm to change in capabilities perspective and mitigate social challenges. * A case study of the television industry which shows that firms with previous experience obtained in radio manufacturing showed higher performance in the new television industry. *A telecomm Company did a strategic change management twice in 2005 and 2007. These changes faced a lot of internal resistance. New capabilities from other departments or externally conflict with existing capabilities and effect some business operations (Author's example from his experience and MBA)</p>	<p>In which situations are suitable for internal or external development of DC what are the criteria and tools required to measure knowledge transfer in case of outsourcing the DC gaps? To what extend knowledge transfer influence on maintaining cooperation and culture stability between new and existing capabilities? How do the organisation's balance between exploitation and exploration of DC?</p>	<p>Obtain required capabilities in different ways.</p>	<p>Proper selection processes and strong modes of obtaining new capabilities enhance firm's ability to renew their capabilities and to survive longer than firms with weaker selection capabilities. Obtaining external capabilities is a strategic dynamic capabilities process and these external capabilities can be obtained by three approaches; purchase contracts, alliances, and acquisitions.</p>
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<p>22. Organisational context, culture and social networking</p> <p>DC development and continuous improvement impacted by organisational context, culture and social networking</p>	<p>Teece et al., 1997, Bowman and Ambrosini, 2003,, Macpherson et al., 2004, Augier and Teece, 2008, Anand et al., 2009, Kuo-Feng et al., 2012, Teece, 2014a.</p>	<p>A case study of Taiwanese ICT firms shows that firms should be encouraged to enhance their integration capabilities by implementing more independent R&D culture to accumulate more technological competencies (Kuo-Feng et al. 2012).</p>	<p>Does this mean that organisations with strong context, culture and social networking possesses can easily create dynamic capabilities?</p>	<p>Enrich culture and social networking</p>	<p>Firms with strong social networks and cultures are more likely to be successful, especially in developing DC. Social capital is necessary to facilitate the process of knowledge sharing, collaboration, internal and external networking, and enhances innovation. Management should constantly improve the DC development process by building a culture of organisational learning.</p>
<p>23. Dynamic business environment</p> <p>The rate of dynamism in the business environment influences DC generation</p>	<p>Zahra et al., 2006, Newey and Zahra, 2009, Ambrosini and Bowman, 2009, Winter, 2003, Zollo and Winter, 2002, Barrales-Molina et al., 2012, Wilhelm et al., 2015, Wilden et al., 2016, Girod and Whittington, 2016.</p>		<p>How to distinguish between a low, moderate and high-velocity business environment?</p>	<p>The rate of dynamism in the business environment influences managers' perceptions in developing DC</p>	<p>Types of DC differ based on the level of business dynamism. Managers' perceptions of market conditions place dynamic capabilities into three categories: incremental, renewing and regenerative.</p>
<p>24. Value creation, cost and investment</p> <p>DC development is a long-term investment</p>	<p>Zollo and Winter, 2002, Winter, 2003, Døving and Gooderham, 2008, Ambrosini and Bowman, 2009, Coen and Maritan, 2011, Rahmandad, 2012, Schilke, 2014a, Teece, 2014b.</p>	<p>HP invest positively in collecting different types of learning tools to identify and diffuse best practice in achieving organisational learning, which can enhance DC.</p>	<p>What criteria and circumstances lead firms to choose between deploying DC and ad-hoc problem-solving?</p>	<p>DCdevelopment is a long-term investment required to obtain DC. Organisations recognise the importance of investing in developing DC</p>	<p>The value of DC is represented by the enhancement and creation of new, valuable resources, which enable a firm to sustain competitive advantage and survive in a rapidly changing business environment.</p>
<p>25. Product</p>	<p>Newey and Zahra, 2009,</p>	<p>In IDEO, managers</p>		<p>Develop and</p>	<p>DC develop from knowledge and</p>

<p>development</p> <p>Product development stimulates the development of dynamic capabilities</p>	<p>Barrales-Molina et al., 2012, O'Connor, 2008, Wang and Ahmed, 2007.</p>	<p>regularly create new products to sustain market growth by extracting knowledge from different prior product design projects in various industries and from several clients</p>		<p>commercialise new products</p>	<p>continuous learning: with some of this obtained from prior product development and continuous new product processes. New product development and market growth are key factors which encourage firms to develop DC. “Innovative capability expresses the firm’s ability to develop new products and markets by aligning strategically with innovative behaviours and processes” (Barrales-Molina et al., 2012, p.15).</p>
<p>26. Organization strategy</p> <p>*Operations management strategies facilitate dynamic capabilities development.</p> <p>*Dynamic capabilities are placed at the core of the strategic management processes</p> <p>*Employment of dynamic capabilities indirectly enhances firm’s performance and profitability.</p>	<p>Anand et al. 2009, Augier and Teece 2009, Coen and Maritan 2011, Wang and Ahmed 2007, Zahra et al., 2006, Ambrosini et al., 2009, Teece, 2014a, Phaal, and Probert 2009, Sher and Lee 2004, Eisenhardt and Martin, 2000, Schreyögg and Kliesch-Eberl, 2007, Døving and Gooderham, 2008, Teece, 2014b, Teece et al., 2016 Bowman and Ambrosini, 2003, Wang and Ahmed, 2007, Fainshmidt et al., 2016, Ringov, 2017 (Teece, 2007, O’Reilly and Tushman, 2008,</p>	<p>*A telecom company’s strategy plans and business direction are divided into operational goals and KPI per unit. These goals are reviewed and adjusted to match market conditions and changes, based on inputs from each unit (Author’s example from his experience).</p> <p>*ITC had difficulties in making a strategic decision by selecting between two technologies: either to deploy 3G (Third Generation) or wait for 4G (Fourth Generation), so they took into</p>	<p>To what extent is sensing, seizing and transforming deployed in practice, especially in technological firms?</p> <p>Must all three processes be deployed in all companies, or just those facing change?</p> <p>Is it the role of dynamic capabilities to create and enhance organisational strategy; or does organisational strategy create plans to develop</p>	<p>Enhance and shape organisational strategy</p> <p>Provide options for decision makers</p>	<p>DC are located in the main processes of strategic management and contain specific strategic processes, e.g. product development, alliances and strategic decision-making, which enable firms to survive in a changing environment by transforming the resource base into new, value-creating strategies. When an organisation has more resources and high DC, this should generate a more comprehensive, advantageous strategy.</p> <p>Krsto et al. (2003) define real options as “investments in physical and intangible resources that provide the firm with contingencies in an uncertain environment”. DC provide management with a real options approach, which can help it be proactive, understand market competition (taking into account the future and existing market state), and provide relevant analytical information to decision-makers.</p>

*Dynamic capabilities shape organisational strategies by sensing and seizing opportunities, and transforming the business	Helfat and Peteraf, 2014, Wang et al., 2014, Nieves and Haller, 2014, Vanpoucke et al., 2014, Teece, 2014a, Teece, 2014b, Girod and Whittington, 2016.	account all strategic considerations: competition, customer demand, and how to invest right, at the right time (Kyläheiko et al., 2002). *A model shows that dynamic capabilities indirectly affect firm performance and only mediate interactions between operation capabilities and knowledge. *A case study of major Taiwanese firms showed that DC are a compulsory, important element of strategic management, especially amid a world of global competition.	dynamic capabilities; or both? To what extent do dynamic capabilities of sensing and seizing opportunities and transforming enhance and shape a strong strategy and vision? How can a firm improve its performance and profitability when exercising dynamic capabilities in building its strategies?	Focus on performance and profitability	DC role is to change and reconfigure a firm’s resource stock, competencies and operation capabilities, which positively affect performance. When DC development aligns with organisational strategy, this will enhance firm performance and provide more chances to generate long-run profitability.
				Sense opportunities and threats	DC are required to scan and monitor any changes in the business environment, especially government plans and regulations; and identify new opportunities and threats.
				Seize business opportunities or threats	DC are required to analyse any changes in the business environment. They facilitate decision-making processes, mobilisation plans and policies to address identified opportunities or threats.
				Manage transformation and change	Managing transformation and change towards strategic plans requires aligning all organisational strategic operations to fit the business environment. DC’s basis is from the strategic management field: which demonstrates the crucial role of entrepreneurial management and importance of the resource allocation process and strategic renewal in shaping long term stock.

Appendix 2: Case study protocol

Dynamic Reconfiguration Capabilities' Case Study Protocol

Name		Unite	
Designation		Division	
Case study no.		Date	

Themes	Descriptions
1. Learning and development	Dynamic capabilities arise from learning and it is a continuous improvement process of it.
How do firms generate dynamic capabilities? Is it from trial-and-error learning or best practice?	
2. Knowledge management and absorptive capacity	Dynamic capabilities deployment is relied on knowledge management and organisations' absorptive capacity.
To what extend does knowledge management combined with absorptive capacity enhance the development of dynamic capabilities?	
3. Innovation	Dynamic capabilities are shaped and generated by innovation activities which are required to deal with uncertainties and to match with a dynamic market.

Does innovation as a dynamic capability have a direct impact on firm performance? Why	
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4. Path dependence, history and past experience	Dynamic capabilities implementation relies on past experience, history and path dependence.
To what extent the established path, organisational history and experience influence on the development of dynamic capabilities?	
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How do the incumbent firms utilise experience to shape dynamic capabilities?	
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5. Position and complementary assets	Dynamic capabilities are considered as accumulation of assets which form firms' position and IT is a key complementary asset.
What is the impact of the political forces on dynamic capabilities development and how do the global market circumstances drive and influence other market capabilities?	
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6. Managerial and organisational processes	Dynamic capabilities are embedded in the managerial and organisational processes.
What is the role of managerial process in creating dynamic capabilities?	
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7. Management role, perception and skills	Dynamic capabilities development is influenced by management perception, attention, skills and experiences
How do firms deal with incorrect management perceptions in developing dynamic capabilities?	
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To what extent does management role influence the development of dynamic capabilities?	
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<p>.....</p> <p>How do managers develop their managerial skills required to develop dynamic capabilities?</p> <p>.....</p> <p>.....</p>	
<p>8. Modes of obtaining new dynamic capabilities</p>	<p>Dynamic capabilities are obtained internally (exploitation) and externally (exploration). Balance between them is an important element.</p>
<p>What are the situations that lead firms to decide whether to develop dynamic capabilities internally or externally?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>How do organisations balance between exploitation and exploration of capabilities?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>9. Organisational context, culture and social networking</p>	<p>Dynamic capabilities development is impacted by organisational context, culture and social networking.</p>
<p>To what extent organisations with strong organisational context, culture and social networking can possess and create strong dynamic capabilities?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>10. Dynamic business environment</p>	<p>Dynamic capabilities generation is enhanced by the rate of dynamism in business environment.</p>
<p>How do firms distinguish between different rates of dynamism in business environment which can impact on dynamic capabilities' development?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>11. Value Creation, Cost and investment</p>	<p>Dynamic capabilities development is a long-term investment and their value resides in resource creation.</p>
<p>What are the circumstances that lead firms to decide whether to deploy dynamic capabilities or exercise ad-hoc problem solving?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>12. Product development</p>	<p>Dynamic capabilities development is stimulated by product development.</p>

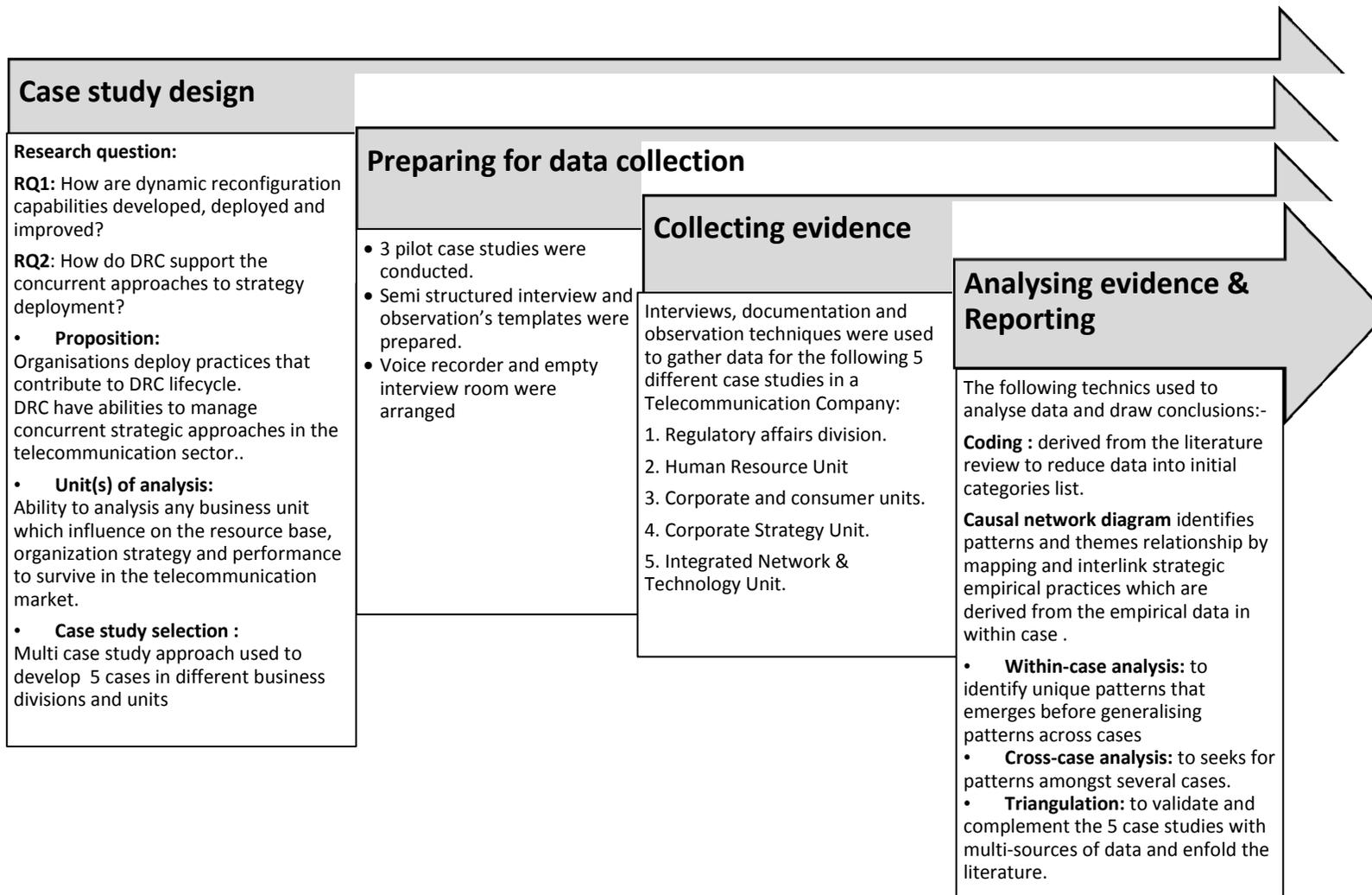
<p>What is the role of product development process in developing dynamic capabilities?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>13. Organisation strategy</p>	<p>Dynamic capabilities development is facilitated by operations management strategies. They are placed at the core of the strategic management processes of sensing, seizing and reconfiguration.</p>
<p>Do dynamic capabilities have a role in creating strategy or do organisation's strategies create plans to develop dynamic capabilities in order to improve their performance?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>To what extent dynamic capabilities of sensing, seizing and reconfiguration enhance and shape strong strategy and vision?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>How do you deal with unplanned activities?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>How do you deal with emergency activities?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>Other comments:-</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	

