

**Digital Innovation Management Ecosystem: Managing Digital
Innovation for Improved Competitiveness and Continued
Sustainability**

Puseletso Ntene

17367906

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

7 November 2018

Abstract

To gain competitive advantage for continued sustainability at the cusp of the Fourth Industrial Revolution, established firms need to develop digital ambidexterity in order to exploit their current cash cows; while simultaneously exploring new opportunities that come with digital technologies. Despite the current literature in digital innovation being substantial, digital innovation management literature remains fragmented and incomplete.

Therefore, this study explored the digital innovation management in the established and middle to large sized organisations, with the intention of developing a comprehensive Digital Innovation Management Ecosystem, aimed at helping these firms build capability for digital ambidexterity; to ensure success of their digital innovation initiatives for improved competitiveness and longer term sustainability.

This was achieved through integration of two frameworks and addition of two extra concepts from the third framework, identified from the literature review. The resulting ecosystem model comprised a total of eight building blocks namely Digital Strategy, Responsive Leadership, Innovation Culture, Capabilities, Employee Connectedness, Digital Evolution Scanning, Value Proposition and Customer Experience.

The newly developed Digital Innovation Management Ecosystem was then validated deductively through 13 semi-structured and audio recorded interviews with a heterogeneous sample, comprising Heads of IT or Digital or Transformation divisions, from 6 service industries, based in three countries. The 12 interviews were conducted face-to-face while one was conducted via the internet. The data was thematically and deductively analysed in Atlas.ti.

Therefore, the study contributed to the growing literature by formulating the comprehensive Digital Innovation Management Ecosystem and empirically by guiding the firms in their digital innovation endeavours.

Key Words

Digital Innovation Management Ecosystem

Digital Products and Services

Digital Ambidexterity

Competitiveness

Sustainability

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Puseletso Ntene

7 November 2018

CONTENTS

1. CHAPTER 1 – Introduction to Research Problem	1
1.1 Introduction.....	1
1.2 Background to the Research Problem	1
1.3 Research Problem.....	3
1.4 Significance of Research.....	4
1.5 Scope of the Research	5
1.6 Research Purpose.....	5
1.7 Conclusion	7
2. CHAPTER 2 – Theory Base and Literature Review	8
2.1 Introduction.....	8
2.2 Innovation and Digital Innovation Management Concepts	8
2.2.1 What is Innovation?	8
2.2.2 Innovation Strategy	9
2.2.3 Innovation Key Performance Indicators	10
2.2.4 Innovation Framework	11
2.2.5 What is Digital Innovation and What is Digital Innovation Management?	13
2.3 Managerial Framework for Digital Innovation Strategy.....	14
2.3.1 Customer (User) Experience	16
2.3.2 Value Proposition	17
2.3.3 Digital Evolution Scanning	18
2.3.4 Skills.....	19
2.3.5 Improvisation (Culture)	21
2.4 Dimensions and Design Levers for Creating an Effective Digital Workplace	23
2.4.1 Employee Connectedness	23
2.4.2 Responsive Leadership	25
2.5 A Holistic Conceptual Ecosystem for Management of Digital Innovation	27
2.6 Conclusion	29
3. CHAPTER 3 - Research Questions	30
3.1 Introduction.....	30
3.2 Research Question 1	30
3.3 Research Question 2	30
3.4 Research Question 3	31
3.5 Research Question 4	31
3.6 Research Question 5	31
3.7 Research Question 6	31
3.8 Research Question 7	32
3.9 Research Question 8	32
3.10 Research Question 9	32

3.11	Research Question 10	33
3.12	Conclusion	33
4.	CHAPTER 4 – Research Methodology	34
4.1	Introduction	34
4.2	Methodology and Research Design	34
4.3	Universe	36
4.4	Sampling Method and Size	36
4.5	Unit of Analysis	37
4.6	Measurement (Interview Schedule)	38
4.7	Pilot.....	38
4.8	Data Gathering Process	39
4.9	Analysis Approach.....	40
4.10	Trustworthiness.....	42
4.11	Limitations.....	44
4.11.1	Sampling Bias.....	44
4.11.2	Interviewer Bias.....	44
4.11.3	Interviewee Bias.....	45
4.11.4	Cross-Sectional Nature of the Study.....	45
4.12	Ethical Considerations	45
4.13	Conclusion	46
5.	CHAPTER 5 – Results.....	47
5.1	Introduction	47
5.2	Description of Research Organisation, Informants and Context	47
5.3	Results: Research Questions 1	48
5.3.1	Digital Innovation Strategy	49
5.3.2	Digital Innovation Prioritisation (Portfolio).....	50
5.3.3	Summary of the findings of Research Question 1	51
5.4	Results: Research Questions 2	51
5.4.1	Reporting KPIs.....	51
5.4.2	Governance KPIs	51
5.4.3	Global KPIs	52
5.4.4	Digital Workplace KPIs	52
5.4.5	Summary of the findings of Research Question 2.....	53
5.5	Results: Research Questions 3.....	53
5.5.1	Reason for engaging in Digital Innovation Management	53
5.5.2	Summary of the findings of Research Question 3.....	55
5.6	Results: Research Questions 4.....	55
5.6.1	Client Needs.....	56
5.6.2	Aesthetics	56
5.6.3	Usability	57
5.6.4	Convenience	58

5.6.5	Engagement.....	58
5.6.6	Summary of the findings of Research Question 4.....	58
5.7	Results: Research Questions 5.....	59
5.7.1	Client Segmentation.....	59
5.7.2	Bundling.....	60
5.7.3	Commissions	61
5.7.4	Summary of the findings of Research Question 5.....	61
5.8	Results: Research Questions 6.....	62
5.8.1	Digital Devices	62
5.8.2	Digital Tools	63
5.8.3	Digital Channels	64
5.8.4	User Behaviours.....	64
5.8.5	Summary of the findings of Research Question 6.....	65
5.9	Results: Research Questions 7	65
5.9.1	Roles	66
5.9.2	Continuous Learning.....	67
5.9.3	Team	67
5.9.4	Summary of the findings of Research Question 7.....	69
5.10	Results: Research Questions 8.....	69
5.10.1	Space.....	70
5.10.2	Time.....	71
5.10.3	Coordination	72
5.10.4	Summary of the findings of Research Question 8	72
5.11	Results: Research Questions 9.....	73
5.11.1	System.....	73
5.11.2	Social	74
5.11.3	Space.....	75
5.11.4	Knowledge Management.....	75
5.11.5	Summary of the findings of Research Question 9	75
5.12	Results: Research Questions 10.....	76
5.12.1	Sustaining Leadership.....	76
5.12.2	Systemic Learning	77
5.12.3	Symbols.....	78
5.12.4	Summary of the findings of Research Question 10	79
5.13	Conclusion	79
6.	CHAPTER 6 – Discussion of Results	82
6.1	Introduction.....	82
6.2	Discussion of Research Question 1.....	82
6.2.1	Digital Innovation Strategy.....	82
6.2.2	Digital Innovation Prioritisation (Portfolio).....	83
6.2.3	Summary of Discussion of Research Question 1	84
6.2.4	Reporting KPIs.....	85

6.2.5	Governance KPIs	85
6.2.6	Global KPIs	85
6.2.7	Digital Workplace KPIs	86
6.2.8	Summary of Discussion of Research Question 2	86
6.3	Discussion of Research Question 3:.....	87
6.3.1	Trends	87
6.1.1	Competitive Advantage	87
6.3.2	Efficiencies and Effectiveness	87
6.3.3	Customer Needs and Customer Experience.....	88
6.3.4	Convenience	88
6.3.5	Market Share and Revenue.....	88
6.3.6	Saving Money or Cutting on Wastage.....	88
6.3.7	Sustainability	89
6.3.8	Summary of Discussion of Research Question 3	89
6.4	Discussion of Research Question 4.....	89
6.4.1	Client Needs.....	90
6.4.2	Aesthetics	90
6.4.3	Usability	90
6.4.4	Convenience	91
6.4.5	Engagement.....	91
6.4.6	Summary of Discussion of Research Question 4	91
6.5	Discussion of Research Question 5.....	92
6.5.1	Client Segmentation.....	92
6.5.2	Bundling.....	92
6.5.3	Commissions (Negotiations).....	93
6.5.4	Summary of Discussion of Research Question 5.....	93
6.6	Discussion of Research Question 6.....	94
6.6.1	Digital Devices	94
6.6.2	Digital Tools	94
6.6.3	Digital Channels	95
6.6.4	Behaviours	95
6.6.5	Summary of Discussion of Research Question 6.....	96
6.7	Discussion of Research Question 7	96
6.7.1	Roles	96
6.7.2	Continuous Learning.....	97
6.7.3	Teams	97
6.7.4	Summary of Discussion of Research Question 7	98
6.8	Discussion of Research Question 8.....	99
6.8.1	Space	99
6.8.2	Time	100
6.8.3	Coordination.....	100
6.8.4	Summary of Discussion of Research Question 8.....	101