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Checklist

- Schedule and confirm the meeting with the interviewee
- Book meeting room
- Test the voice recorder and bring a note book
- Use the direct observation templet to note observations
- Cross check other logistic

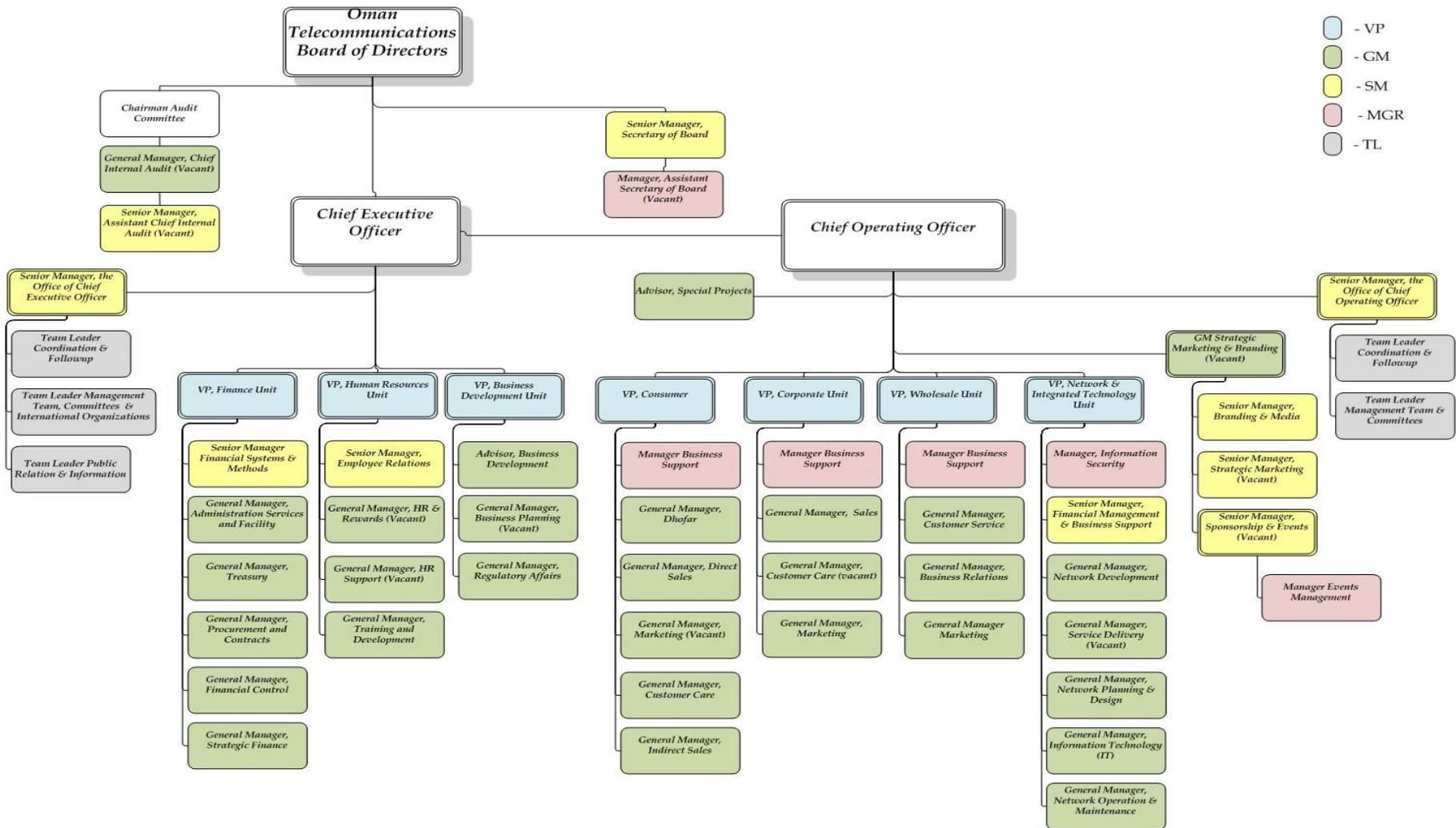
Overview of Case Study Research Methodology



Appendix 3: Brief summary about Omantel

Sultanate of Oman is located in the Middle East, and its area is almost twice larger than the UK in with various geographical terrains. It has a population of 4,414,051 as per National Centre for Statistics and Information in the year 2016 (www.ncsi.gov.om). The population is scattered in areas such as urban, mountains and deserts.

The telecommunication services in Oman before 1970 were provided by UK Company called Cable & Wireless, across Muscat and Salalah City. In 1970's, the Cable & Wireless convergence to governmental company known as Omantel. In 1980's Omantel became a governmental organisation, known as General Telecommunication Organization (GTO). A royal decree issued in the year 2000 to privatise the telecom industrially in Oman, therefore GTO became Oman Telecommunication Company (Omantel). In the year 2005, the incumbent Oman Telecommunication Company (Omantel) launched an Initial Public Offering (IPO). After the successful sale of shares to the public, it was listed in Muscat Security Market (MSM). It is 51% owned by the Government and 49% owned by public shareholders. According to the Q2 2016 information from Telecommunication Regulatory Authority (TRA), fixed line subscribers in Omantel are 296K, and mobile subscribers are 3,896K. The company has more than 3000 employees across the country. Furthermore, it has seven divisions as shown in the following organisational structure. The following table demonstrates the selected functional units as case studies for this research project and the rationale for the section.



Omantel organisational structure

Selected functional units as case studies for this research project and the rationale for the selection

Brief description of the selected unit for the case study	Reason for inclusion
<i>CASE STUDY-1: Human Resource Unit (HR)</i>	
Human Resource Unit is responsible for recruitment, HR performance monitoring, employees' development and career planning. Moreover, they are managing the whole organization HR plan including retirement and employee benefits.	This unit receives HR requirements from other units and fills these gaps by announcing vacancies internally (exploitation) or externally (exploration). Furthermore, it provides training to meet the current and future organisation skills' requirements. It also, develops career plans to meet the mission and vision. All these activities impact and influence on the resource base.
<i>CASE STUDY-2: Regulatory Affairs Division (LGL)</i>	
Regulatory Affairs Division is responsible for managing contracts, resolving organisational legal issues and dealing with other external entities. It also manages frequency spectrum, equipment's registration, update information, implement and monitor regulations to avoid any TRA penalties.	This division implements TRA (Telecommunication Regulation Authority) rules and regulations, and coordinate with other external entities. Accordingly, it sets organisational rules and regulations which impact on the resources base of the whole organisation.
<i>CASE STUDY-3: Corporate Strategy Unit (CSG)</i>	
Corporate Strategy unit provides business insights to the organisation, facilitating the management to make informed decisions with regards to the current and future strategic direction. The unit comprises of three divisions and several departments namely: Business Planning, Regulatory affairs and Strategic Marketing and Branding. It develops an investment strategy and policy. Finally, it responsible for the development of enhanced brand.	This unit is responsible for creating organisational vision and mission. Therefore, it receives information from other units, in order to set organisational level Key Performance Indicators (KPI). Accordingly each functional unit reconfigure their resources base as per the appointed KPI

CASE STUDY-4: Corporate and Consumer Units (C&C)

Corporate and Consumer units deliver customer experience that is reliable, consistent and valuable. They also provide the sales team with effective communication tools to aid them in managing a strong business relationship. Furthermore, they provide corporate customers with innovative products. They also increase awareness of the company's products. Finally, they develop new products and services to suit the market needs.

These units are responsible for sales, marketing, customer care and market monitoring and analysis. Moreover, it provides market intelligent and information to other units to reconfigure their resource in order to meet the dynamic business environment. Furthermore, it responsible for developing new products to match the market status and manage product lifecycle.

CASE STUDY-5: Integrated Network & Technology Unit (IN&T)

IN & T unit is the largest unit in the Organisation. It is provide leading edge technology network services to fit the business. Also, it consists of 8 major departments. The key responsibilities of the unit include providing the security to the organisational information, planning, design, development, implementation, operation & maintenance, service delivery and IT.

This unit contains more than 60% of the whole organisation workforce. It is responsible for driving the technology to meet the end users perspectives. Furthermore, it responsible for the networks operation and maintenance to maintain the performance KPI. As a result, it frequently reconfigures organisation's resources base to meet the dynamic business environment trend.

Appendix 4: Case Study 2, Regulatory Affairs Division (theory vs empirical practices)

Research Question -1: How are DRC developed, deployed and improved?

Practices from theory (PT)	Practices from empirical work (PE)	DRC lifecycle phase
PT1: Learn how to learn	C2-PE11: Enhance learning by attending international meetings and training especially in the area of spectrum management	Development
	C2-PE12: Build networks of professionals by attending conferences & workshops	Development
	C2-PE13: Enhance capability through on-the-job training	Development
	C2-PE28: Enhance skills development through job rotation	Improvement
PT2: Manage knowledge	C2-PE7: Increase employees' knowledge and absorptive capacity through exposure to technology and regular individual coaching sessions	Development
	C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations	Development
	C2-PE20: Explore opportunities to exploit non-core capabilities under new markets conditions	Development
PT3: Build on experience	C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations	Development
	C2-PE10: Enhance skills development by exploiting organisational history, path, and experience	Development
	C2-PE22: Enhance knowledge and skills through resource reconfiguration	Development
PT4: Exploit absorptive capacity	C2-PE7: Increase employees' knowledge and absorptive capacity through exposure to technology and regular individual coaching sessions	Development

PT5: Build on path taken and history	C2-PE10: Enhance skills development by exploiting organisational history, path, and experience	Development
	C2-PE22: Enhance knowledge and skills through resource reconfiguration	Development
PT6: Build on managers perceptions	C2-PE18: Communicate, inspire, motivate and lead employees to develop more skills	Development Improvement
	C2-PE19: Continuous review and refinement of organisational strategy	Development
PT7: Exploit IT and other complementary assets	C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations	Deployment
		Development
PT8: Provide options to decision makers	C2-PE2: Adopt new ideas and technologies	Deployment
	C2-PE4: Diversify businesses and launch new products	Deployment
	C2-PE24: Mitigate threats and grab unplanned business opportunities	Deployment
	C2-PE25: Reconfigure frequency spectrum and other resources to manage emergency activities	Deployment
PT9: Seize business opportunities or threats	C2-PE1: Identify capability gap in the market	Deployment
	C2-PE24: Mitigate threats and grab unplanned business opportunities	Deployment
	C2-PE25: Reconfigure frequency spectrum and other resources to manage emergency activities	Deployment
PT10: Enable innovation	C2-PE5: Encourage innovations and new ideas	Deployment
PT11: Develop and commercialise new products	C2-PE4: Diversify businesses and launch new products	Deployment
PT12: Maintain market position and assets	C2-PE6: Develop inspection process to avoid TRA (Telecommunication Regulatory Authority) penalties.	Deployment
	C2-PE22: Enhance knowledge and skills through resource reconfiguration	Deployment
PT13: Obtain required capabilities in different ways	C2-PE14: Outsource required skills taking into consideration the balance between insourcing and outsourcing.	Deployment
	C2-PE15: Develop and implement outsourcing selection process and criteria	Deployment
PT14: Manage transformation and change	C2-PE9: Mitigate and manage resistance to change	Deployment

	C2-PE20: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment
PT15: Enhance and shape organisational strategy	C2-PE16: Set SMART (specific, measurable, agreed upon, realistic and time-based) objectives and KPIs (Key Performance Indicators)	Deployment
	C2-PE17: Engage and encourage open communication between top management and staff	Deployment
	C2-PE19: Continuous review and refinement of organisational strategy	Deployment
	PE23: Implement long-term planning	Deployment
	C2-PE26: Develop a flexible strategy with top management support	Deployment
	C-2PE27: Develop a clear vision and strategic plans	Deployment
PT16: Focus on performance and profitability	C2-PE2: Adopt new ideas and technologies	Deployment
	C2-PE4: Diversify businesses and launch new products	Deployment
	C2-PE5: Encourage innovations and new ideas	Deployment
		Improvement
	C2-PE6: Develop inspection process to avoid TRA (Telecommunication Regulatory Authority) penalties.	Deployment
	C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations	Deployment
	C2-PE23: Implement long-term planning	Deployment
PT17: Develop organisational approaches for continuous process improvement	C2-PE24: Mitigate threats and grab unplanned business opportunities	Deployment
	C2-PE16: Set SMART (specific, measurable, agreed upon, realistic and time-based) objectives and KPIs (Key Performance Indicators)	Improvement
	C2-PE19: Continuous review and refinement of organisational strategy	Improvement
	C2-PE21: Build a culture of continuous process improvement	Improvement
	C2-PE23: Implement long-term planning	Improvement
	C-2PE27: Develop a clear vision and strategic plans	Improvement
	C2-PE28: Enhance skills development through job rotation	Improvement

	C2-PE29: Reward and recognise skills and behaviours to encourage others	Improvement
PT18: Enrich culture and social networking	C2-PE3: Build a market-driven internal culture	Improvement
	C2-PE17: Engage and encourage open communication between top management and staff	Improvement
	C2-PE21: Build a culture of continuous process improvement	Improvement
	C2-PE29: Reward and recognise skills and behaviours to encourage others	Improvement

Research Question -2; How do DRC support the concurrent approaches to strategy deployment?

Strategic actions support the concurrent approaches to strategy deployment		
Planned		
PT7: Exploit IT and other complementary assets	C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations	
PT8: Provide options to decision makers	C2-PE4: Diversify businesses and launch new products	
PT9: Seize business opportunities or threats	C2-PE1: Identify capability gap in the market	
PT10: Enable innovation	C2-PE5: Encourage innovations and new ideas	
PT12: Maintain market position and assets	C2-PE6: Develop inspection process to avoid TRA (Telecommunication Regulatory Authority) penalties C2-PE22: Enhance knowledge and skills through resource reconfiguration	

PT13: Obtain required capabilities in different ways	C2-PE14: Outsource required skills taking into consideration the balance between insourcing and outsourcing. C2-PE15: Develop and implement outsourcing selection process and criteria
PT14: Manage transformation and change	C2-PE9: Mitigate and manage resistance to change C2-PE20: Explore opportunities to exploit non-core capabilities under new markets conditions
PT15: Enhance and shape organisational strategy	C2-PE16: Set SMART (specific, measurable, agreed upon, realistic and time-based) objectives and KPIs (Key Performance Indicators) C2-PE17: Engage and encourage open communication between top management and staff C2-PE19: Continuous review and refinement of organisational strategy C2-PE23: Implement long-term planning C2-PE26: Develop a flexible strategy with top management support C-2PE27: Develop a clear vision and strategic plans
PT16: Focus on performance and profitability	C2-PE4: Diversify businesses and launch new products C2-PE5: Encourage innovations and new ideas C2-PE6: Develop inspection process to avoid TRA (Telecommunication Regulatory Authority) penalties. C2-PE8: Manage and maintain a database of the frequency spectrum and wireless equipment registrations C2-PE23: Implement long-term planning
Unplanned	
PT8: Provide options to decision makers	C2-PE2: Adopt new ideas and technologies C2-PE24: Mitigate threats and grab unplanned business opportunities
PT9: Seize business opportunities or threats	C2-PE24: Mitigate threats and grab unplanned business opportunities
PT10: Enable innovation	C2-PE5: Encourage innovations and new ideas
PT11: Develop and commercialise new	C2-PE4: Diversify businesses and launch new products

products	
PT16: Focus on performance and profitability	C2-PE2: Adopt new ideas and technologies C2-PE5: Encourage innovations and new ideas C2-PE24: Mitigate threats and grab unplanned business opportunities
Emergency	
PT8: Provide options to decision makers	C2-PE25: Reconfigure frequency spectrum and other resources to manage emergency activities
PT9: Seize business opportunities or threats	C2-PE25: Reconfigure frequency spectrum and other resources to manage emergency activities
PT10: Enable innovation	C2-PE5: Encourage innovations and new ideas

Appendix 5: Case Study 3, Corporate Strategy Unit (theory vs empirical practices)

Research Question -1: How are DRC developed, deployed and improved?

Practices from theory (PT)	Practices from empirical work (C3-PE)	DRC lifecycle phase
PT1: Learn how to learn	C3-PE3: Learn from new technology implementation, on job training, best practices, and engagement in external knowledge sharing	Development
	C3-PE4: Learn from previous experiences and mistakes	Improvement
	C3-PE7: Develop and manage individual employee development programme (IDP)	Development
PT2: Manage knowledge	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy	Development
	C3-PE5: Balance between outsourcing and insourcing, and manage knowledge transfer from external experts	Improvement
PT3: Build on experience	C3-PE4: Learn from previous experiences and mistakes	Development
	C-3PE17: Enhance skills development by exploiting organisational history, path and experience, and manage change	Development
PT4: Exploit absorptive capacity	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy	Development

PT5: Build on path taken and history	C3-PE15: Manage transition to privatisation while maintaining market position	Deployment
	C-3PE17: Enhance skills development by exploiting organisational history, path and experience, and manage change	Development
PT6: Build on managers perceptions	C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions	Development
	C3-PE9: Mentoring and coaching to develop the right skills and behaviours	Development
PT8: Provide options to decision makers	C3-PE1: Seize business opportunities or threat and regularly update top management	Deployment
	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy	Deployment
	C3-PE14: Build a technology road map	Deployment
	C3-PE21: Consider emergency situations for future planning	Deployment
PT9: Seize business opportunities or threats	C3-PE1: Seize business opportunities or threat and regularly update top management	Deployment
	C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment
PT10: Enable innovation	C3-PE18: Conduct trials for new products	Development

PT11: Develop and commercialise new products	C3-PE18: Conduct trials for new products	Deployment
PT12: Maintain market position and assets	C3-PE15: Manage transition to privatisation while maintaining market position	Deployment
	C3-PE16: Build awareness of the link between individual roles and organisation brand	Deployment Development
PT13: Obtain required capabilities in different ways	C3-PE5: Balance between outsourcing and insourcing, and manage knowledge transfer from external experts Balance between outsourcing and insourcing, and manage knowledge transfer	Deployment
	C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment
	C3-PE13: Bring external expertise to support the development of strategy	Deployment
PT14: Manage transformation and change	C3-PE9: Mentoring and coaching to develop the right skills and behaviours	Deployment
	C3-PE12: Develop and implement strategy aligned with the organisation capabilities	Deployment
	C3-PE15: Manage transition to privatisation while maintaining market position	Deployment
	C-3PE17: Enhance skills development by exploiting organisational history, path and experience, and manage change	Deployment
PT15: Enhance and shape organisational strategy	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy	Deployment
	C3-PE5: Balance between outsourcing and insourcing, and manage	Deployment

	knowledge transfer from external experts	
	C3-PE6: Introduce KPIs to support execution of strategy	Deployment
	C3-PE12: Develop and implement strategy aligned with the organisation capabilities	Deployment
	C3-PE13: Bring external expertise to support the development of strategy	Deployment
	C3-PE14: Build a technology road map	Deployment
	C3-PE19: Build adjustable long term planning to build the required capabilities	Deployment
	C3-PE20: Balance between unplanned and planned planning	Deployment
	C3-PE21: Consider emergency situations for future planning	Deployment
PT16: Focus on performance and profitability	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy	Deployment
	C3-PE16: Build awareness of the link between individual roles and organisation brand	Deployment
	C3-PE18: Conduct trials for new products	Deployment
	C3-PE20: Balance between unplanned and planned planning	Deployment
PT17: Develop organisational approaches for continuous process improvement	C3-PE4: Learn from previous experiences and mistakes	Improvement
	C3-PE6: Introduce KPIs to support execution of strategy	Improvement

	C3-PE7: Develop and manage individual employee development programme (IDP)	Improvement
	C3-PE10: Reward and recognise skills and behaviours to encourage others	Improvement Development
	C3-PE11: Build a high-performance culture and proactive open knowledge sharing	Improvement
PT18: Enrich culture and social networking	C3-PE10: Reward and recognise skills and behaviours to encourage others	Improvement
	C3-PE11: Build a high-performance culture and proactive open knowledge sharing	Improvement

Research Question -2; How do DRC support the concurrent approaches to strategy deployment?

Strategic actions support the concurrent approaches to strategy deployment	
Planned	
PT5: Build on path taken and history	C3-PE15: Manage transition to privatisation while maintaining market position
PT8: Provide options to decision makers	C3-PE1: Seize business opportunities or threat and regularly update top management C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy C3-PE14: Build a technology road map
PT9: Seize business opportunities or threats	C3-PE1: Seize business opportunities or threat and regularly update top management C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions

PT11: Develop and commercialise new products	C3-PE18: Conduct trials for new products
PT12: Maintain market position and assets	C3-PE15: Manage transition to privatisation while maintaining market position C3-PE16: Build awareness of the link between individual roles and organisation brand
PT13: Obtain required capabilities in different ways	C3-PE5: Balance between outsourcing and insourcing, and manage knowledge transfer from external experts C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions C3-PE13: Bring external expertise to support the development of strategy
PT14: Manage transformation and change	C3-PE9: Mentoring and coaching to develop the right skills and behaviours C3-PE12: Develop and implement strategy aligned with the organisation capabilities C3-PE15: Manage transition to privatisation while maintaining market position C-3PE17: Enhance skills development by exploiting organisational history, path and experience, and manage change
PT15: Enhance and shape organisational strategy	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy C3-PE5: Balance between outsourcing and insourcing, and manage knowledge transfer from external experts C3-PE6: Introduce KPIs to support execution of strategy C3-PE12: Develop and implement strategy aligned with the organisation capabilities C3-PE13: Bring external expertise to support the development of strategy C3-PE14: Build a technology road map C3-PE19: Build adjustable long term planning to build the required capabilities
PT16: Focus on performance and profitability	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy C3-PE16: Build awareness of the link between individual roles and organisation brand C3-PE18: Conduct trials for new products C3-PE20: Balance between unplanned and planned planning

Unplanned	
PT8: Provide options to decision makers	C3-PE1: Seize business opportunities or threat and regularly update top management C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy
PT9: Seize business opportunities or threats	C3-PE1: Seize business opportunities or threat and regularly update top management C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions
PT11: Develop and commercialise new products	C3-PE18: Conduct trials for new products
PT13: Obtain required capabilities in different ways	C3-PE8: Explore opportunities to exploit non-core capabilities under new markets conditions
PT15: Enhance and shape organisational strategy	C3-PE20: Balance between unplanned and planned planning
PT16: Focus on performance and profitability	C3-PE2: Exploit knowledge from vendors about technology trends to support decision making processes, enhance existing infrastructure and strategy C3-PE18: Conduct trials for new products C3-PE20: Balance between unplanned and planned planning
Emergency	
PT8: Provide options to decision makers	C3-PE21: Consider emergency situations for future planning
PT15: Enhance and shape organisational strategy	C3-PE21: Consider emergency situations for future planning

Appendix 6: Case Study 4: Corporate and Consumer Units (theory vs empirical practices)

Research Question -1: How are DRC developed, deployed and improved?

Practices from theory (PT)	Practices from empirical work (C4-PE)	DRC lifecycle phase
PT1: Learn how to learn	C4-PE7: Learn from vendors, conferences, and other external knowledge engagement practices	Development
	C4-PE8: Learn from delegation, coaching and shadowing with senior staff	Improvement
	C4-PE8: Learn from delegation, coaching and shadowing with senior staff	Development
	C4-PE29: Implement job rotation	Improvement
PT2: Manage knowledge	C4-PE6: Manage knowledge transferred from external experts	Development
	C4-PE10: Closely manage outsourcing of gaps in capability	Development
	C4-PE13: Explore opportunities to exploit non-core capabilities under new markets conditions	Development
	C4-PE14: Build a working environment that supports a culture of knowledge sharing	Development
	C4-PE24: Exploit long-term experience, market know-how, and network assets	Deployment
PT3: Build on experience	C4-PE24: Exploit long-term experience, market know-how, and network assets	Development
	C4-PE24: Exploit long-term experience, market know-how, and network assets	Deployment
PT4: Exploit absorptive capacity	C4-PE5: Enhance absorptive capacity through knowledge management	Development
	C4-PE29: Implement job rotation	Development
PT5: Build on path taken and history	C4-PE23: Manage transition to privatisation while maintaining market position	Development

	C4-PE24: Exploit long-term experience, market know-how, and network assets	Deployment
PT6: Build on managers perceptions	C4-PE12: Managers mentor and influence on skills development	Development
	C4-PE13: Explore opportunities to exploit non-core capabilities under new markets conditions	Development
	C4-PE16: Top management develop flexible long-term strategy	Deployment
	C4-PE22: Assign product managers for each product to monitor product lifecycle	Deployment
	C4-PE25: Implement unplanned planning to grab unplanned business opportunities	Deployment
	C4-PE26: Implement long-term planning to save cost and to be proactive	Deployment
PT7: Exploit IT and other complementary assets	C4-PE24: Exploit long-term experience, market know-how, and network assets	Deployment
PT8: Provide options to decision makers	C4-PE27: Inform and advise consumers about emergency events	Deployment
PT9: Seize business opportunities or threats	C4-PE2: Continuous seizing market threats or opportunities	Deployment
	C4-PE13: Explore opportunities to exploit non-core capabilities under new markets conditions	Deployment
	C4-PE22: Assign product managers for each product to monitor product lifecycle	Improvement

PT10: Enable innovation	C4-PE2: Continuous seizing market threats or opportunities	Deployment
	C4-PE3: Develop customised solutions	Deployment
	C4-PE4: Drive innovation	Deployment
		Development
	C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support	Deployment
	C4-PE19: Collaborate across functional units to develop new products	Deployment
	C4-PE20: Promote and launch new products	Deployment
C4-PE21: Enable culture of new ideas to develop new products	Deployment	
PT11: Develop and commercialise new products	C4-PE3: Develop customised solutions	Deployment
		Development
	C4-PE4: Drive innovation	Deployment
	C4-PE19: Collaborate across functional units to develop new products	Deployment
	C4-PE20: Promote and launch new products	Deployment
		Development
	C4-PE21: Enable culture of new ideas to develop new products	Deployment
Development		
C4-PE22: Assign product managers for each product to monitor product lifecycle	Deployment	
PT12: Maintain market position and assets	C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support	Deployment

	C4-PE23: Manage transition to privatisation while maintaining market position	Deployment
	C4-PE24: Exploit long-term experience, market know-how, and network assets	Deployment
PT13: Obtain required capabilities in different ways	C4-PE6: Manage knowledge transferred from external experts	Development
	C4-PE9: Build business-critical capabilities internally	Development
	C4-PE10: Closely manage outsourcing of gaps in capability	Development
PT14: Manage transformation and change	C4-PE1: Implement TRA rules and regulation for product development and reporting on active subscribers	Deployment
	C4-PE23: Manage transition to privatisation while maintaining market position	Deployment
	C4-PE28: Engage employees in the strategy formulation process	Deployment
PT15: Enhance and shape organisational strategy	C4-PE16: Top management develop flexible long-term strategy	Deployment
	C4-PE17: Develop strategy and plans in line with organisational capabilities	Deployment
	C4-PE25: Implement unplanned planning to grab unplanned business opportunities	Deployment
	C4-PE26: Implement long-term planning to save cost and to be proactive	Deployment
	C4-PE28: Engage employees in the strategy formulation process	Deployment
PT16: Focus on performance and	C4-PE2: Continuous seizing market threats or opportunities	Deployment

profitability	C4-PE3: Develop customised solutions	Deployment
	C4-PE11: Delegate decision-making processes and empower people	Deployment
	C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support	Deployment
	C4-PE19: Collaborate across functional units to develop new products	Deployment
	C4-PE21: Enable culture of new ideas to develop new products	Deployment
	C4-PE22: Assign product managers for each product to monitor product lifecycle	Deployment
	C4-PE25: Implement unplanned planning to grab unplanned business opportunities	Deployment
	C4-PE26: Implement long-term planning to save cost and to be proactive	Deployment
	C4-PE27: Inform and advise consumers about emergency events	Deployment
PT17: Develop organisational approaches for continuous process improvement	C4-PE11: Delegate decision-making processes and empower people	Deployment Improvement
	C4-PE14: Build a working environment that supports a culture of knowledge sharing	Deployment Improvement
	C4-PE15: Align salary schemes and employees benefits with appraisal system	Improvement
	C4-PE28: Engage employees in the strategy formulation process	Improvement

	C4-PE29: Implement job rotation	Improvement
PT18: Enrich culture and social networking	C4-PE12: Managers mentor and influence on skills development	Deployment
		Improvement
	C4-PE14: Build a working environment that supports a culture of knowledge sharing	Deployment
		Improvement
	C4-PE15: Align salary schemes and employees benefits with appraisal system	Improvement
	C4-PE19: Collaborate across functional units to develop new products	Improvement

Research Question -2; How do DRC support the concurrent approaches to strategy deployment?