6.9	Discussion of Research Question 9.....	101
6.9.1	System.....	101
6.9.2	Social.....	102
6.9.3	Space.....	102
6.9.4	Knowledge Management.....	102
6.9.5	Summary of Discussion of Research Question 9.....	103
6.10	Discussion of Research Question 10.....	104
6.10.1	Sustaining Leadership.....	104
6.10.2	Systemic Learning.....	105
6.10.3	Symbols.....	105
6.10.4	Summary of Discussion of Research Question 10.....	106
6.11	Conclusion.....	106
7.	CHAPTER 7 – Conclusion.....	109
7.1	Introduction.....	109
7.2	Research Findings.....	109
7.2.1	Digital Innovation Strategy.....	109
7.2.2	Innovation KPIs.....	110
7.2.3	Digital Innovation Management Driving Forces.....	110
7.2.4	Customer Experience.....	110
7.2.5	Value Proposition.....	111
7.2.6	Digital Evolution Scanning.....	111
7.2.7	Capabilities.....	111
7.2.8	Improvisation.....	111
7.2.9	Employee Connectedness.....	112
7.2.10	Responsive Leadership.....	112
7.3	A Proposed Framework.....	113
7.4	Implications for Management.....	116
7.5	Limitations of the Research.....	117
7.6	Suggestions for Further Research.....	117
7.7	Conclusion.....	118
	Reference List.....	119
	Annexure 1: Interview Schedule.....	123
	Annexure 2: Ethical Clearance Approval.....	126
	Annexure 3: Research Organisation Access Request Letter.....	127
	Annexure 4: Informed Consent Form.....	128
	Annexure 5: Coding Schema.....	129

LIST OF FIGURES

Figure 1: The Innovation Ambition Matrix	10
Figure 2: Comparison of selected Innovation Frameworks	11
Figure 3: Innovation Framework	12
Figure 4: Dimensions and Design Levers for Creating an Effective Digital Workplace	23
Figure 5: A Holistic Innovation Management Ecosystem.....	28
Figure 6: Data Analysis Process	40
Figure 7: Forces that Drive Firms to Engaging in Digital Innovation Management	54
Figure 8: Customer Experience Results	56
Figure 9: Creating and Capturing Value Results	59
Figure 10: Digital Evolution Scanning Results	62
Figure 11: Capabilities Results	66
Figure 12: Continuous Learning Avenues.....	67
Figure 13: Elements of Team Composition.....	68
Figure 14: Improvisation Results.....	70
Figure 15: Employee Connectedness Results	73
Figure 16: Responsive Leadership Results	76
Figure 17: Digital Innovation Management Ecosystem.....	113

LIST OF TABLES

Table 1: Research Objectives and Questions.....	6
Table 2: Managerial Framework for Digital Innovation Strategy.....	15
Table 3: Sample – Industry and Size	37
Table 4: Themes or Code Groups, the Corresponding Codes and Research Questions	41
Table 5: Description of the Research Organisation and the Informants	48
Table 6: Coding Schema.....	129

1. CHAPTER 1 – Introduction to Research Problem

1.1 Introduction

This study explored the digital innovation management in the established and middle to large sized organisations, with the intention of developing a comprehensive digital innovation management ecosystem, aimed at helping these firms build capability for digital ambidexterity, to ensure success of digital innovation initiatives for improved competitiveness and longer term sustainability. Two frameworks that were developed by respective experts to support the firms in their digital innovation endeavours were studied and integrated, with the aim of developing a comprehensive digital innovation management ecosystem.

Additionally, concepts relating to digital innovation strategy and innovation performance metrics that were proposed by yet another expert were incorporated to make digital innovation management ecosystem more robust.

This first section of the report is meant to define the research problem and to state the purpose of this research.

1.2 Background to the Research Problem

Xu, Xu and Li (2018) posit that “Today, we are at the cusp of the Fourth Industrial Revolution in which the worlds of production and network connectivity are integrated ...” Xu et al. (2018) further claim that in this new Information and Communication Technology (ICT) driven evolution, these new technologies are playing an important part in transforming the supply chains in various industries. These technologies transform the traditional approaches towards product, service and channel development; and they change the way organisations interact with clients and stakeholders; thus, business models are being transformed.

Additionally, the introduction of these ICT driven technologies has enabled the establishment of start-ups, which according to the Weinelt (2016) are “achieving scale far quicker than analog companies ever did”, while gaining competitive advantage and consequently threatening sustainability of the incumbents. Weinelt (2016) further theorises that if a company implements digital technologies across its business, it

competes against digital natives, outperforms its peers and as a result enhances revenue.

Therefore, established firms and organisations have to engage in digital innovation; they should endeavour to adopt the digital technologies in order to remain relevant, competitive and hence sustainable. On one hand, since they already have a working business model, these established organisations should develop capability for digital ambidexterity. Through digital innovation, they should be able to strive for operational efficiencies in the form of continuous improvement. While, on the other hand, they should scan or search for digital technologies that can be taken advantage of, in order to transform the company's business model towards digitisation.

Digital innovation management is not an easy journey though, due to bureaucracy and control associated with established firms. It is a journey that requires strategic focus, funding, balance between flexibility and control, agile implementation, and monitoring and evaluation. According to Nylen and Holmstrom (2015), both incumbent firms and new entrants are presented with challenges and opportunities that display remarkable complexity. One main facet of this complexity is the swift pace of digital innovation processes, which are challenging to govern and predict (Nylen & Holmstrom, 2015).

Moreover, there are noteworthy digital innovation successes and failures recorded in various industries. On one hand regarding successes, Barrett, Davidson, Prabhu and Vargo (2015) claim that M-Pesa, a mobile payment solution introduced by Safaricom in Kenya in 2007 was a noteworthy digital innovation breakthrough particularly for emerging economies; and more recently, PayPal has disrupted the mobile payment space. Moreover, when analysing the success of new entrants who redefined specific industries through leveraging digital innovations, Troilo, De Luca and Guenzi (2017) mention the likes of Uber, Netflix and Spotify. Netflix specifically invigorated the film and television industries, through producing and distributing digital content (Nylen & Holmstrom, 2015).

On the other hand regarding failures, Nokia is a typical example of firms that failed to re-orient its businesses as digital innovation materialized in its industry (Nylen & Holmstrom, 2015). Viki, Toma and Gons (2017) claim that Nokia used to be the largest mobile cell phone company in the world, with more than 50% of the global market share. However, Nokia responded poorly to the emergence of smartphones, to the extent that by the time it was acquired by Microsoft in 2013, it had only 3% market

share of the smartphone market (Viki et al., 2017). Nokia's strategy for market leadership was about defending and as a result, Nokia underestimated the potential disruption that would be caused by smartphones (Viki et al., 2017).

According to Viki et al. (2017), while Nokia engaged in sufficient exploitation or execution of its business and generated high revenue from its cash cow product to ensure viability, it failed to devote sufficient drive to explore, for future viability and sustainability. Viki et al. (2017) postulate that the "capacity to search while executing is the hallmark of the ambidextrous organization". Agreeably, Nylén and Holmström (2015) state that firms must build ambidextrous structures to have capabilities to simultaneously deal with radical and incremental innovation.

1.3 Research Problem

For established companies to innovate successfully in the digital space, they need to develop capability to search while executing their business as usual (Viki et al., 2017). As such, established "companies need to stop thinking and acting as if they are single monolithic organizations with one business model" (Viki et al., 2017). Instead, these companies should take an ecosystem approach to their businesses (Viki et al., 2017).

Every company should endeavour to maintain an innovation portfolio consisting of cash cow products and new products for which the business models are being designed, developed and tested (Viki et al., 2017). This innovation portfolio including the products within it, have to be appropriately managed (Viki et al., 2017). Hence, anecdotally there is need for a holistic digital innovation ecosystem for management of the firm's innovation investment, to ensure success of digital innovation initiatives for improved competitiveness and longer term sustainability of the firm.

Therefore, in an endeavour to address the need for companies to be ambidextrous, Nylén and Holmström (2015) have developed a "Managerial Framework for Digital Innovation Strategy", outlined in Table 2. However, from nascent research of Dery, Sebastian and van der Meulen (2017), it has been established that the framework proposed by Nylén and Holmström (2015) has a gap; it is missing the dimension of employee experience, specifically referred to as the digital workplace which, according to Dery et al. (2017) is key to digital innovation.

Furthermore, as a limitation of their study, Nylén and Holmström (2015) mentioned that internal process innovation enabled by digital technology was not covered; hence, the model proposed by Dery et al. (2017) and illustrated in Figure 4, provides an opportunity to address this limitation. Moreover, Fichman, Dos Santos and Zheng (2014) refer to this internal process innovation as the new way of doing things in an organisation setting, enabled by digital technology. Finally, Viki et al. (2017) further posit that “it is possible to innovate around internal business processes that are not directly experienced by customers” and they also concede that their frameworks as well do not cover internal business process innovation.

Therefore, there is a clear gap in the literature and hence, there is a need for a more comprehensive ecosystem that can guide the organisations through their digital innovation journeys, targeted at improving both customer experience as well as employee experience.

1.4 Significance of Research

In the domain of digital innovation, recent research seems to focus more on the digital innovation processes, diffusion of digital innovation product and services, and the enablers and barriers of digital innovation (Nambisan, Lyytinen, Majchrzak & Song, 2017; Troilo et al., 2017; Svahn, Mathiassen & Lindgren, 2017; Svahn, Mathiassen, Lindgren & Kane, 2017). However, there is generally a paucity of research on comprehensive ecosystem approach to management of digital innovation.

Anecdotally, the challenges and endless possibilities associated with digital innovation bring about a need for a systematic process for management of digital innovation, which was explored in this research paper. This claim is supported by the notion of Nylén and Holmström (2015), which states that firms need tools that support the management of digital innovation.

Furthermore, while Bagnò, Salerno and da Silva (2017) acknowledge that the majority of models that facilitate innovation have focused on incremental innovation, they also claim that “understanding how corporations can set up radical innovation capability is still a field that deserves further research”. Hence, there is empirical and theoretical need for this research. Therefore, the main research question is: **How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?**

This study recognised that the existing theory is substantial, however fragmented and incomplete. Therefore, the study aimed to contribute to the development of a conceptual and comprehensive ecosystem for management of digital innovation. Moreover, the study was aimed at contributing empirically by guiding established firms on how they could better manage their digital innovation initiatives, including spend and effort, so as to maximise return on their investment (Jasimuddin & Naqshbandi, 2018).

1.5 Scope of the Research

The scope of this research was limited to understanding how established service firms can improve management of their digital innovation initiatives. The service industry was chosen for the convenience of the researcher as she resides in Lesotho and there is low economic activity in Lesotho, with regard to product innovation and development. Barrett et al. (2015) refer to the service industry as industries such as travel, insurance, finance, retail and healthcare. Storey, Cankurtaran, Papastathopoulou and Hultink (2016) argue that the service sector represents 63.6 % of the world economy; hence focusing on the service industry was justified.

The study was largely conducted in Lesotho for the convenience of the researcher and it covered six different industries. However, for credibility, so as to maintain some degree of transferability, the study was also extended to other context to cover two established firms located outside the borders of Lesotho. One company was based in Malawi, while the other was based in South Africa.

Thus, the robustness of the resulting ecosystem was validated through exposure to a heterogeneous sample, comprising firms from several industries and multiple research locations (Saunders, Lewis & Thornhill, 2016).

1.6 Research Purpose

The purpose of this study was to develop a comprehensive digital innovation management ecosystem, aimed at helping established firms build capability for digital ambidexterity, to ensure success of digital innovation initiatives for improved competitiveness and longer term sustainability.

This would be achieved through building on the framework of Nylén and Holmström (2015) outlined in Table 2, by adding the missing dimensions relating to the digital workplace as proposed by the model of Dery et al. (2017), depicted in Figure 4.

Additionally, the concepts theorised by Viki et al. (2017) regarding digital innovation strategy and digital innovation key performance indicators (KPIs) were incorporated to make the ecosystem even more robust.

Subsequently, a qualitative analysis of the newly developed ecosystem was conducted. The overarching research question being: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?* The research objectives and propositions were guided largely by the framework of Nylen and Holmstrom (2015), the digital workplace model developed by Dery et al. (2017) and Viki et al. (2017) as outlined in Table 1 below:

Table 1: Research Objectives and Questions

Research Objective	Research Question
Innovation Measurement Viki et al. (2017)	
To determine if the firm has developed a digital innovation strategy and if there is an attempt to balance small, incremental refinements and major breakthroughs	Does the firm have a digital innovation strategy, which is designed to balance between small, incremental refinements and major breakthroughs?
To determine if the firm has adopted performance metrics used for measuring digital innovation success	Which innovation performance indicators has the firm adopted for measuring digital innovation success?
General Research Objective and Question relating to digital innovation drive	
To determine the reason for a firm to engage in digital innovation management.	What drives a firm to engage in the digital innovation management?
Guided by the framework of Nylen and Holmstrom (2015) – Managerial Framework for Digital Innovation Strategy	
To determine the degree of user experience with the firm's digital products and services.	How do clients experience the firm's digital products and services?
To evaluate how value is created and captured in digital products and services.	How does a firm create and capture value in its digital products and services?
To evaluate how firms identify opportunities for innovation that emerge in their digital environment.	How does a firm identify opportunities for innovation that emerge in its digital environment?

Research Objective	Research Question
To evaluate the firm's digital innovation skills.	Which capabilities are critical for successful management of digital innovation in a firm?
To determine the measures that the firm has put in place to improve the culture of innovation and improvisation.	Which measures has the firm put in place to improve the culture of innovation and improvisation?
Guided by the model of Dery et al. (2017) – Dimensions and Design Levers for Creating an Effective Digital Workplace	
To determine the digital workplace measures, relating to employee connectedness, that the firm has put in place to improve the employee experience.	Which digital workplace measures relating to employee connectedness, have been put in place to improve the employee experience?
To determine the role that responsive leadership plays in facilitating digital innovation processes and workplace.	How does leadership facilitate continuous improvement of employee experience within the organisation?

1.7 Conclusion

This section has defined the research problem and the purpose of this research through highlighting the challenges and opportunities presented by digital innovation in “the cusp of the Fourth Industrial Revolution” (Xu et al., 2018), and the need for a holistic ecosystem for management of digital innovation. The overarching research question is: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?* The study employed qualitative methods in order to respond to the overarching research question.

The rest of the research report is presented as follows: chapter two presents an overview of the theory base and literature review relating to digital innovation management concepts; chapter three presents a summary of the research questions that form the basis of this study; chapter four provides an outline of the methodology followed during data collection and analysis in this study; chapter five presents the results of this analysis; chapter six discusses the results in terms of the research questions and the corresponding literature; chapter seven highlights the main findings, their implications on management, limitations of the research and suggestions for future research.

2. CHAPTER 2 – Theory Base and Literature Review

2.1 Introduction

This section intends to provide literature review relating to digital innovation management. It starts broadly by defining innovation; thereafter, it focuses on digital innovation and digital innovation management. Subsequently, two frameworks: “Managerial Framework for Digital Innovation Strategy” (Nylen & Holmstrom, 2015) and “Dimensions and Design Levers for Creating an Effective Digital Workplace” (Dery et al., 2017), are explored in more detail and the two are merged to propose a holistic digital innovation management ecosystem.

Additionally, the concepts theorised by Viki et al. (2017) regarding digital innovation strategy and digital innovation performance metrics are incorporated to make the ecosystem even more robust.

2.2 Innovation and Digital Innovation Management Concepts

2.2.1 What is Innovation?

Yunis, Tarhini and Kassar (2017) define innovation as “a process that enhances an organization's value chain through the development of new products, services, work procedures, solutions, and methods of commercialization”. Similarly, innovation is defined as “an idea, a practice or an object that is perceived as new by an individual or other units of adoption” (Fichman et al., 2014). In both cases, innovation is associated with bringing something new into fruition.