Strategic actions support the concurrent approaches to strategy deployment	
Planned	
PT2: Manage knowledge	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT3: Build on experience	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT5: Build on path taken and history	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT6: Build on managers perceptions	C4-PE16: Top management develop flexible long-term strategy C4-PE22: Assign product managers for each product to monitor product lifecycle C4-PE26: Implement long-term planning to save cost and to be proactive

PT7: Exploit IT and other complementary asset	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT9: Seize business opportunities or threats	C4-PE2: Continuous market monitoring to identify threats and opportunities C4-PE13: Explore opportunities to exploit non-core capabilities under new markets conditions
PT10: Enable innovation	C4-PE2: Continuous seizing market threats or opportunities C4-PE4: Drive innovation C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support C4-PE19: Collaborate across functional units to develop new products C4-PE20: Promote and launch new products C4-PE21: Enable culture of new ideas to develop new products
PT11: Develop and commercialise new products	C4-PE4: Drive innovation C4-PE19: Collaborate across functional units to develop new products C4-PE20: Promote and launch new products C4-PE21: Enable culture of new ideas to develop new products C4-PE22: Assign product managers for each product to monitor product lifecycle
PT12: Maintain market position and assets	C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support C4-PE23: Manage transition to privatisation while maintaining market position C4-PE24: Exploit long-term experience, market know-how, and network assets
PT14: Manage transformation and change	C4-PE1: Implement TRA rules and regulation for product development and reporting on active subscribers C4-PE23: Manage transition to privatisation while maintaining market position C4-PE28: Engage employees in the strategy formulation process

PT15: Enhance and shape organisational strategy	C4-PE16: Top management develop flexible long-term strategy C4-PE17: Develop strategy and plans in line with organisational capabilities C4-PE25: Implement unplanned planning to grab unplanned business opportunities C4-PE26: Implement long-term planning to save cost and to be proactive C4-PE28: Engage employees in the strategy formulation process
PT16: Focus on performance and profitability	C4-PE2: Continuous seizing market threats or opportunities C4-PE3: Develop customised solutions C4-PE11: Delegate decision-making processes and empower people C4-PE18: Attract more customers by developing innovative pricing schemes, enhancing network quality and after-sale support C4-PE19: Collaborate across functional units to develop new products C4-PE21: Enable culture of new ideas to develop new products C4-PE22: Assign product managers for each product to monitor product lifecycle C4-PE26: Implement long-term planning to save cost and to be proactive
PT17: Develop organisational approaches for continuous process improvement	C4-PE11: Delegate decision-making processes and empower people C4-PE14: Build a working environment that supports a culture of knowledge sharing
PT18: Enrich culture and social networking	C4-PE12: Managers mentor and influence on skills development C4-PE14: Build a working environment that supports a culture of knowledge sharing
Unplanned	
PT3: Build on experience	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT6: Build on managers perceptions	C4-PE25: Implement unplanned planning to grab unplanned business opportunities
PT9: Seize business opportunities or threats	C4-PE2: Continuous seizing market threats or opportunities C4-PE13: Explore opportunities to exploit non-core capabilities under new markets conditions
PT10: Enable innovation	C4-PE2: Continuous market monitoring to identify threats and opportunities

	C4-PE3: Develop customised solutions C4-PE21: Enable culture of new ideas to develop new products
PT11: Develop and commercialise new products	C4-PE21: Enable culture of new ideas to develop new products
PT12: Maintain market position and assets	C4-PE23: Manage transition to privatisation while maintaining market position
PT14: Manage transformation and change	C4-PE23: Manage transition to privatisation while maintaining market position
PT15: Enhance and shape organisational strategy	C4-PE25: Implement unplanned planning to grab unplanned business opportunities
PT16: Focus on performance and profitability	C4-PE2: Continuous seizing market threats or opportunities C4-PE3: Develop customised solutions C4-PE25: Implement unplanned planning to grab unplanned business opportunities
Emergency	
PT3: Build on experience	C4-PE24: Exploit long-term experience, market know-how, and network assets
PT8: Provide options to decision makers	C4-PE27: Inform and advise consumers about emergency events
PT16: Focus on performance and profitability	C4-PE27: Inform and advise consumers about emergency events

Appendix 7: Case Study 5: Integrated Network & Technology Unit (theory vs empirical practices)

Research Question -1: How are DRC developed, deployed and improved?

Practices from theory (PT)	Practices from empirical work (C5-PE)	DRC lifecycle phase
PT1: Learn how to learn	C5-PE3: Develop annual training plan	Development
	C5-PE4: Mitigate and overcome learning challenges	Improvement
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Development
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Improvement
PT2: Manage knowledge	C5-PE5: Develop and maintain knowledge sharing database	Development
	C5-PE8: Outsource capability gaps and manage outsource process	Development
	C5-PE10: Coach and mentor employees	Development
	C5-PE13: Enhance networking and communication	Deployment
	C5-PE13: Enhance networking and communication	Development
	C5-PE14: Build on experience and historical path	Development
	C5-PE14: Build on experience and historical path	Deployment
PT3: Build on experience	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Development
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Deployment
	C5-PE22: Implement job rotation	Development
	C5-PE22: Implement job rotation	Deployment

	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Deployment
		Development
	C5-PE22: Implement job rotation	Development
		Development
PT4: Exploit absorptive capacity	C5-PE22: Implement job rotation	Development
PT5: Build on path taken and history	C5-PE14: Build on experience and historical path	Development
	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy	Development Deployment
PT6: Build on managers perceptions	C5-PE10: Coach and mentor employees	Development
	C5-PE20: Align all resources, processes and employees with strategic direction	Development Deployment
	C5-PE21: Continuous review and refinement of organisational strategy	Deployment
PT7: Exploit IT and other complementary assets	C5-PE2: Continuous improvement of network project management and operational processes	Deployment
	C5-PE5: Develop and maintain knowledge sharing database	Development
	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency	Deployment
	C5-PE7: Develop in-house products and services	Deployment
	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy	Deployment Development

PT8: Provide options to decision makers	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats	Deployment
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Deployment
	C5-PE20: Align all resources, processes and employees with strategic direction	Deployment
	C5-PE21: Continuous review and refinement of organisational strategy	Deployment
PT9: Seize business opportunities or threats	C5-PE1: Act in line with markets trends and technology changes	Deployment
	C5-PE10: Coach and mentor employees	Deployment Improvement
	C5-PE17: Develop long-term planning for better resources utilisation	Deployment
	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats	Deployment
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Deployment
	C5-PE20: Align all resources, processes and employees with strategic direction	Deployment
	C5-PE21: Continuous review and refinement of organisational strategy	Deployment
PT10: Enable innovation	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency	Deployment
		Development

PT11: Develop and commercialise new products	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency	Deployment
	C5-PE7: Develop in-house products and services	Deployment
PT12: Maintain market position and assets	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy	Deployment
	C5-PE17: Develop long-term planning for better resources utilisation	Deployment
	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats	Deployment
	C5-PE19: Develop long-term planning for better resources utilisation	Development
PT13: Obtain required capabilities in different ways	C5-PE8: Outsource capability gaps and manage outsource process	Deployment
	C5-PE9: Develop recruitment and secondment process	Development
	C5-PE20: Align all resources, processes and employees with strategic direction	Deployment
PT14: Manage transformation and change	C5-PE15: Manage resistance to change	Deployment
	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy	Deployment
PT15: Enhance and shape organisational strategy	C5-PE9: Develop recruitment and secondment process	Deployment
	C5-PE17: Develop long-term planning for better resources utilisation	Development
	C5-PE18: Deploy unplanned strategies to grab business opportunities and	Deployment

	mitigate threats	
	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans	Deployment
	C5-PE20: Align all resources, processes and employees with strategic direction	Deployment
	C5-PE21: Continuous review and refinement of organisational strategy	Deployment
	C5-PE23: Engage employees and customers to enhance strategy	Deployment
PT16: Focus on performance and profitability	C5-PE2: Continuous improvement of network project management and operational processes	Deployment
	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency	Deployment
	C5-PE7: Develop in-house products and services	Deployment
	C5-PE9: Develop recruitment and secondment process	Deployment Improvement
	C5-PE11: Build flexibility in network operation processes	Deployment
	C5-PE12: Certify and standardise processes for continuous improvement	Deployment
	C5-PE17: Develop long-term planning for better resources utilisation	Deployment
	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats	Deployment
	C5-PE19: Respond to emergencies and consider lessons learned in the long-	Deployment

	term plans	
	C5-PE23: Engage employees and customers to enhance strategy	Deployment
PT17: Develop organisational approaches for continuous process improvement	C5-PE2: Continuous improvement of network project management and operational processes	Deployment
	C5-PE3: Develop annual training plan	Development
		Improvement
	C5-PE4: Mitigate and overcome learning challenges	Development
		Improvement
	C5-PE8: Outsource capability gaps and manage outsource process	Deployment
		Improvement
	C5-PE11: Build flexibility in network operation processes	Deployment
		Improvement
	C5-PE12: Certify and standardise processes for continuous improvement	Improvement
	C5-PE13: Enhance networking and communication	Development
		Improvement
	C5-PE17: Develop long-term planning for better resources utilisation	Deployment
	Improvement	
C5-PE20: Align all resources, processes and employees with strategic direction	Development	
	Improvement	
C5-PE21: Continuous review and refinement of organisational strategy	Deployment	
	Improvement	
C5-PE22: Implement job rotation	Improvement	
	Development	

	C5-PE23: Engage employees and customers to enhance strategy	Improvement
PT18: Enrich culture and social networking	C5-PE13: Enhance networking and communication	Development
	C5-PE22: Implement job rotation	Improvement
	C5-PE23: Engage employees and customers to enhance strategy	Improvement

Research Question -2; How do DRC support the concurrent approaches to strategy deployment?

Strategic actions support the concurrent approaches to strategy deployment	
Planned	
PT2: Manage knowledge	C5-PE10: Coach and mentor employees C5-PE14: Build on experience and historical path
PT3: Build on experience	C5-PE14: Build on experience and historical path C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy
PT5: Build on path taken and history	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy
PT6: Build on managers perceptions	C5-PE20: Align all resources, processes and employees with strategic direction C5-PE21: Continuous review and refinement of organisational strategy

PT7: Exploit IT and other complementary assets	C5-PE2: Continuous improvement of network project management and operational processes C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency C5-PE7: Develop in-house products and services C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy
PT8: Provide options to decision makers	C5-PE20: Align all resources, processes and employees with strategic direction C5-PE21: Continuous review and refinement of organisational strategy
PT9: Seize business opportunities or threats	C5-PE1: Act in line with markets trends and technology changes C5-PE10: Coach and mentor employees C5-PE17: Develop long-term planning for better resources utilisation C5-PE20: Align all resources, processes and employees with strategic direction C5-PE21: Continuous review and refinement of organisational strategy
PT10: Enable innovation	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency
PT11: Develop and commercialise new products	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency C5-PE7: Develop in-house products and services
PT12: Maintain market position and assets	C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy C5-PE17: Develop long-term planning for better resources utilisation
PT13: Obtain required capabilities in different ways	C5-PE8: Outsource capability gaps and manage outsource process C5-PE9: Develop recruitment and secondment process C5-PE20: Align all resources, processes and employees with strategic direction
PT14: Manage transformation and change	C5-PE15: Manage resistance to change C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy

PT15: Enhance and shape organisational strategy	C5-PE9: Develop recruitment and secondment process C5-PE17: Develop long-term planning for better resources utilisation C5-PE20: Align all resources, processes and employees with strategic direction C5-PE21: Continuous review and refinement of organisational strategy C5-PE23: Engage employees and customers to enhance strategy
PT16: Focus on performance and profitability	C5-PE2: Continuous improvement of network project management and operational processes C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency C5-PE7: Develop in-house products and services C5-PE9: Develop recruitment and secondment process C5-PE11: Build flexibility in network operation processes C5-PE12: Certify and standardise processes for continuous improvement C5-PE17: Develop long-term planning for better resources utilisation C5-PE23: Engage employees and customers to enhance strategy
PT17: Develop organisational approaches for continuous process improvement	C5-PE2: Continuous improvement of network project management and operational processes C5-PE8: Outsource capability gaps and manage outsource process C5-PE11: Build flexibility in network operation processes C5-PE17: Develop long-term planning for better resources utilisation C5-PE21: Continuous review and refinement of organisational strategy
Unplanned	
PT3: Build on experience	C5-PE14: Build on experience and historical path C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy
PT6: Build on managers perceptions	C5-PE21: Continuous review and refinement of organisational strategy
PT7: Exploit IT and other complementary assets	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency C5-PE16: Continuous review and evaluation of capabilities in line with market position and strategy