Conversely, while Oldham and Da Silva (2015) argue that “innovation is a source of competitive advantage and is essential if organizations are to prosper and grow”; they also identify that innovation is generally characterised as a process consisting of two broad strategies, namely idea generation and idea implementation. Idea generation “involves employees producing creative ideas about improving organizational products, policies, or procedures”; while idea implementation refers to “the extent to which the organization actually adopts the creative ideas generated by these employees” (Oldham & Da Silva, 2015).

Therefore, contrary to how Fichman et al., 2014 define innovation, it can be argued that ideas generated do not add value to the organisation until they are implemented and are able to contribute to the organisational growth and effectiveness (Oldham & Da Silva, 2015).

2.2.2 Innovation Strategy

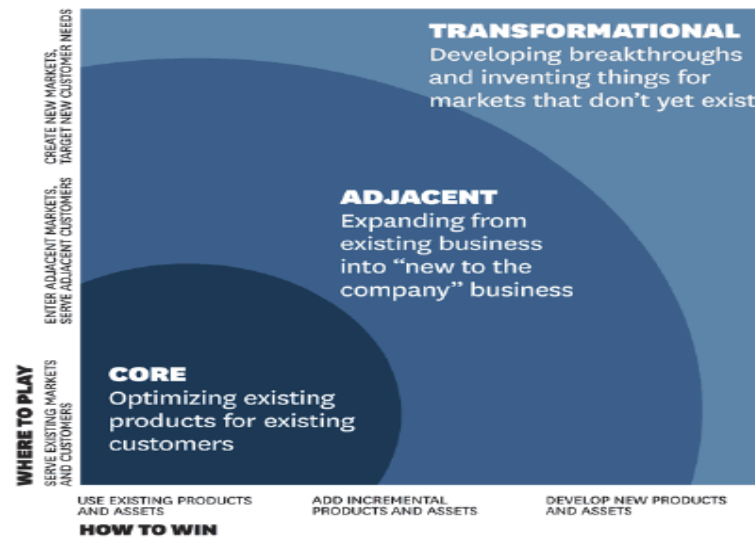
Viki et al. (2017) argue that there must be alignment between innovation and the overall strategy of the company; hence they propose development of an innovation strategy, which clearly sets out “the company’s view of the future and strategic objectives of the innovation” (Viki et al., 2017). That is, the strategy sets the boundaries regarding which innovation projects the firm intends to engage in (Viki et al., 2017).

Bagno et al. (2017) concur that the role of strategy is to guide and support the innovation process in its entirety; hence a proposal that the innovation strategy should be cross-cutting, as opposed to being limited to one department such as Research and Development (R&D). Thus, it can be concluded that innovation strategy is a prerequisite for successful innovation; in fact, Kane, Palmer, Phillips, Kiron and Buckley (2015) identify lack of digital strategy as the biggest barrier.

In addition to this innovation strategy, the firm “must use its innovation process as a source of emergent strategy that is responsive to changes in the market” (Viki et al., 2017). Agreeably, when considering possible triggers of innovation, Bagno et al. (2017) postulate that idea generation is guided by innovation strategy and so is the whole innovation process; while Yoo, Boland, Lyytinen and Majchrzak (2012) theorise that heterogeneous and unlimited innovation creates disorder.

Furthermore, Kane et al. (2015) declare lack of prioritisation as a barrier to successful innovation; hence, the need for an innovation portfolio that is agreed at the strategic level. According to Oldham and Da Silva (2015), creative ideas can range from suggestions for small, incremental refinements in product or service, procedures or processes to radical and major breakthroughs in the development of new products or services, procedures, processes and business models. This is coherent with theory created by Nagji and Tuff (2012), which categorises innovation initiatives into core, adjacent and transformational as illustrated in Figure 1.

Figure 1: The Innovation Ambition Matrix



(Source: Nagji & Tuff, 2012, p. 3)

Kane et al. (2015) also posit that in this fast-changing and complex world, companies that treat innovation as something incremental will be relegated in the near future. Therefore, it is submitted that companies have to be ambidextrous for future viability and sustainability (Viki et al., 2017), that is, they should be able to execute their core business and incrementally improve, while exploring for adjacent and transformational innovation. These companies should also develop digital innovation strategies that comprise digital innovation portfolio such that they balance between their core, adjacent and transformational innovations (Oldham & Da Silva, 2015).

2.2.3 Innovation Key Performance Indicators

To determine whether or not the innovation is successful, the firm has to define metrics or key performance indicators that differ from the traditional accounting methods (Viki et al., 2017). Viki et al. (2017) propose that to effectively measure success of innovation, the following three sets of innovation key performance Indicators (KPIs) should be tracked:

- a) Reporting KPIs “focus on product teams, the ideas they are generating, the experiments they are running and the progress they are making from ideation to scale e.g. assumptions tested and validated” (Viki et al., 2017).
- b) Governance KPIs “focus on helping the company make informed investment decisions based on evidence and innovation stage e.g. how close are the teams to finding product-market fit” (Viki et al., 2017).

- c) Global KPIs “focus on helping the company examine the overall performance of their investments in innovation in the context of the larger business e.g. percent of revenue in the last three years” (Viki et al., 2017).

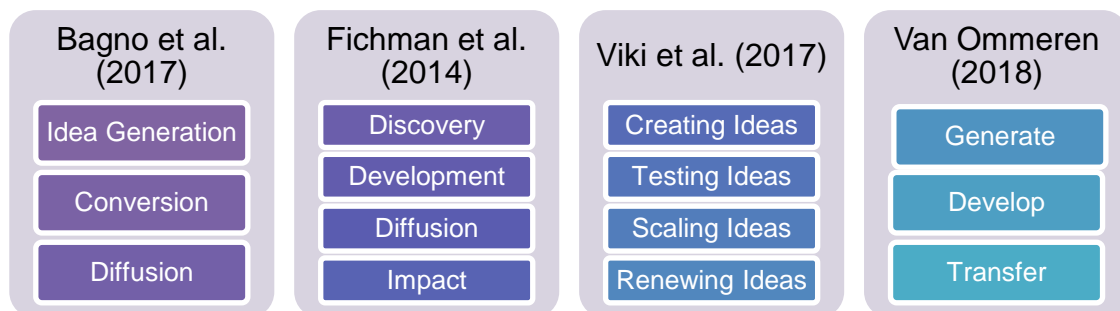
Moreover, Dery et al. (2017) propose that digital workplace KPIs should be tracked, with the aim of ensuring that the employee experience improves as the firm invests in digital workplace tools. These digital innovation workplace tools are the technology driven tools that enable innovation around internal business processes, in order to improve the delivery of service and stimulate creativity, ideation and innovation.

Dery et al. (2017) argue that companies should develop capability to manage experience of their employees using an evidence-based approach. This can be achieved, among others, through development of online platforms that enable employees to share ideas and provide feedback (Dery et al., 2017). Therefore their specific metrics may include employee happiness index, employee involvement, utilization metrics, digital dexterity distribution, etc (Tay & Aggarwal, 2018).

2.2.4 Innovation Framework

To facilitate and coordinate implementation of the innovation strategy, the firm needs an innovation framework for managing the innovation effort from “searching to executing” (Viki et al., 2017). Viki et al. (2017) state that this innovation framework provides a “unifying language for the business since everyone would know which phase the product, service or business model is in”. The framework further guides the firm on how to “manage its investment decisions and product development practices” (Viki et al., 2017). Several innovation frameworks have been proposed by various experts; Figure 2 aims to compare and contrast four of these frameworks:

Figure 2: Comparison of Selected Innovation Frameworks



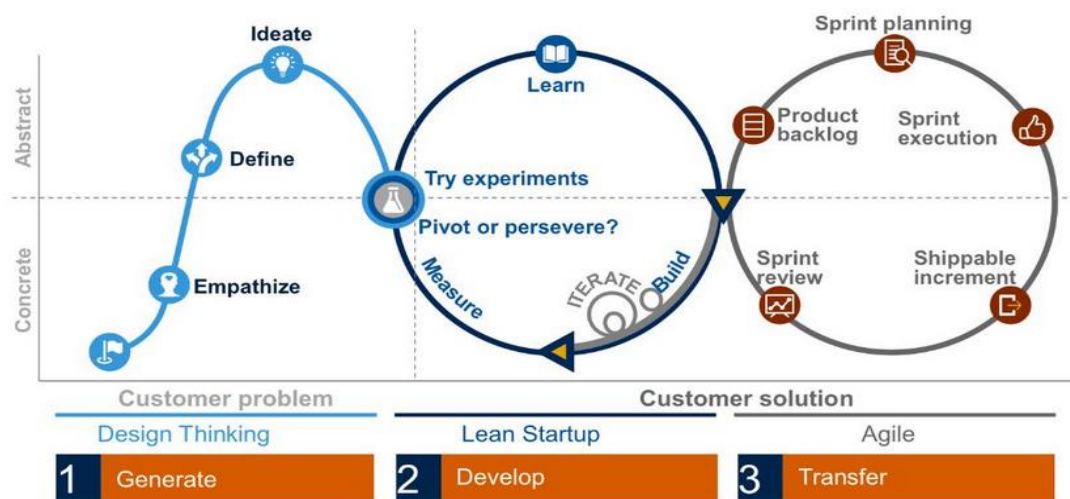
(Sources: Bagno et al., 2017, p. 645; Fichman et al., 2014, p. 336; Viki et al., 2017, p. 30; Van Ommeren, 2018, p.15)

Figure 2 serves to compare and contrast the four innovation frameworks as outlined. The first step is referred to as either “discovery” (Fichman et al., 2014), “idea generation” (Bagno et al., 2017), “creating ideas” (Viki et al., 2017) or simply “generate” (Van Ommeren, 2018). The second step is “conversion” (Bagno et al., 2017), “development” (Fichman et al., 2014), “testing ideas” (Viki et al., 2017) or simply “develop” (Van Ommeren, 2018).

Furthermore, while Bagno et al. (2017) and Fichman et al. (2014) agree that the third step is diffusion, which marks the last step as theorised by Bagno et al. (2017), Viki et al. (2017) refer to the same as “scaling ideas” while Van Ommeren (2018) calls it “transfer”. Lastly, Fichman et al. (2014) consider the fourth and last step to be “impact” while Viki et al. (2017) refers to it as “renewing ideas”.

For demonstration purposes, so as to enhance understanding, one of the above mentioned frameworks, specifically by Van Ommeren (2018) is depicted in Figure 3 below. It is therefore submitted that innovation framework brings order into the digital innovation process; it improves collaboration and hence impact positively on the culture of innovation within the firm; therefore the firms should define or adopt one.

Figure 3: Innovation Framework



(Source: Van Ommeren, 2018, p. 15)

In furtherance of this definition of innovation, Fichman et al. (2014) postulate that “any digital technology that is new to the organisation and requires significant change qualifies as innovation to that organisation”.

2.2.5 What is Digital Innovation and What is Digital Innovation Management?

Fichman et al. (2014), go further to define digital innovation generally as “a product, process or business model that is perceived as new, requires some significant changes on the part of the adopter, and is embodied in or enabled by IT”. This is in coherence with Nambisan et al. (2017), who conceptualise digital innovation as “the creation of and consequent change in market offerings, business processes, or models that result from the use of digital technology”.

In both cases, the authors embrace the importance of technology as an enabler of innovation; hence the term digital innovation. Furthermore, Nambisan et al. (2017) posit that digital innovation management refers to “the practices, processes, and principles that underlie the effective organisation and management of digital innovation”.

Regarding the impact of digital innovation on improved competitiveness and sustainability, Bornemann, Schöler and Homburg (2015) argue that technology underpins the design of products and services, specifically providing the aesthetics and ergonomic values, which in turn attract clients and create value for the firm.

Moreover, Salunke, Weerawardena and McColl-Kennedy (2013) claim that innovation induces firms “to offer superior value in comparison to competitors”, through positively affecting firm performance. Yunis et al. (2017) take this further to incorporate the role played by Information and Communication Technology (ICT) in innovation. They claim that “ICT based innovations and applications have become major drivers of enhanced organisational performance, economic growth and social change”.

Additionally, Weinelt (2016) further theorises that if a company implements digital technologies across its business, it competes against digital natives, outperforms its peers, achieves scale, gains competitive advantage and as a result enhances revenue.

Moreover, according to Yunis et al. (2017), if the firms “appreciate the value of relevant technological changes” and capitalise on it, they will achieve sustained competitive advantage. Finally, Viki et al. (2017) argue that “technology and software continue to transform business and hence innovation is the way of doing business in the 21st century and a key driver to sustainable growth”.

Therefore, it is submitted that the firm should engage in digital innovation management as it improves the firm's competitive advantage and sustainability (Yunis et al., 2017; Salunke et al., 2013).

In the domain of digital innovation, recent research focuses more on the digital innovation process, diffusion of digital innovation product and service, and the enablers and barriers of digital innovation (Nambisan et al., 2017; Troilo et al., 2017; Svahn et al., 2017). Moreover, Bagno et al. (2017) acknowledge that the majority of the models that facilitate innovation have focused on incremental innovation rather than radical or transformational innovation.

Therefore, there is a paucity of research on how digital innovation can be managed comprehensively for improved competitiveness and continued sustainability. Nonetheless, Nylen and Holmstrom (2015) have developed a framework, referred to as a "Managerial Framework for Digital Innovation Strategy" presented in Table 2 below, which provides guidance on how to go about managing digital innovation, albeit it is insufficient. Section 2.3 below provides detail of this framework.

2.3 Managerial Framework for Digital Innovation Strategy

The "Managerial Framework for Digital Innovation Strategy" (Nylen & Holmstrom, 2015) is meant for supporting the firms in the on-going improvements within the digital innovation management field (Nylen & Holmstrom, 2015). Furthermore, this framework outlined in Table 2 below, is meant to provide a firm with "a holistic view of its digital innovation, helping the firm to motivate and keep track of its digital innovation" effort (Nylen & Holmstrom, 2015).

Table 2: Managerial Framework for Digital Innovation Strategy

Dimension	Area (Theme / Code Group)	Scope of the Area (Theme)	Element (Sub-Theme / Codes)
Product	User Experience	Digital products and services must offer high levels of usability, possess carefully designed aesthetic properties, and evoke engagement.	Usability
			Aesthetics
			Engagement
	Value Proposition	Digital innovation involves an articulated value proposition; i.e., a customer segmentation including strategic pricing and positioning of the product portfolio, dynamic bundling of product units, and carefully negotiated commissions to channel owners.	Segmentation
			Bundling
			Commissions
Environment	Digital Evolution Scanning	In order to identify opportunities for innovation, firms need to scan their digital environment. This involves gathering information on new digital devices, channels, and associated user behaviours.	Devices
			Channels
			Behaviours
Organisation	Skills	In order to reap the benefits of digital innovation, firms need to acquire new skills both internally and externally while establishing new digital roles. In doing so, firms should promote continuous learning of the unique properties of digital technologies in order to secure dynamic innovation teams.	Learning
			Roles
			Teams
	Improvisation	The malleability and low cost of digital technologies affords a higher degree of improvisation. As a consequence, managers need to ensure that they provide organizational members with an improvisational space where structure and flexibility is balanced in such a way that the constraints maximize creativity, dedicated time is given, and improvisational efforts are coordinated to deal with overlaps and waste.	Space
			Time
			Coordination

(Source: Nylén & Holmström, 2015, p. 61)

The framework posits that “in seeking to manage digital products and service innovation, uncertainty occurs across three dimensions, namely: the firm’s product or service, its digital environment and organisational properties” (Nylen & Holmstrom, 2015). According to Nylen and Holmstrom (2015), each dimension is further characterised by one or more themes as outlined:

- Product is characterised by “user experience and value proposition”,
- Environment is characterised by “digital evolution scanning” and
- Organisation is characterised by “skills and improvisation”.

2.3.1 Customer (User) Experience

Regarding user experience within the boundaries of product dimension, Nylen and Holmstrom (2015) claim that customer experience is a central differentiating factor and a competitive force. Moreover, Bornemann et al. (2015) theorise that customer experience facilitates acceptance in the marketplace leading to a positive cash flow and eventually firm value.