PT8: Provide options to decision makers	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats C5-PE21: Continuous review and refinement of organisational strategy
PT9: Seize business opportunities or threats	C5-PE1: Act in line with markets trends and technology changes C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats C5-PE21: Continuous review and refinement of organisational strategy
PT10: Enable innovation	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency
PT11: Develop and commercialise new products	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency
PT12: Maintain market position and assets	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats
PT13: Obtain required capabilities in different ways	C5-PE8: Outsource capability gaps and manage outsource process
PT14: Manage transformation and change	C5-PE15: Manage resistance to change
PT15: Enhance and shape organisational strategy	C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats C5-PE21: Continuous review and refinement of organisational strategy
PT16: Focus on performance and profitability	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency C5-PE18: Deploy unplanned strategies to grab business opportunities and mitigate threats
Emergency	
PT2: Manage knowledge	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans

PT3: Build on experience	C5-PE14: Build on experience and historical path C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans
PT8: Provide options to decision makers	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans
PT9: Seize business opportunities or threats	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans C5-PE21: Continuous review and refinement of organisational strategy
PT10: Enable innovation	C5-PE6: Design customised solutions for corporate customers with careful consideration of asset efficiency
PT13: Obtain required capabilities in different ways	C5-PE8: Outsource capability gaps and manage outsource process
PT15: Enhance and shape organisational strategy	C5-PE19: Respond to emergencies and consider lessons learned in the long-term plans C5-PE21: Continuous review and refinement of organisational strategy

Appendix 8: The emphasis of empirical practices on the practices from theory:-

PT	Practises from theory	HR Case Study (Freq. of C1-PE related to PT, total of 61 relations)		LGL Case Study (Freq. of C2-PE related to PT, total of 56 relations)		CSG Case Study (Freq. of C3-PE related to PT, total of 49 relations)		C&C Case Study (Freq. of C4-PE related to PT, total of 70 relations)		IN&T Case Study (Freq. of C5-PE related to PT, total of 79 relations)	
		No. of relations	Freq. of relations	No. of relations	Freq. of relations	No. of relations	Freq. of relations	No. of relations	Freq. of relations	No. of relations	Freq. of relations
PT1	Learn how to learn	3	5%	4	7%	3	6%	3	4%	3	4%
PT2	Manage knowledge	2	3%	3	5%	2	4%	5	7%	7	9%
PT3	Build on experience	1	2%	3	5%	2	4%	1	1%	4	5%
PT4	Exploit absorptive capacity	1	2%	1	2%	1	2%	2	3%	1	1%
PT5	Build on path taken and history	2	3%	2	4%	2	4%	2	3%	2	3%
PT6	Build on managers perceptions	1	2%	2	4%	2	4%	6	9%	3	4%
PT7	Exploit IT and other complementary asset	2	3%	1	2%	0	0%	1	1%	5	6%
PT8	Provide options to decision makers	4	7%	4	7%	4	8%	1	1%	4	5%
PT9	Seize business opportunities or threats	3	5%	3	5%	2	4%	3	4%	7	9%
PT10	Enable innovation	1	2%	1	2%	1	2%	7	10%	1	1%
PT11	Develop and commercialise new products	0	0%	1	2%	1	2%	6	9%	2	3%
PT12	Maintain market position and assets	2	3%	2	4%	2	4%	3	4%	3	4%
PT13	Obtain required capabilities in different ways	3	5%	2	4%	3	6%	3	4%	3	4%
PT14	Manage transformation and change	4	7%	2	4%	4	8%	3	4%	2	3%
PT15	Enhance and shape organisational strategy	5	8%	6	11%	9	18%	5	7%	7	9%
PT16	Focus on performance and profitability	7	11%	8	14%	4	8%	10	14%	10	13%
PT17	Develop organisational approaches for continuous process improvement	17	28%	7	13%	5	10%	5	7%	12	15%
PT18	Enrich culture and social networking	3	5%	4	7%	2	4%	4	6%	3	4%

Appendix 9: Cross-cases studies patterns searching to answer the first research questions (RQ1)

Human Resource Unit (Case study-1)	Regulatory affairs division. (Case study-2)	Corporate Strategy Unit. (Case study-3)	Corporate and consumer units (Case study-4)	Integrated Network and Technology (Case study-5)
<p>*consultants brings best practice and knowledge (1) *employees complement the consultant transferred knowledge with their culture understanding (1). It will enhance the networking (2)and strengthen the current culture of knowledge sharing (2). * Employees’ willingness to adapt and their acceptance (3)of the market changes enhance their DRC. *enhance their capabilities by learning. * learning in many ways such as: empowering with additional responsibilities (4), sharing best practice(2), attending and presenting at conferences (1). * on the job training, rotation and expose will increase absorptive capacity (2) and will enrich their careers’ knowledge. *Allow employee to face the</p>	<p>*<i>“The competitions give us, even more, chance to find our capabilities’ gaps”</i>(3) *developing DRC continuously by having annual development plans and identifying capabilities gaps (4). *obtaining the DRC internally by learning and continuous development (4)or outsource to a consultant. *national frequency and spectrum management meetings is part of learning (2) *attend international meetings such as; (1) GCC and ITU enhance their teams’ capabilities, build more experience in the spectrum and renew existing knowledge, inform what is coming (2) *international conferences, courses (1), workshops (2)and obtaining certificate regularly</p>	<p>*Some of these decisions lead to developing irrelevant capabilities , decisions were made much earlier, will be used in the future and considered as knowledge.(3) *management skills namely: good vision, business environment interpretation, future skills requirement anticipation and fast decision maker (3) * learning from conferences (1) and different strategic courses job training. (2) *New technology trails (4)and best practice (4) * new technology, then we are trialling it with a vendor (4), <i>it is not just about learning from the best practice(4), but it is something new that we want to bring it into our network. It is also adding more talent and more capabilities into our</i></p>	<p>*learning from delegation, coaching (3), job rotation (17) and shadowing with senior staff (3) *engaged in a very detailed coaching exercise for the first six months (3) <i>“The best way to learn is to let them do things to gain experience. we delegate the work to you. we reduce the level of coaching and we increase the level of delegation”</i> *attend conferences (2), learning from vendors (8) and other international operators’ experience (2) *Will also increases their absorptive capacity to build more capabilities career plan. <i>“Employees may have ideas but they just lack the confidence, so motivation and providing them with all data in a proper absorbable manner will</i></p>	<p>*provides on job training (2), conferences, workshops (1)and professional certifications (4) * involved in projects to expose themselves to the real work and challenges(2). *Proof of concept activities with vendors is learning processes (4) <i>“We have training plans, where we take into account our existing and future technology requirements(4). We also expose our staff to know different kinds of problem-solving techniques, (2)and we send them to different conferences to learn from other people’s experience internationally(1).</i> *shared folders whereas anyone who attended a (conference, workshop or has useful documents) *obtain knowledge from</p>