Furthermore, Nylen and Holmstrom (2015) state that “digital products and services must offer high levels of usability, possess carefully designed aesthetic properties, and evoke engagement”. Additionally, Viki et al. (2017) theorise the importance of digital innovation in addressing the client needs, while Bornemann et al. (2015), also argue for ergonomic value, which is convenience to use. Elaborating on the customer experience theme:

- a) Usability refers to the ease of navigating the digital products and services for instance in the case of a website, the client should be able to “seamlessly navigate massive databases and arrive at desired product in few clicks” (Nylen & Holmstrom, 2015). Usability also includes the response time or speed of the product or service.
- b) In addition to usability clients are positively influenced by beauty and appearance; hence, firms should endeavour to leverage these and design digital products and services with aesthetics principles in mind. Bornemann et al. (2015) argue that appearance facilitates formation of a first impression since it marks the first point of contact between the client and the product or service. Coherently, Nylen and Holmstrom (2015) argue that the consistent aesthetics of Apple has contributed to Apple’s market dominance.

- c) Firms should make an effort to develop digital products and services that evoke engagement (Nylen & Holmstrom, 2015) in order to “make the experience of their products and services meaningful to the clients”. Kane et al. (2015) suggests that this kind of engagement can be achieved through greater integration between online and offline experiences. For instance, Kane et al. (2015) state that New York City Museum created a persuasive online experience that induces people to visit.
- d) Viki et al. (2017) posit that the main responsibility of the innovators in the firm is to design and develop products and services that address the client needs and in turn generate revenue to the firm. Viki et al. (2017) further mention that a sweet spot is achieved when creativity addresses the needs of the customer while also generating revenue from serving those needs.
- e) Bornemann et al. (2015), also argue that technology underpins the design of products and services, specifically providing the aesthetics and ergonomic values, which in turn attract clients and create value for the firm. Ergonomic value specifically corresponds to convenience to use (Bornemann et al., 2015).

Therefore, to achieve the sweet spot, digital innovation should deliver a positive user experience that addresses the real user needs with products and services that are usable, which have aesthetic value, are convenient to use, and which are engaging (Viki et al., 2017; Nylen & Holmstrom, 2015; Bornemann et al., 2015).

2.3.2 Value Proposition

Nylen and Holmstrom (2015) theorise that “digital innovation involves an articulated value proposition; that is, a customer segmentation including strategic pricing and positioning of the product portfolio, dynamic bundling of product units, and carefully negotiated commissions to channel owners”. Expanding on the value proposition theme:

- a) Firstly, customer segmentation refers to analysing the customer base to determine the characteristics and context of the individual customer in order to make strategic decisions on the manner in which to reach, delight and retain them (Nylen & Holmstrom, 2015; Troilo et al., 2017).

- b) Secondly, having segmented the customers, firms need to bundle digital products and services in an innovative manner and market them accordingly in order to improve value proposition and prevent customer churn (Troilo et al., 2017).
- c) Lastly, in order for digital products and service to be affordable and hence create value to customers, firms need to negotiate with the channel owners on both relationship and on commission charged (Nylen & Holmstrom, 2015). For instance, Apple Store is known for charging 30% commission on sales (Nylen & Holmstrom, 2015).

Finally, Barrett et al. (2015) similarly highlight the need for customer empathy in value proposition. Thus, for digital innovation to be successful the value proposition should be well articulated and should address the real customer need (Nylen & Holmstrom, 2015; Troilo et al., 2017; Barrett et al., 2015).

2.3.3 Digital Evolution Scanning

Regarding exploration while executing, Nylen and Holmstrom (2015) argue that “firms need to scan their digital environment in order to identify opportunities for innovation. This involves gathering information on new digital devices, channels, and associated user behaviours” (Nylen & Holmstrom, 2015). Furthermore, in their definition of digital innovation, Nambisan et al. (2017) have included a collection of digital tools such as 3D printing, data analysis, mobile computing, claiming that these enable digital innovation. Expanding on the digital evolution scanning theme:

- a) Firstly, digital devices refer to new hardware and components that emerge in the market, including improvements made to existing devices so as to increase processing capability (Nylen & Holmstrom, 2015). According to Oldham and Da Silva (2015), employees access diverse ideas and approaches through use of these digital devices leading to unique creativity and idea generation.
- b) Secondly, in addition to digital devices, Oldham and Da Silva (2015) claim that there exist digital tools that improve idea generation and implementation through providing access and exposure to information, access to likeminded individuals and opportunity for collaboration. These according to Nambisan et al. (2017) include data analysis and mobile computing.

- c) Thirdly, digital technologies have facilitated innovation with regard to development of sales and distribution channels and according to Troilo et al. (2017), delivery of service through this kind of channels is increasing. Therefore, Nylen and Holmstrom (2015), advise firms to take advantage and integrate their products and services with several channels including mobile operating channels, app store and social media site.
- d) Lastly, as multiple digital channels get pervasive, new user behaviours surface; hence, the need to continuously scan the user behaviour, as these new behaviours can lead to emergence of new markets (Nylen & Holmstrom, 2015). Moreover, Troilo et al. (2017) suggest that data analytics can be leveraged by the firms in search of customer behavioural trends.

The need for digital evolution scanning is in alignment with the theory postulated by Svahn et al. (2017), which states that firms have to “learn how to identify, encourage and leverage external parties based on continuous scanning of the emerging markets and technology developments”. Furthermore, Dahlander, O'Mahony and Gann (2016) claims that a broad external search is viewed as vital to the sourcing of innovative ideas; while Jasimuddin and Naqshbandi (2018) refer to this kind of scanning as open innovation.

Conversely while Dahlander et al. (2016) recognise the need for environmental scanning, they have also discovered that at the firm level, “there are diminishing returns to external search breadth”. Since the firm has limited absorptive capacity, spending too much time of searching various sources can be disadvantageous. Resources can be wasted in the prolonged search process, which could result in a firm producing more knowledge than it can utilise and integrate in its capabilities.

Therefore, it is crucial to scan the environment with caution, lest the firm experiences diminishing return on external search. Nonetheless, it is submitted that continuous yet moderate digital evolution scanning is crucial for successful digital innovation (Nylen & Holmstrom, 2015; Dahlander et al., 2016).

2.3.4 Skills

Nylen and Holmstrom (2015) claim that “in order to reap the benefits of digital innovation, firms need to acquire new skills, both internally and externally, while establishing new digital roles”. “In doing so, firms should promote continuous learning

of the unique properties of digital technologies in order to secure dynamic innovation teams” (Nylen & Holmstrom, 2015). Bagno et al. (2017) further suggest that specific organisational function, “with its own team, missions, roles and responsibilities”, is required for management of radical innovation. Elaborating on the skills theme,

- a) Firstly, to acquire the capability for continuous scanning, Yoo et al. (2012) have identified the need for “complex roles for information systems and organisational members”. Moreover, Nylen and Holmstrom (2015) postulate that digital innovation initiatives may require a balance of in-house roles and outsourced consultants.
- b) Secondly, digital technologies are evolving by nature; therefore, digital innovation requires continuous learning whereby these technologies are explored for identification of new opportunities for products, services, and markets innovation (Nylen & Holmstrom, 2015). Therefore, continuous learning has to be promoted and supported throughout the organisation.
- c) Lastly, digital innovation requires teams with diverse skills; and therefore the firm needs to be able to bring together teams with right combination of skills (Nylen & Holmstrom, 2015). Dahlander et al. (2016) concur that if a team has diverse membership, its productivity improves.

In coherence with the view of Nylen and Holmstrom (2015) on the skills theme, Svahn et al. (2017) postulate that “to embrace digital innovation, incumbent firms must develop new capabilities to identify novel ideas within the existing institutional context and to engage external audiences”. Sousa and Rocha (2018) likewise indicate that to manage the new disruptive business, specific skills relating to innovation, leadership and management are required.

On the contrary, Nylen and Holmstrom (2015) mention that the core competencies or skills of an incumbent firm “can actually stand in the way of innovating when entering the new markets”.

Furthermore, Haneda and Ito (2018) theorise that radical innovation is enabled by centralisation, while decentralisation supports incremental innovation better. For instance, Svahn et al. (2017) mention that to manage the two competing concerns being exploitation and exploration, the executive team of Volvo mandated a new

initiative known as “Connectivity Hub”. Connectivity Hub was a cross-functional team tasked with developing new innovation capabilities for connected cars.

On one hand, Viki et al. (2017) argue that by creating innovation labs, managers can separate innovators from the toxic environment within the company; on the other hand, they (Viki et al., 2017) acknowledge that these labs fail because companies do not establish management processes around them and therefore innovators are free to work on what they desire, which may not necessarily be aligned with the firms’ strategies.

Therefore, firms are encouraged to build innovation management processes or frameworks, engage in continuous learning, resource innovation teams and strike a balance between members with digital skills and those with specialised non-digital skills (Viki et al., 2017; Nylén & Holmström, 2015; Svahn et al., 2017). Hence, it is vital to continually hone skills in order to support the firm’s digital innovation journey.

2.3.5 Improvisation (Culture)

According to Nylén and Holmström (2015), as a result of “malleability and low cost of digital technologies”, firms are empowered to make do with what they have. This low technology cost allows the firm to take risks, since failure comes at low cost; in line with what Kane et al. (2015) suggest, “...many organizations will have to change their cultural mind-sets to increase collaboration and encourage risk taking”.

Consequently, managers and leaders need to afford employees space to improvise, where “structure and flexibility is balanced in such a way that the constraints maximize creativity, dedicated time is given, and improvisational efforts are coordinated to deal with overlaps and waste” (Nylén & Holmström, 2015). These aspects of improvisation lead to an innovative culture that supports collaboration and creativity (Kane et al., 2015). To expand on the improvisation theme:

- a) Firstly, firms which excel in digital innovation have designed and created physical spaces that are open and flexible (Dery et al., 2017). On the same note, Kane et al. (2015) identify lack of organisational agility as a barrier to digital innovation. In addition to such open and flexible spaces, firms must have high level “of tolerance for failure and must reward long-term” successes (Haneda & Ito, 2018).

- b) Secondly, it is absolutely necessary to allocate time for innovation, as this communicates the importance of engaging in innovation to the entire firm. For instance, Google allocates 20% of working hours to what they call “skunkworks”; these, according to Nylen and Holmstrom (2015) are projects initiated by individual employees.
- c) Lastly, according to Haneda and Ito (2018), to mitigate various types of uncertainties, there is a need for cooperation and coordination across business units and divisions. These cooperation and coordination increase knowledge spillovers that are necessary for innovation. Nylen and Holmstrom (2015) consider this coordination as key in dealing with overlaps and waste.

In coherence with the improvisation theme theorised by Nylen and Holmstrom (2015), Svahn et al. (2017) state that to allow for exploration of digital possibilities, managers must create an environment that balances control and flexibility. Moreover, Viki et al. (2017) claim that ultimately, innovation fails when a company manages its innovation projects using the same processes used to manage its core products. Thus, improvisational space, time and coordination are core elements of a culture that facilitates successful digital innovation; therefore it is submitted that firms should create an improvisation culture (Nylen & Holmstrom, 2015).

Since “Managerial Framework for Digital Innovation Strategy” (Nylen & Holmstrom, 2015) takes several themes of digital innovation into consideration, it can be used to provide guidance on how firms could better manage their digital innovation. However, it was not developed specifically for this purpose; hence, it lacks other critical dimensional elements, such as internal process innovation, which is referred to as digital workplace by Dery et al. (2017). For instance, employee connectedness and responsive leadership, which are critical for success of digital innovation within a firm (Dery et al., 2017).

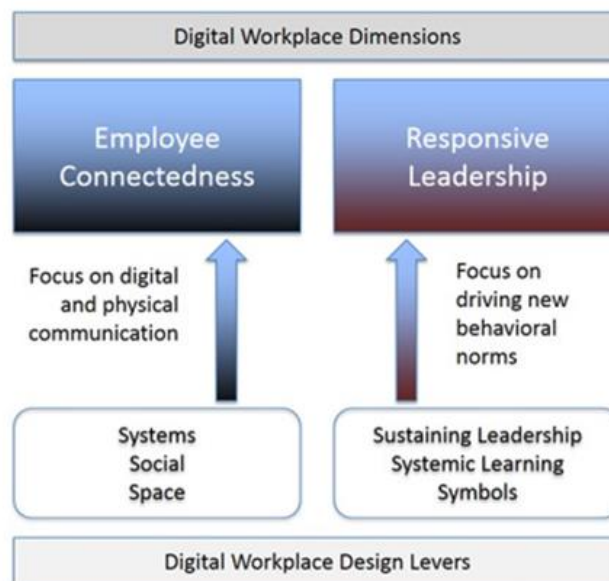
Coherently, Viki et al. (2017) argue that “it is possible to innovate around internal business processes that are not directly experienced by customers”. Additionally, Dery et al. (2017) claim that innovation relating to internal processes, namely digital workplace, transforms the way work is done, leading to success for established firms in the digital era. Furthermore, Dery et al. (2017) claim that this digital workplace is necessary for “the execution of digital customer strategies and digital innovation”.

Nylen and Holmstrom (2015) have acknowledged the limitations of their study. Moreover, these shortcomings have been addressed by the recent research of Dery et al. (2017) in their model named “Dimensions and Design Levers for Creating an Effective Digital Workplace”, depicted in Figure 4. This model is addressed in detail in the following sub-section.

2.4 Dimensions and Design Levers for Creating an Effective Digital Workplace

Dery et al. (2017) argue that “success in the digital era in established companies depends on transforming how work is done to create digital workplaces and improve employee experience”. This necessitates addressing two themes, namely employee connectedness and responsive leadership (Dery et al., 2017), illustrated by Figure 4 below.

Figure 4: Dimensions and Design Levers for Creating an Effective Digital Workplace



(Source: Dery et al., 2017, p. 137)

2.4.1 Employee Connectedness

Employee connectedness, as stated by Dery et al. (2017) refers to “the extent to which employees can engage with each other, with stakeholders and customers, with information and knowledge, and with ideas”. Moreover, Haneda and Ito (2018) theorise that knowledge management boosts innovation by “enabling firms to acquire external and internal knowledge, sharing and exchanging knowledge among organisational

members, and applying knowledge effectively; while Donate and de Pablo (2015) claim that knowledge management improves firm's innovation performance. Therefore, it can be argued that knowledge management facilitates employee connectedness.

Furthermore, Dery et al. (2017), claim that high performing companies aiming at improving employee connectedness employ an integrated approach using three design levers that enhance digital and physical communication namely, system, social and space. Dery et al. (2017) posit that in this case:

- a) "System" refers to the latest technology solutions, for instance, Internet of Things, Robotics, Videoconferencing, Enterprise Resource Planning systems, interactive Websites and Portals etc. (Dery et al., 2017). Moreover, Dery et al. (2017) suggest that to improve the employee experience, the system should be fast, embrace mobility and include efficient on-boarding for effective execution of daily activities.

On one hand, Oldham and Da Silva (2015) claim that some of these technologies facilitate sharing of ideas, requesting for feedback, support and encouragement, resulting in enhanced employee engagement and satisfaction. On the other, Colbert, Yee and George (2016) claim that since these technologies are accessible anytime, from anywhere, they encourage employees to work after defined working hours, leading to increased work-life conflict.

- b) "Social" refers to the social media platforms, which are used to facilitate collaboration internally between employees and externally with clients and other stakeholders, in order to support ideation (Dery et al., 2017). On one hand, Kane et al. (2015) claim that social media can kick-start the momentum and eventually transform the organisational culture into a digital culture. On the other hand, Colbert et al. (2016) argue that while social media can be an integral work tool, it provides easy access to online shopping , family and friends as well; hence, it can divert employee focus leading to reduced productivity.
- c) "Space" refers to inspiring physical spaces, which are "open, flexible and activity based" and which support problem solving and ideation. This space concept is in coherence with improvisational space theorised by (Nylen &

Holmstrom, 2015), whereby structure and flexibility are balanced such that creativity is maximised.

Additionally, as previously mentioned, knowledge management also facilitates employee experience; therefore, it is defined as:

- d) "Knowledge management" is "a set of activities, initiatives and strategies that companies use to generate, store, transfer and apply knowledge for the improvement of organisational performance" (Donate & de Pablo, 2015). Moreover, according to Donate and de Pablo (2015) when knowledge management is facilitated by ICT it leads to improved employee connectedness.