<p><i>challenges themselves (2) will increase their absorptive capacity and knowledge</i></p> <p>*The HR unit finished automating the IDP which will be in the ERP soon (4), employees will be able to use the ERP to monitor their competencies & development (4)</p> <p>* Many of ERP processes are meant to manage human resources and to enhance employees in planning their development plan (4) together with their line managers to enrich their capabilities</p> <p>* management perception might develop irrelevant capabilities (3) for the current market conditions</p> <p>*Innovative ideas encourage employees to increase their capabilities (4) by time</p> <p>*manager will have a rotation programme to gain the required capabilities and overview knowledge of the organisation (3)</p> <p>* The manager has to be a motivator, good communicator, removing obstacles, needs to understand each (3) how competent are they, and needs to assign the right task to the</p>	<p>(4) are other ways of learning</p> <p>*exposures enhance capability to be updated and build networks of professionals (1,2). Job rotation, on job training and lesson learnt from other tasks (2), are ways of learning. <i>“On job training is the best way of learning which demonstrates real life experiences (1,2) and cases in front of staff.</i></p> <p>*Spectrum management activities and face to face meetings increase employees’ absorptive (2)</p> <p><i>“The best way to deal with low absorptive capacity staff is one-to-one meetings,(3)</i></p> <p>*Path, history, experience and accumulated assets have a positive impact on shaping DRC (6), <i>“The company has more than 45 years of experience I mean building all these networks of copper and fibre require strong teams to manage these networks”</i></p> <p>*management perception skills influence on the DRC development (3). Managers will direct their team to change toward particular perceptions based on their business forecast</p>	<p><i>teams</i></p> <p>*Vendors’ workshops (4) to transfer knowledge of new technologies (2) as-built telecom infrastructure in the company.</p> <p>*The path, history, and experience (6) have a positive impact on developing dynamic capabilities as they build on experience (6). <i>The long-term service employees have made more mistakes in the past, but they have learned from their mistakes(4)</i></p> <p>*Employees to work with consultancy companies (1) and vendors (4) to learn new ways of operating telecommunication processes and understand new levels of business.(4)</p> <p>* market research to find out what are the latest market trends (5)</p> <p>*Business intelligence department analyzes market data and report it to the top management periodically (5) to make some decisions to develop capabilities and build assets. <i>“we get information from all units and review it (5) with the top management.</i></p> <p>* We did a trial of the 900 Mhz in one of the remote areas, and</p>	<p><i>enhance their capabilities”</i></p> <p>*managers direct their capabilities development based on their perception (21) and current market information</p> <p>*irrelevant capabilities will be considered as the gaining of new resources (9). <i>“It’s not a total loss because capabilities cannot be built in one or two days as it will take time(9). If you keep a gap between you and the market, then you will lose the market position”</i></p> <p>technology is changing very fast as well and it’s considered learning processes (3).</p> <p><i>“I believe more dynamism in the market will create an environment to learn more (4) and to react quickly to the market conditions”</i></p> <p>*focus on their capabilities' strength and identify gaps to be filled internally. If not, then they outsource it externally which is a normal practice for all telecom companies.(1)</p> <p>* deal with product development and innovative solutions which are not a routine job so it enhances their DC development(4),</p>	<p>vendors (4) when they involved in project implementation phase.</p> <p>*NOC is another source of information (4)</p> <p>* training candidates have poor English language, and most of the technical training are in English (2)</p> <p>*IT trainings are driven by software, and the IT team is struggling to cope up with the changing pace (3). <i>“Some of them are facing problems with their English as their English is poor.</i></p> <p><i>“The IT field is software driven ..., but some of them have to take a personal interest to cope with the speed of change(3)”</i></p> <p>*management skills are essential to enhance DC development, these skills are; innovative, risk taker, excellent communication, teaching skills, knowledge sharing, and understand employees’ requirements.(4)</p> <p>*The change of direction in developing DC due the market changes is considered as a lesson learned and gaining of extra knowledge (4). <i>change in direction at the end it is still</i></p>
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<p><i>right person</i> *They hired a consultant (14) to review and analyse the market constantly(5) *Innovative ideas encourage employees (9)to do more researches and implement the best practice. *The organisation can only survive by customising their processes(11). That is why one of the KPI(13) that I put to the team is innovation (9) *a process of obtaining the right candidates with the right capabilities for each job(8) *The managerial and organisational processes (10) are designed based on the company's long time experience on the market and consumers(6). *with our long time experience(6), we have more advantages to building and develop capabilities compared to the competitors we understand the market better(6)” *The organisation has different teams who are dedicated to each market segment(5) *The organisation has a process to challenge and change the current process(11), ..who</p>	<p>in terms of changes in the market, technology, and regulations.(3)</p> <p>*being an incumbent has many positive impacts such as existing customer based, established networks, strong knowledge (6). *doing all legal inspection requirements which include technical and regulatory inspection (11). *information is recorded and updated regularly via the in-house database, electronic applications linked with the database (11) as a complementary asset to store barcodes for all built equipment. *outsourced consultancy brings international experience and know-how (8) *outsourcing must be to the identified capabilities gaps only and knowledge transfer must be key criteria in selecting the outsourced company (8) *balance between outsourcing and in-house DRC building (8) in order to minimize risks of outsourcing such as; knowledge confidentiality, internal staff resistance or fail to transfer the</p>	<p><i>it becomes as a product to be used elsewhere if required (8)</i> * the incumbent invest a lot in the infrastructure to improve the quality which made customers still favour the incumbent. “Our company is one of the few in the world that has been able to take back market share from the challenger. *keep monitoring the market events and behaviour (5). “we noticed a couple of weeks that customers were porting out, more than porting-in. So we brought that matter to the management attention and then they instructed the sales team to focus on getting back these customers(1). *Company owns and continue developing dynamic capabilities to maintain the existing assets, customers’ base and market position (7) “We are succeeding because we are not continuing as the incumbent, political and governmental(7). We have been able to convince the market that we are no longer the old big slow incumbent operator. We have transformed into a dynamic operator (6)that has a</p>	<p><i>Thinking out of the box exercise will make you more skilled and experienced by time. As you deal with many different challenges, so your skills will be very sharp and you will gain a lot of experience. It will give you self-satisfaction (6)</i></p> <p>*This experience, path, and the accumulated data enhance them to develop more capabilities (6). The incumbent will build more capabilities because they have experience(6) analyse market data (5) to plan for products promotion and launching (9). “The person who is managing a prepaid product (Hayyak product) is analysing the market figures (5) ,so we need to put a promotion there (9)” *to attract more costumers’ and dominate the market three major aspects should be focused on namely; network quality, after sale support and smart pricing (9)“The company is investing a lot to enhance their network. It has a very big team responsible for after sales support, specific account manager (9) assigned to each</p>	<p><i>knowledge that we learnt. Will not be a waste. We can use it again in the future</i> *builds their capabilities on experience, historical way of doing things and knowledge gained previously (6). “We are utilising our experiences as our strengths (6), which differentiate between incumbents and a newcomer.</p> <p>*The IN&T acts proactively in the market by building a networks’ infrastructure to support the current situation and address the future technology trend (5) The IN&T is moving forward in that direction by installing equipment that is ready to work for both IPv4 and IPv6 * introduced new processes to enhance the implementation performance(11). They create competition to appreciate the vendor of the month and the supervisor of the month. (11)“We have introduced a contest, and it was the first competition of its type in the Middle East (11). It is to appreciate a vendor as the vendor of the month. We have certain criteria to evaluate</p>
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<p>wants to make a change to enhance the work style or the organisation productivity and performance, so the management will support (11). *The company has a career development programme with a complete competency framework, for professional and technical skills and core competencies for each job profile(8). <i>*We have other job specifications and skills, but the most important is the critical competencies that help you identify the candidate(8)</i> *critical competencies which identified in each job profile to select the right candidates (8) * HR unit is moving towards automated processes (ERP) to faster the organisation's processes related to HR (11). It enhances capabilities development internally and save a lot of time and cost (11). <i>*ERP system reduced the workforce in the HR unit and expedites HR process a lot (11)</i> * Being an incumbent and an experienced company could lead the company to be stuck with the method that they been doing it for a long time (6).</p>	<p>required knowledge. <i>"You need to outsource skills that you don't have it and can fit the division internally"(6)</i></p> <p>*they built a new culture which is driven by market needs (11) *Managers must be proactive and ahead of challenges (5)by applying their experience in the dynamic market. <i>we don't have to restrict ourselves to the traditional role of a lawyer and to wait for the problem to occur and then look for a solution"</i> *review their plans (12)and perceptions frequently to avoid developing irrelevant DRC(3) *utilise these irrelevant DRC for other changes (3) <i>"Incorrect developed capabilities are not a waste of knowledge might be needed for any future business changes(3)"</i> *has strong assets e.g. networks built for more than 45 years, network coverage, resilience, fixed networks and loyal staff with 20 to 30 years of experience (6) *maintaining this position by implementing and monitoring (company's and TRA) rules and</p>	<p><i>good position in the market (7), capable of competing, offers a good value, price and service</i> *being long-term service company has a negative impact; resistance to change (6). *They do not want to change, or they find difficulties to cope up with changes (6). *To fill any capabilities gaps they outsource it to vendors and consultancy companies (14) *For long-term strategy, they hire a consultant with vast international experience to reflect that in the organisation strategy (14) <i>"also do full-time managed service contract with vendors to fill the required gaps(6)"</i> Balance between the capabilities outsourcing and insourcing by managing knowledge transfer (8) <i>"Internally we might have the capabilities, but since we all work in the same company, then we all think in the same way.. especially any companies who is dealing with the dynamic market are doing the same... we select the type of support that is relevant to our company at each point in time(8). Then we always claim back the control</i></p>	<p><i>corporate client and account support sale manager assigned for the customers. Customers innovative pricing schemes(9)</i> <i>..Resources usually come from the organisation but skills come from staff, combining these rightly will get you good values(13)"</i> * They define capabilities and skills that are impacting one their business and built them within the company to control the business(8); otherwise, if they outsource these capabilities then they will give up the business control (8) *They recruit people with multi skills to fill the identified gaps(8). *They manage the outsourcing with knowledge transfer (8) to enhance the internal capabilities. <i>"Build a specific capability which does not exist in the organisation is also costly and probably will not be utilised after completing that specific project(8), It will be more cost effective for me to outsource it(8), Fast reaction in the dynamic market is important as building capabilities is a long process (8)..</i></p>	<p><i>It was very successful experience, and we enhanced the performance from 80 to around 96%"</i> *ADSL team revised their processes to address gaps and challenges, they managed to increase the number of ADSL connections per month and enhanced the performance and revenue (11) <i>. A success of that process boosted installation of ADSL lines from 2,000 to 9,000 per month, and now we are aiming for 12,000 ADSL lines per month"(11)</i> * customer solution design team is responsible for designing customised and invent solutions (10) to meet complex requirements and utilise networks assets efficiently (10). <i>"We provide innovative solutions (9)for banks and others in remote areas via a mobile network or utilise mobile network as a backup. We save on the physical copper lines, civil work and associated equipment (10)"</i> *develop some products in-house products (9) to enhance the existing system or to add</p>
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<p>*Some employees with long time experience are somehow rigid, and they do not want to change (6)</p> <p>*developed a special programme to encourage long-time service employees to share their ideas (6), as it will lead to be more productive and dynamic</p> <p><i>*We want this mix of experience also to be noted(6). The CEO, VPs and we as HR staff attend a special programme meant for long time service employees, and we listened to them(6).</i></p> <p>* They are utilising their experience to save cost and time instead of doing trials (6), train new employees and share their knowledge.</p> <p>*It illustrates that the organisation possesses DRC and it is required to develop more DRC to maintain the market position(7)</p> <p>* The Strong brand reflects the right capabilities at the right time in the organisation.(7)</p> <p><i>*The organisation has a strong brand more than Bank Muscat, which ranked number 33 in the MENA region</i></p> <p><i>This strong brand reflects on</i></p>	<p>regulations (7)</p> <p>*producing monthly performance reports to TRA (5)</p> <p>*increase their teams' creativity to come up with new ideas (11) to maintain these positions and assets (7)</p> <p>* focusing on the performance and profitability by adopting business diversification strategy (9) <i>"One of the compensation strategies of our company is to compensate a downfall in the revenue coming from Short Message Service (SMS), which is to invest more into the wholesale business and other business(9)"</i></p> <p>*top management should own some competencies and capabilities to develop a strategy (13)</p> <p>*strategy should be dynamic, flexible and responsive enough to the dynamic market (12). <i>"If they don't have that sense, then they can lose the market share, and if they do have the sense but they don't have the reaction plans on what is needed to be done, then they cannot compete with the market competitors</i></p> <p>*top management set the whole organisation</p>	<p><i>when we have given away part of the control to the consultants(14)</i></p> <p>*facilitate the decision-making processes, transfer knowledge and enhance their capabilities (12) . <i>"So I think vendors' presentation changed the mind-set of the management and the network planning team (12).</i></p> <p>*The top management own some DC required to develop the strategy(13),involve a consultant to fill any capabilities gaps (14). <i>"I think we developed a good set of strategic capabilities for the new organisation (7) and we are attempting to evolve some new people(12). we will seek help from external consultants as per the plan (14). You need to have good analytical skills and sensing</i></p> <p><i>I do not think we would have reached this stage of successes without the consultant(14)</i></p> <p>DC support in developing and adjusting the strategy (12) towards achieving the organisational ultimate objectives (13). the strategy is implementable as it been created and adjusted by the DC themselves(13). <i>"Within</i></p>	<p>*Consultancy companies come into play when they launch new products (9) such, their main role is benchmark analysis based on (9) their <i>"We make sure that the consultants work with the team that is going to manage that product. they involved from the day one to gain knowledge, so the capabilities are built in that process</i></p> <p>*Innovation increases profit (customized solutions requirements) (9)</p> <p>*renew their existing customised solution contracts(10) with the company as they trust company's capabilities. <i>"They gave us the period commitment but they renew their customised solution contract (10)t.</i></p> <p><i>We sometimes view the solution as a strategic entrance to that client(10)</i></p> <p><i>. it is a challenge, in the other way our company is growing much faster because the ARPU profit level generated from the customized solution is much higher than gaining it from a single product(10)</i></p>	<p>new services (9) ..they involve vendors to support them, e.g., Microsoft implemented web hosting with telephone sets for six exchanges only as its first time in the Middle East.</p> <p>*These products generate revenue and enhance their capabilities. (9)<i>"A prepaid mobile service (Hayyak) initially was developed in-house, and it was not standardised. It generated revenue and then moved to a standard product. Similarly, for the broadband billing systems(9) was developed in-house and then moved to a new system"</i></p> <p>* they will try to fill capability gap internally</p> <p>*they will outsource it externally based on the outsourcing processes (8). Vendors are the first to be approached as they know the existing networks and up to date in technology (8).</p> <p>*The outsourcing processes include knowledge transfer (8) as the main element.</p> <p><i>We always approach vendors, who normally tend to be on the better side of the technologies.</i></p>
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<p><i>how strong is our company in the market (7)and how we keep maintaining our market position as we own the right capabilities(7)</i></p> <p>*The general strategy developed based on SWOT and PESTAL analysis(13)</p> <p>* It is developed by DRC within the top management, and that strategy somehow has an element to engage and develop people and their capabilities (13). as they understand the dynamic market.</p> <p>*part of the organisation strategy is to tackle the human resources to change toward the dynamic market (13).</p> <p>* the required capabilities are not in place, but the strategic direction is known and must be followed (13)</p> <p>. the organisation strategy must have elements to push the internal resources to enhance their capabilities to reach the strategic goals (13).</p> <p><i>*As a manager, you channel your resources, for example; if someone stuck somewhere, then the strategy is the way to be (13)</i></p> <p><i>*followed which will require being creative to change something and to deal with</i></p>	<p>objectives based on the company’s vision and mission (13).</p> <p>*The strategic objectives are translated into KPIs and must be SMART (13)</p> <p>*KPIs are cascaded down to the company’s units, divisions, and staff. (13)</p> <p>*KPIs are part of staff appraisal which linked to the annual bonus and job progression (13)</p> <p>*CEO and the top management communicate these strategic plans and objectives to all staff (13)across the country to engage them with strategic decisions and to inform them with the company’s future direction. (13)<i>“The top management is doing like a road shows across Oman, discussing plans ahead, set expectations communication and constant communication between the top management and the staff</i></p> <p>*engaging staff with DRC on board to develop the strategy (13)has positive impacts.</p> <p>*developed strategy must have objectives of developing and enhancing DRC (13).</p>	<p><i>strategic planning, you steer your organisation in a specific direction(13), and you need to make sure that your organisation can follow and ready to go into that direction (13)”</i></p> <p>*introducing the KPI processes in the organisation to execute the strategic objectives (13).</p> <p>**KPI linked with a bonus system.(13)</p> <p>crucial to the organization and done in stages.</p> <p><i>What we did at the initial stage, we asked VPs to report the number of KPIs as many as they can</i></p> <p>* maintains the brand strength by developing dynamic capabilities as it boosts their institutional belief to the company (7). Therefore, they build capabilities to match the brand’s expectation (7).</p> <p>Likewise, the customers give Therefore, employees contribute to maintaining the brand strength by developing their capabilities (7). <i>“Brand is an important part to boost people’s belief in the company as an institution(7). They feel that they are associated with it, part of it and</i></p>	<p>*units exploit long-term experience to convert the accumulated market data into information (6) to take a lead compared with the newcomers. <i>The competition will always enrich what you got (5)and what are you going to do as the new competitor will change the whole work environment (5)”</i></p> <p>*incumbent has some drawbacks such as change resistance and the privatisation challenges. (6)</p> <p>*The changes in the business environment have a major impact for the incumbent on managing the change resistance (6) compared to the newcomer. <i>“Some people don’t like the change and now the company is moving from incumbent to privatisation (6)in order to compete in the market, so this is a huge change in their</i></p> <p>*top management team has to develop the strategy as they own capabilities to forecast the market trend and to have the vision to predicate the market (13)<i>“They must not be rigid in</i></p>	<p><i>We outsource some tasks, but at the same time, we engage our staff to work with them (8). Many companies failed in outsourcing because they did not have internal frameworks, processes and procedures”</i></p> <p>* another outsourcing strategy is short-term recruitment and secondment.. It is cheaper (8) ..employees who work for that outsourced company will be recruited internally to fill the gaps. <i>“If it is a new solution then we have to outsource it to a company, but not fully outsourcing as we take a secondment of somebody who is experienced (8) for a couple of years. we recruited the outsourced resources internally because it was cheaper</i></p> <p>*introduced KPI and traffic light system for project management team (13)</p> <p>*processes are developed and frequently updated (11) . The managers argue that process is rigid and cannot be dynamic. how to adopt and affect the process is considered as dynamic practices (11). <i>“There is no point in introducing a process if you behave dynamically on the process.</i></p>
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<p><i>them differently to enhance his or her capabilities to reach the strategic objectives(13)</i></p> <p><i>*The long-term planning is necessary to build long-term capabilities to save cost. these plans should be flexible, adjustable and tuneable to the market change (12).</i></p> <p><i>* management perception might develop irrelevant capabilities (3) for the current market conditions</i></p> <p><i>*The organisation is continuously adjusting their processes and capabilities to fit the fast changing environment (4).</i></p> <p><i>*HR is continuously enhancing processes to adapt the current organisational context and culture (11)</i></p> <p><i>HR unit is always come up with innovative ideas to customise their processes such recruitment, training, and employees' appraisal. to cope with the market and international standards(11)</i></p> <p><i>*organisation strategy is developed for three to five years and reviewed every year by the whole teams to make any changes if it is necessary (11).</i></p> <p><i>*The company's mission,</i></p>	<p><i>*Employees are engaged with top management in the processes of developing the strategy (12) and aware about the company's future directions. They advise the management with their thoughts based on their experience(6) and lesson learnt from previous year strategy (12)._These processes eliminate and mitigate obstacles in the implementation stage of the strategy and enhance their DRC. (6)</i></p> <p><i>Managers will direct their team to change toward particular perceptions based on their business forecast in terms of changes in the market, technology, and regulations.(3)</i></p> <p><i>*create any new or enhance the existing division's processes or procedures which eventually will lead to cost saving or seize any new revenue, then it will be considered as innovation (11).</i></p> <p><i>*Employees with innovative ideas will be considered as exceeding the appointed KPI (18)</i></p> <p><i>"Enhancing the organisation</i></p>	<p><i>they can contribute to It(7), and they brand valued.</i></p> <p><i>*Some of these decisions lead to developing irrelevant capabilities , decisions were made much earlier, will be used in the future and considered as knowledge.(3)</i></p> <p><i>*IDP to develop the required capabilities.(11)</i></p> <p><i>*Management team to find knowledge (4)and capabilities gaps, and the employees themselves to be more initiative (11) (4)</i></p> <p><i>*balance between static organisational processes and developing the dynamic capabilities.(11)</i></p> <p><i>*You can ask the management to support you in doing that, but the driver and the initiator in that perspective are yourself (4). It all needs to fit together with a good performance management system (11)</i></p> <p><i>*It is often contradictory when we say the process is dynamic. So, it is always about finding a good balance between (3)processes to make things move smoothly and gaining the dynamic capability(11)(15)</i></p>	<p><i>their thinking, as the strategy considered as a planning level and they have to build a flexible strategy (12)"</i></p> <p><i>*thinking must be dynamic and willing to explore new areas (12) . It's very rare to find top management team owing combined capabilities of sensing, seizing and reconfiguration therefore most successful leaders are surrounded with smart people and they keep engaging their employees into strategy development.(12)</i></p> <p><i>"So leaders need to select smart people around them because they will advise them in resources reconfiguration, market analysis and they will tell them what is the right thing to do"</i></p> <p><i>*to define a strategy in the dynamic market, the analysis is required to provide the right information (5)which will lead to developing a clear vision and mission</i></p> <p><i>*the main challenge is the implementation of this strategy across the organisation(13). So implementing the strategy is a challenge and leaders should have capabilities to implement</i></p>	<p><i>However, the day I introduce the process you will become dynamic in implement it in whatever way you want. The dynamic is what affects the process and how do you adopt that process? (11)"</i></p> <p><i>"The most important is to reach the aim without fully compromising the processes (13). Therefore, they develop flexible processes which can be adjusted or amended with justifications to fit the business environment (11)"</i></p> <p><i>*experience, historical way could lead to resistance to change (6). The incumbent has to manage the external business environment and internal resistance to change (6)</i></p> <p><i>The incumbent has to deal with the external market and with his internal workforce. They try to make them dynamic and moving away from the governmental ways of management. people resistance to change, and they want to stay in a comfort zone. The idea is to continue educating them (6),</i></p> <p><i>*developing flexible long-term</i></p>
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<p>vision, and values are developed to make sure that the employee and the company work in a dynamic environment (11).</p> <p>*The talent management system in the company is part of the process adjustment (11)</p> <p><i>*The career development programme has a three years plan for the creative outcome(11)</i></p> <p><i>. "A lot of companies' benchmark on our company especially in performance management</i></p> <p>*Coaching and training are synergy development elements, and HR is sending staff for professional and degree certifications (4)</p> <p>*To be ready for any changes, the issue here is not about learning technology but learning how to learn (4)</p> <p><i>*the knowledge which can be exercised for any change could happen in the market, by that I can say they are ready. we want them to learn how to develop competencies"(4)</i></p> <p>*employee engagement activities and initiatives towards high employee engagement and</p>	<p><i>profit by a creative idea, saving cost, enhancing the organisation in total in terms of performance(18)</i></p> <p><i>Company's vision is connecting society through innovation, so it's a company vision actually to award and look for innovation (15)</i></p> <p><i>to bolster and reward for new ideas which will encourage others(18)</i></p> <p>* the manager has to be able to inspire his/her team, strong communication skills and being a good motivator, task oriented and an authentic leader 16).</p> <p>* The employees are aware of the company's future plans and projects, and they are engaged in the decision-making processes(15)</p> <p>*The CEO with top management is leading this type of communication and employees gatherings by arranging; workshops, business dinner with employees and open days across the country (16).</p> <p><i>*"Communication between the top management and the staff is very important(5), Employees feel how are they</i></p>	<p>* learning from previous experiences and mistakes will enhance their capabilities (1)and improve the process (11). They figured out the patterns of any events and based on that pattern they create a response strategy in mind for future use (4), (11). the more they exposed themselves to similar situations, the easier they response to it (4).</p> <p><i>It is about learning from these mistakes that we made (4)and then try to improve the processes and capabilities (11). It all comes down to find a good balance for the organisation to function (11)</i></p> <p>*Creating a high-performance culture allows employees to perform well (15), (16)</p> <p>* Social activities and networking should be part of this culture. (16)</p> <p>*When the employees notice how others get benefits from the high performing culture, then it will encourage others (18), (16)</p> <p>*it needs to be consistent and across the whole organisation as employees are living in specific values and should reward significant</p>	<p><i>(13)the right vision and mission across the organisation. To be successful you need to own very good capabilities and skills in the implementation stage (13)"</i></p> <p>*do marketing analysis for every new product before launching it (9).</p> <p>*do promotion for every product (9)and analyse the market data on a daily basis as continuous processes (5)</p> <p>*did some changes, each product must have an owner to manage the product stream and lifecycle ~(9)..are monitoring product performance, and when to do promotion (9)</p> <p><i>*"Corporate and consumers units leverage and communicate with other units and expertise to facilitate strategy implementation processes(12)"</i></p> <p>*expedite their processes to get more customers (11)and <i>"We tried to minimise the processes by having an authority matrix at a certain level to make sure things happen immediately (11). the new one has reduced many processes, fasten the decision-</i></p>	<p>strategy (12),. It is important to have an organisational structure that supports the dynamic capability roles in adjusting the long term strategy (12) .</p> <p><i>"Having a dynamic organisational culture especially at higher management level has a huge benefit for the strategy is semi-static (12). If managers are rigid, then they might be able only to evaluate the short-term reflection in their strategy. Likewise, if you do not have the dynamic capability, then you might see a very narrow path to the goal. it sounds contradictory to say that long-term strategy requires dynamic thinking. Therefore, the more dynamic your organisational structure can be (12), the more you can determine the extent of the zig-zag path between now and the future(13). Taking into consideration all of these factors to design a mission and vision for your company which can accommodate deviations from the norm?"</i></p> <p><i>*management meetings are structured in a way that they can call engineers or any</i></p>
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<p>satisfaction , keep staff loyal and to connect them with values, vision, and mission, which will lead to having a stable culture in the company (15)</p> <p>* it is important to engage (15) employees at the beginning stage of the strategy to build the required teams for the long-term planning.</p> <p><i>*The company is engaging employees to be part of the strategy building (15)</i></p>	<p><i>engaged in the decisions making processes?(15)”</i></p> <p>*developing DRC continuously by learning(4), on job training and job rotation (17).</p> <p>*Organisational context and social networking increase professional networking and build a strong organizational culture (16)</p> <p>*organizational context that challenging the status quo. It is very important to build a new culture of challenging the status quo and the existing processes and procedures for continuous improvement(11)</p> <p>*KPIs are part of staff appraisal which linked to the annual bonus (18)</p> <p>to engage them with strategic decisions and to inform them with the company’s future direction. (15)“<i>The top management is doing like a road shows across Oman</i></p> <p>*engaging staff with DRC on board to develop the strategy (15)has positive impacts. Employees are engaged with top management in the processes of developing the strategy (15)</p> <p>They advise the management</p>	<p>achievements.(15)</p> <p><i>*DC are inherently part of the high-performance culture. So you do not talk about DC (16) anymore because its dynamic culture that will automatically deliver the right set of capabilities with some steering. (16)</i></p> <p>*culture cannot change unless the context changes sufficiently, and the competition and the dynamic market can change the context (15) (16)</p> <p><i>*“In the strategy department, you should learn to figure out and to contextualise, because you always need to contextualise your response every time that you have a new situation (4), then figure out what is the relevant context for this situation, and part of the context is the capabilities”</i></p> <p>Rewarding and recognition enhance the management and the individual to build more capabilities.(18) The KPI system linked with the bonuses system as rewards. it should be part of the culture to recognise the high performing people.</p>	<p><i>making processes and empower people (11). This will satisfy our clients and investors and will increase our shareholders and profitability”</i></p> <p>*Managers engage them before developing any marketing strategy(13). They have transparent communication with their teams to explain mission and vision(13)</p> <p><i>*They understand what can be done based on the system and market condition, so we know they can enhance the product by adding a new layer on it (9).</i></p> <p>*managers direct their capabilities development based on their perception (3)and current market information</p> <p>*irrelevant capabilities will be considered as the gaining of new resources (3). “<i>It’s not a total loss because capabilities cannot be built in one or two days as it will take time(3).</i></p> <p>*They build a product lifecycle monitoring culture for continuous improvement (11).</p> <p>*Strong culture and open communication allow knowledge sharing and develop</p>	<p><i>employees with knowledge to seek their opinion to determine the path ahead before making any decision (12)”</i></p> <p>The change of direction in developing DC due the market changes is considered as a lesson learned and gaining of extra knowledge (3).</p> <p>*certifies some of their processes with some standers e.g. ISO certification (11). This certification helps identify capability gaps, gain more customers’ trust, mitigate risks and enhance continuous improvement processes (11). <i>We certify these processes, and it impacted positively on our team’s career because they work with ISO certified processes now(3). ISO helped me a lot to identify the capability gap (11)</i></p> <p>*The social networking and communication eliminate The project managers much rely on networking to get their projects delivered (16). It also enhances knowledge sharing, which enables DC development (16).</p>
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	<p>with their thoughts based on their experience(15) and lesson learnt from previous year strategy (15). *Rewarding processes for employees with new ideas enhance them to be more dynamic and encourage others to do so. It is a company's vision to encourage employees to be more creative and reward them. (18)</p>	<p>(18) <i>"It all comes hand in hand with a good performance management system that rewards good performance and disapproves bad performance. (18)</i> <i>Everybody should feel motivated to perform better and continuously improve their performance.(16), (18) "It should be part of the culture that supports and rewards high-performing people, encourage people to perform well and disapproves or demotivates people that are not performing (18)"</i> KPI linked with a bonus system. (18)</p>	<p>more capabilities. (16) *all employees are shifted in a single building for easy communication and flexible processes, working in a good environment.(15) *build a culture of open ideas and networking to enhance knowledge sharing and capabilities development.(16) *This culture and one building office facilitate more communication between departments especially between commercial and technical units (16) <i>. the doors open so that culture of being approachable allows people to share knowledge and ideas which will enhance their capabilities" (16)</i> *organisational context and structure enhance capabilities development. From the organisational perspective, the company enhanced salaries and beneficial structure and created a comprehensive staff appraisal(11) (18). *They adopt a different type of process where they allow people to grow and improve their skills and generate more values for the company and for</p>	<p><i>"The networking inside the organisation has an opportunity to enhance our team capability specifically project manager,(16)</i> *being a national company, it is favoured by customers and employees to be part of the company's family (15). It is one of the biggest companies on the Muscat Stock Exchange. . .this unit keeps developing DC (3) to maintain these infrastructures to compete and sustain the market position(15). <i>Everyone wants to work for our company as it is a leader in the country and we noticed that many people came back after he or she moved to our competitor(15). The customers are continuing to use our service as they trust the company</i> *top management has to own dynamic capabilities to develop an effective strategy, consist of DC continuous development processes to avoid capability rigidity (11). *hire a consultant to support them in developing a strategy.</p>
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			<p>themselves (11). These inspirations will automatically create a dynamic environment to cope up with changes in the market.(11)</p> <p>*Product development requires a lot of collaboration with many other units (16). <i>“We as marketers we don’t necessarily have technical expertise in certain areas so we do cross function practice (16). We need to leverage our relationships with other units and expertise (16)”</i></p> <p>*meeting with network unit very frequently to update their knowledge about new technologies (16) and learn new approaches to mitigating any technical challenges, gain experience on the technology and update their capabilities (4). <i>“POC proof of concept is used whenever we have some complex project. to test a customized solution.(4)</i></p> <p>*They also engaged externally to learn about new upcoming products in the market; arrange conferences, present webinars, and research on benchmarking with other markets.(4)</p>	<p><i>“dynamic executive management team is to build a strategy that supports the development of dynamics (11). If does not support, then today’s dynamic capabilities will become tomorrow’s legacy capabilities. (11)</i></p> <p><i>*We had a huge amount of help from consultants on cross-functional initiatives, e.g. job evaluation, staff appraisal and job titling (18)</i></p> <p>Job rotation has been implemented recently by all units in the organisation (17) . It enhances their DC to be more knowledgeable, gaining experience and able to deal with multi tasks (11). <i>“Job rotation considered as a knowledge transfer process It enables multi-angle thinking, enhance absorptive capacity and it is crucial for employees to sustain growth”(17)</i></p> <p>The top management <i>engages employees</i> and customers frequently to get information from both ends. This engagement enables the company to build more dynamic capabilities, enhance</p>
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			<p>*create a good working environment in order to put their teams under challenge to be more innovative in the market(11). <i>“you need to create a good working environment and also you need to put them under challenge so they can be inspired.(16) You have to give them the resources, tools, information to ensure that they are able to produce 100%. (16)If you create a good working environment with challenges, then they will automatically enhance their skills (16)”</i></p> <p>*management meetings that gathers employees as key speakers to talk about their experiences and new ideas (11).</p> <p>*They have a culture of open ideas whereas any employee can come up with new ideas and there is a team will analyse these ideas if will suit the market or not (16)</p> <p>*employee who created that idea has capabilities to create even more ideas (16) (18)</p> <p><i>“Whenever employees develop a new product, then they learn something new about the market and enhance their own</i></p>	<p>the strategy and serve customers in better ways. Employee engagement promotes communication across different units, which will enrich the communication culture.</p> <p><i>Engage more with your employees and customers will help you to identify problems and recommend solutions to enhance the strategy. The customers will give their feedback, and the employees will come up with proper products and services to fit the market” (15)</i></p> <p><i>They engage employees and customers in their technology roadmap. Customers will express their future requirements and their current challenges. The employee will propose some options to overcome these challenges and future enhancements. The strategy is not static, which can be tuned to fit any new inputs” (15)</i></p>
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			<p><i>capabilities (4)”</i> <i>Producing a product enhances your capabilities and your team’s capabilities to be more dynamic(4)</i></p> <p><i>*Job rotation provides employees with an overview of everything in the organisation and enhances their capabilities (17)</i></p> <p><i>. There are two types of rotations either it can be vertically rotation between units/departments or it can be horizontally rotations within the same unit/department. (17)</i> <i>The rotation in the company is taking place every two or three years by rotating them across or within the units which help them to gain more experience (4)and knowledge for example; engineers can use their knowledge and technical experiences to work as a salesman.(4) (17)</i></p> <p>they keep engaging their employees into strategy development. <i>“So leaders need to select smart people around them because they will advise them in resources reconfiguration,</i></p>	
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			<p><i>market analysis and they will tell them what is the right thing to do” (15)</i></p> <p><i>*Managers engage them before developing any marketing strategy(15). They have transparent communication with their teams to explain mission and vision(15)</i></p> <p><i>*Managers engage and encourage their teams to bring new business ideas and to be part of the future plan development.</i></p> <p><i>“We deliver very clear communication message because usually, the mistakes happen when the mission and vision are not clear to the employees but if the employees themselves brings these ideas then the message will be very clear (15)”</i></p>	
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Organisational practices emerged from the cross case study to answer the research questions **RQ1: How are dynamic reconfiguration capabilities developed, deployed and improved?**

PE1: Engagement in external knowledge sharing and build networking

PE2: On the job training, delegation, and exposure to new technologies

PE3: Management skills and perception influence on skills development

PE4: learning how to learn and coaching

PE5: Seize business opportunities or threats to enable being proactive

PE6: Exploit employee experience to enhance performance and manage change resistance

PE7: Build awareness of the link between individual roles and organisation brand

PE8: Outsource capability gaps and develop recruitment process

PE9: Encourage innovation, product development and conduct trials for new products

PE10: Design customised solutions with careful consideration of asset efficiency

PE11: Improve processes and challenge the status quo

PE12: Continuous review and refinement of organisational strategy

PE13: Build strategy in line with organisational capabilities and align all resources, processes and employees with strategic directions

PE14: Access to external expertise to support strategy development

PE15: Engage employees and customers in strategy development.

PE16: Encourage communication and create a culture of high-performance

PE17: Implement Job rotation

PE18: Reward and recognise the individual to build more capabilities

Appendix 10: Cross-cases studies patterns searching to answer the second research questions (RQ2)

Human Resource Unit (Case study-1)	Regulatory affairs division. (Case study-2)	Corporate Strategy Unit. (Case study-3)	Corporate and consumer units. (Case study-4)	Integrated Network and Technology (Case study-5)
<p>The DRC are the capabilities that review and analyse the market constantly to develop and deploy long-term plans.(19)</p> <p>* <i>“HR unit hired a consultant to fill the DRC gaps in which they provide the management with options based on their international experience. They modify and tune it to fit the culture and the country rules and regulations”</i></p> <p>*They create a talent management system in the company which has a full competency framework .(21) they developed a special programme to encourage long-time service employees to share their ideas, utilise their experience to save cost and to be more productive and dynamic. (21)</p> <p>*employee engagement activities to build a stable culture, maintain staff loyalty and to manage change.</p> <p>*develop processes to adapt to</p>	<p>*developing DRC as long-term plans to implement organisational rules and regulations, before the TRA random and regular inspection. (22) This saves the company for not paying penalties; accordingly, enhance the whole company performance in terms of profitability and reputation (19). <i>“We do our own inspection as we have in-house capability of reviewing and updating frequencies(19).</i></p> <p>* Long term planning is very effective in identifying gaps well in advance and developing the required DRC for long term plans(19).</p> <p>* it appropriately utilising the resources to achieve the targeted KPI and long-term strategic objectives (19).</p> <p>*These objectives’ setting processes take into account; lesson learnt, market condition,</p>	<p>*for the whole organisation business alignment whereas the technology is changing very fast (19).</p> <p>*they do technology mapping of all existing and future services and technologies to meet the strategic objectives (20)</p> <p>*identify the capabilities’ gaps (1)and develop a technology roadmap (20). <i>“When we did a technology roadmap (20), there were two schools of thought within the company We know how to manage brand, and we even trust that we can manage better than the competitor”</i></p> <p>*Top management creates the organisation strategy as they own some DRC</p> <p>*They also engage employees to be part of the strategy development team (19). The developed strategy consists of elements as KPIs and some of these KPI meant to develop</p>	<p>*act proactively in the market whereas in some cases they define the client requirements in advanced (19). <i>“They create solutions which can capture not only the fixed or mobile services but both services as integrated solution (19)</i></p> <p>*All these types of requirements are combined in one solution as a customized solution and then they approach the clients to pre-sell these ideas (19).</p> <p>*Long term planning will save cost, enable efficiency and be proactive in the market, which will generate more revenue to the company (19). <i>“If you need to do a proper technical assessment, then long term planning will give you more time to sit down with the technical team and understand different options (19).</i></p> <p>*they will understand the technical points of how this</p>	<p>*develops long-term planning and technology roadmap (20) to address current and future requirements (19).</p> <p>*the long-term planning will enable to develop DC gradually (19) and distribute the cost longer based on the plan period (19).</p> <p>* committed with vendors for long-term contracts (20) to manage the networks, business support and manage other services (19). *it has more cost efficient and better resources utilisation (19). <i>“Long term planning is more cost-effective (19)because you build your capabilities gradually (19)and distribute your costs among the planned period (19). It enables to estimate the market requirements and deliver them properly (19). Technology roadmap (3)helps us to sign long-term contracts with vendors (20)The long-term planning enables this unit to</i></p>

<p>market technology changes (19) and automate in the ERP to fasten the organisation process as whole and to reduce the workforce. (deployment) *They develop the company's strategy to own more DRC to compete, maintain the market position and the brand.(19)</p> <p>The DRC are the capabilities that provide options to the decision makers on how to tackle the unplanned activities, hired a consultant (considered as DRC) with multi-international experience (24). "If you do not have the will to do unplanned changes, then you will not be able to survive the market dynamism"(23) *develop new ways to the management team to address the scarcity of skills and professionals.(23) *they provide options to the management (24)to create new higher grades to fit these jobs or to hire them based on special contract(23)</p> <p>they able to find and hire new people with new competencies to meet the new unplanned technology requirements (23).</p>	<p>performance and profitability, capabilities' development and current resources (19). objectives are not static but fixable to match with the business environment.</p> <p>*unplanned planning is needed and it cannot be avoided 100%, , it can be done in a smaller context (23)to mitigate risks (23), provide solutions and options to resolve problems (24)and to grab opportunities faster than long-term planning and bureaucratic processes (23). * unplanned plans mainly are implemented to serve unplanned new customers (23) with wireless equipment or to resolve some pop-up wireless network congestion by obtaining TRA equipment license for new sites, modifying transmission power and frequency bands.(24)</p> <p>*Skype apps or any VoIP apps are reducing the international calls revenue and the "what's up" apps are killing the SMS business. Therefore, this division is working with TRA to develop new VoIP and other new apps rules and regulations</p>	<p>DRC (19). KPIs are cascaded down all the way *Everyone is implementing the KPIs because this is part of the strategy. Will make the company much more profitable and successful(19) *long-term planning is sufficient in building long-term capabilities (19)and saving cost and should be adjustable (19). *Planning should be dynamic.. allow your plans to change because we are in a very dynamic sector and there are different reasons why a plan can change; Either the plan was wrong or something happened externally or internally, or change in direction (19)</p> <p>*the unplanned planning is costly and sometimes diverting from the long-term planning (24). *to grab any business opportunities which not recognised at the long term planning stage (23) *implement the unplanned plans in a productive way (23) *keep insisting on maintaining a balance between the long term</p>	<p>product functions(19). Thus even when the product goes in the market they know how to address all the functions(19) *deal with all telecom complex customers' requests which are not off-shelf service (23). *they form a small team within their unit together with the pricing team..select employees with innovative capabilities to be part of their teams, who have a good understanding of technology and willing to convert the technology into commercial (24). "We have to make sure that what we are offering as a solution is in-line with our Telco license from the network and commercial side(24),. *Recently as unplanned action, the TRA changed the definition of active subscribers which will reduce the way that the company defines active subscribers. Therefore, collectively as an organisation engaged on how to address and mitigate the TRA resolution with the minimum impact on the company's market share (24). * When the mobile number portability activated between</p>	<p>save cost a lot by negotiating better contract prices with vendors(20). They are also able to plan DC development programme (19)in a very cost effect way" *The unplanned planning cannot be avoided in the dynamic market.(23) *it has threats and opportunities as well (23). It is a threat when they have to utilise the resources in an expensive way to mitigate threats or to seize business opportunities.(24) * the unpredicted opportunities also drive the unplanned planning (25).. requirements are in remote areas especially the oilfields companies and their requirements cannot be predicted (25). To manage the unplanned activities in a cost effective way, they outsource some of the services to grab any unplanned business (24)opportunities or to mitigate any threats(23). "Due to the dynamic markets, you are forced to do the unplanned planning, and it cannot be avoided. A competitor may blow up something which you have to have the capability to deal with it immediately to save</p>
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<p>The also provide international or national training for the existing employees for the unplanned projects (23) <i>* Suddenly a new technology was introduced, and I was told to hire new people with new competencies or for example; I have to send people to China for training in which I was not planning for that(23)</i> <i>I'm ready to accept such changes, and I can manage it satisfactorily, and it will affect the company positively”(23)</i></p> <p>provide best possible options to the decision makers on how to manage emergency’s activities (26) regarding HR perspective such as increase working hours, suspend leaves and off days they exploit their experience and ability to find the right capabilities and hire them on urgent basis for short-term contracts till the emergency is over. (31) <i>*Some emergency activities capture additional businesses to the company which was not planned before (29). HR unit is hiring people in urgent cases to manage emergency which could</i></p>	<p>(23). <i>“The company is adopting VoIP and going to launch an application for VoIP in Oman soon; (23)</i></p> <p><i>*up-to-date knowledge is an obligation requirement to avoid any interference or other technical issues with other telecom operators (30). “Knowledge gives more confidence to our team as we are dealing with risks and errors are not acceptable (30)”</i> <i>*Managing emergency activities require empowerment and authority at the low-level management and staff.(30) empowers employees to manage such activities with the process to be followed after normalising the affected services. (30)</i> <i>*they reverses the process of TRA spectrum registration and approvals to allow field engineers to restore the affected services immediately by utilising any frequency band or wireless equipment based on their best judgment (30) (26)t.. These processes are considered</i></p>	<p>and the unplanned planning, and to link with long-term objectives (25) <i>* strategic planning to define a direction that needs to be followed. The danger is if everything becomes ad-hoc(25)</i> <i>*It might be a short-term opportunity and short-term benefit, but it might hurt you for the long term(24)</i> <i>*we have to accept the unplanned planning without sacrificing on the long term (25)</i> <i>*balance between setting long-term objectives and allow the organisation to implement the unplanned planning (25)</i> <i>*no problem in linking unplanned plans and actions with those longer-term objectives (25)</i> <i>*exploits their knowledge and experience to detect the technology trend, enable innovation and provide options to the decision makers (24)</i></p> <p><i>*they document the events as a lesson learned to consider them in the long-term plans (26).</i> <i>*They also, adjust long-term plans to outfit for new emergency situations (28)</i></p>	<p>the two the operators as per the TRA (24) unpredictably more people were porting out from the company than porting in (23). <i>*This trend was reversed in the year 2012 because the company has better coverage in mobile network (23)</i> <i>“The company also has a brand equity which is a favourite of the community and some people believe in the company as part of the community</i> <i>*reacting to the unpredictable market actions with unplanned planning (23)</i> <i>*the unplanned planning is generating an unpredictable new revenue stream and new products.(23)</i> <i>* To implement the unplanned planning, they do continuous market analysis, business evaluation and assessments ~ (23)</i> <i>*you will find that senior person knows exactly what to do because of his built-up capability by experience compared to a junior person. unplanned planning to capture the opportunities in the market as the market cannot wait for long-term planning to build the</i></p>	<p><i>your business. (23)To meet some of the customers’ unpredicted requirements, we have to outsource it to vendors. (24)</i></p> <p>they are the first to notice and react to emergencies. (26) NOC generates escalation reports via SMS and emails, <i>“In a preventive maintenance contract If any incident happens they will send you SMS or email, (26)</i></p> <p><i>*they form an emergency response team (CEO, VP) to evaluate (26) all possible options on the spot (27)… consists of employees who are directly involved in that events, experts, vendors or any who can add value</i> <i>*These emergencies could be formed from weather conditions, earthquake, software bugs, or any unpredicted situations (26).</i> <i>*Each emergency event is a unique in situation and degree of impact on the whole network. (26)</i> <i>*some of these events generate extra revenue e.g. provide</i></p>
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<p><i>be for short term contracts only(31). They also, provide options to the top management on how to proceed with these emergency situations regarding HR responsibilities”(27)</i></p>	<p><i>as very risky processes, as it could create interference with other frequencies within the company or with other external entities. *the field engineers are competent and knowledgeable enough to provide immediate solutions(26) and options (27)with minimum negative impact</i></p>	<p><i>*they provide advice (27) and realign the long term strategy to counter such emergency activities (28). “They reprioritize projects to address any temporary emergency solutions”(28)</i></p>	<p><i>required capabilities(23). We evaluate and assess where we have reached and what is happening.. We don’t wait until the gap becoming bigger between what we planned and what the current market is(23) *implementing the unplanned plans to grab these business opportunities faster and in a productive way.(23) If the required capabilities are not internally available on time, then these units are outsourcing these capability gaps to win the customers and to minimize the gap (24). They also inspire their teams to bring and search for unplanned activities (23)s. *their roles are critical and could generate new business (29). *many SLAs are upgraded after emergency events (29). “In the case of emergency events, this unit inform the corporate and consumers about the events (26). They also try to compensate affected customers and modify some corporate agreements to fit the new situations (26)(27). *they promote new ways of service protections and advice</i></p>	<p><i>emergency satellite links and upgrade corporate customer protection (29) *They learn from emergency, and they reflect that lesson learned into actions in their long term plans. (26) *They also prioritise some projects to address the emergency situation in coordination with other units (28). *“In the case of emergency events they form a team of employees who has experience, knowledge, competent and vendors.(26) The country had many floods in the last ten years and cut the fibre cables in many areas particularly in the water crossings. Therefore, they changed many specifications such as the cable trench at the water crossing must be deeper with extra protection and provide microwave links (wireless links) to protect sensitive services. (26) (28) *All plans must include new specifications and modify the current networks(26) (28). There was an earthquake in Mediterranean Sea,they used these backup routes to sale a traffic to the affected</i></p>
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			<i>their corporate customers to upgrade their SLA e.g. from bronze (single link protection) to gold network protection (dual link protection) (27) (29)</i>	<i>neighbourhood countries on a daily basis (29)</i>
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Organisational practices emerged from the cross case study to answer the research questions, **RQ2: How do DRC support the concurrent approaches to strategy deployment?**

Planned:

PE19: Build the required capabilities, utilise resources efficiently and enhance performance

PE20: Build technology roadmap and sign long-term contracts with vendors

PE21: Develop employee performance programme

PE22: Implement rules and regulations

Unplanned

PE23: Build flexibility within the strategy planning process to implement unplanned strategies to grab business opportunities and mitigate threats

PE24: Analyse capability requirements to manage unplanned strategy and provide options to the decision makers

PE25: Balance and link the deployment of unplanned strategies with long-term objectives

Emergency

PE26: Respond to emergencies and consider lessons learned in the long-term plans

PE27: Provide best possible options on how to manage emergency's activities

PE28: Adjust long-term plans to outfit the new emergency situations

PE29: Provide extra service protection to corporate customers

PE30: Empower operational teams to reconfigure resources

PE31: Build capacity to secure the required human resources to manage emergency activities