On one hand, in coherence with the employee connectedness theme theorised by Dery et al. (2017), Nambisan et al. (2017) claim that "interactions on social media enable innovators and entrepreneurs to formulate new opportunities in an incremental and inductive manner"; hence digital innovation can be seen as a process of social construct of opportunities. Additionally, Oldham and Da Silva (2015) claim that digital workplace requires computing technologies and devices; and the more these are used, the more engaged the employees; hence, more creative ideas.

On the other hand, Colbert et al. (2016) claim that several challenges have emerged which need to be dealt with for digital workplace to remain productive. For instance, the continuous interruption that comes with email and social media render digital workforce inefficient as it reduces focus on complex problem solving (Colbert et al., 2016). Moreover, as a consequence of digitisation, there is blurry line between work and non-work domains, leading to work-family conflict (Colbert et al., 2016).

Nonetheless, it is posited that digital workplace improves employee experience, which in turn positively impacts on firm's digital innovation success; hence, the need to invest in employee connectedness (Dery et al., 2017).

2.4.2 Responsive Leadership

Lastly, responsive leadership, according to Dery et al. (2017) refers to "the extent to which management prioritises the activities that focus on the development and continuous improvement of employee experience in the organisation". Dery et al. (2017) claim that "high performing companies build responsive leadership using three

design levers that focus on driving new behavioural norms throughout the organisation”, namely:

- a) “Sustaining Leadership” focuses on employee experience. This kind of a leader leads by example, is open to employee feedback and takes action (Dery et al., 2017). He or she creates a safe space for employees to experiment “with new technologies and new approaches to work”, allows employees to fail fast and learn; consequently, making the firm’s culture less risk adverse (Dery et al., 2017; Kane et al., 2015). Although he or she is not a “technology wizard” this leader has foresight on how technology can transform their business.
- b) “Systemic Learning” mechanisms, which provide the leader with capability to gather data from multiple sources such as Information Technology (IT) Helpdesk queries, employee surveys, performance management systems, IoT sensors, etc. (Dery et al., 2017) This data is used by the leader to make informed decisions for continuous improvement of the workplace, making it conducive for innovation culture (Dery et al., 2017).
- c) “Symbols” that “make the workplace strategy explicit” (Dery et al., 2017) . The responsive leader in this instance directs development of clear digital vision and strategy, which takes care of both the clients’ and employees’ digital journeys (Dery et al., 2017; Kane et al., 2015). To boost buy-in, the leader then effectively communicates the vision and strategy using the stories and symbols both internally to the board and employees; and externally to other stakeholders (Dery et al., 2017; Kane et al., 2015).

In line with the theme on responsive leadership proposed by Dery et al. (2017), Hughes, Lee, Tian, Newman and Legood (2018) mention that leadership is key to enhancing or hindering “workplace creativity and innovation”. To stimulate creativity and improve innovation performance, leaders can provide autonomy and direction to followers; furthermore, leaders can allocate necessary resources such as information and therefore, build followers’ confidence (Hughes et al., 2018).

Similarly, Jasimuddin and Naqshbandi (2018) agree that to enhance achievement of organisational goals and the innovation outcome, leaders have to inspire and motivate followers. “...leaders develop, exemplify, acknowledge, appreciate and reward new and innovative ideas coming from followers” (Jasimuddin & Naqshbandi, 2018).

Moreover, according to Donate and de Pablo (2015) “leaders can create conditions that allow participants to exercise and cultivate their knowledge manipulation skills, to contribute their own individual knowledge resources, or to obtain easier access to relevant knowledge”. This kind of leaders is referred to as knowledge-oriented leaders (Donate & de Pablo, 2015) and anecdotally these leaders exhibit characteristics of a responsive leader.

On the contrary, Donate and de Pablo (2015) postulate that “leadership behaviours may present major barriers to creating and leveraging knowledge, as they can result in knowledge hoarding, competition rather than cooperation and a host of other negative attitudes for knowledge-creating companies”.

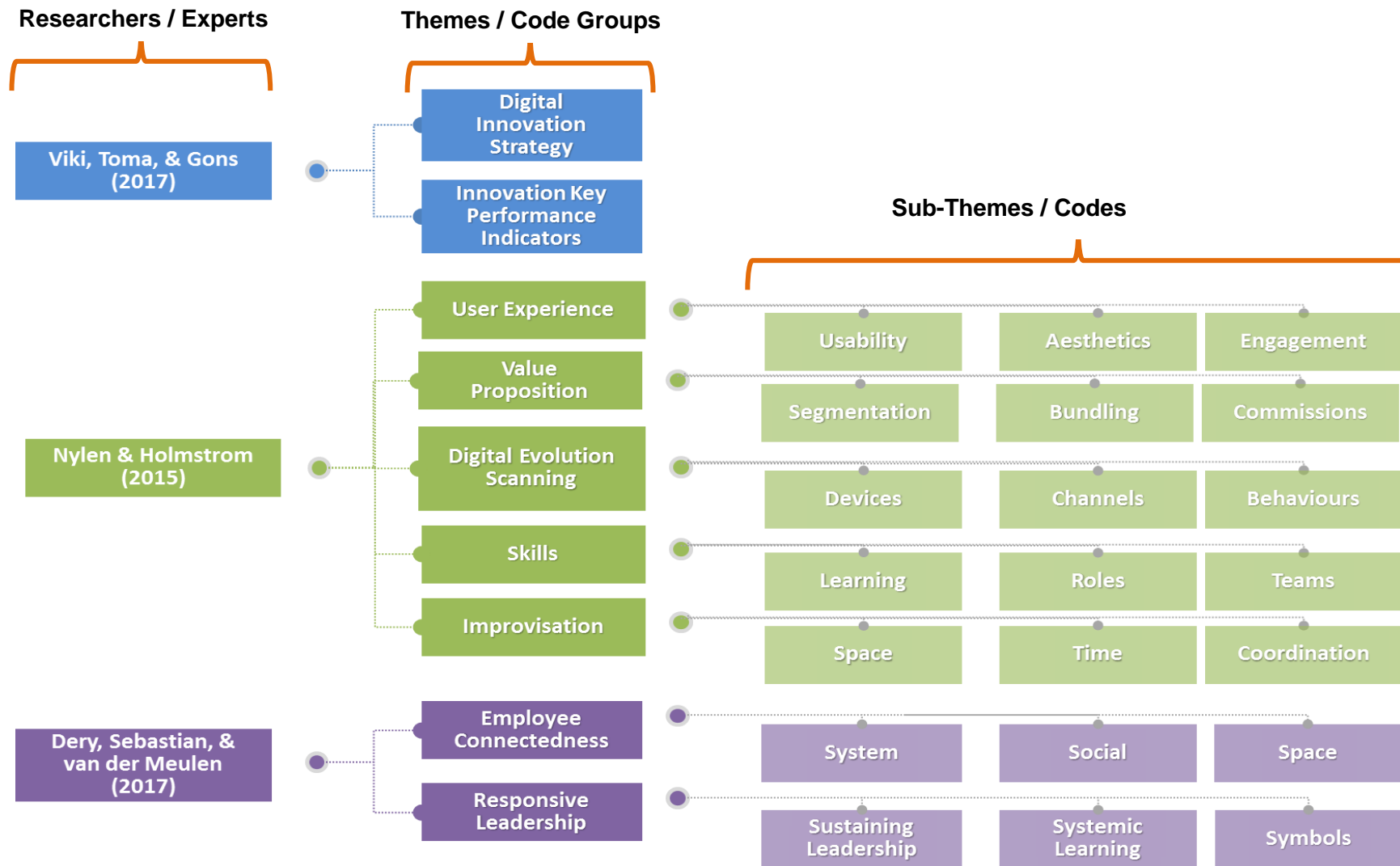
Additionally, Viki et al. (2017) claim that they have seen successful innovators with great products that withered on the vine because there were no managers in the company willing to pick up the products and take them to scale. These products become orphans that are eventually abandoned, thus creating a discouraging and uninspiring environment for future innovators.

Nonetheless, Svahn et al. (2017) argue that executives should communicate their vision, and provide required support and resources to commence and sustain the digital innovation journey. Thus, leaders are advised to adopt the responsive leadership style as it creates an environment that is conducive for digital innovation success (Dery et al., 2017).

2.5 A Holistic Conceptual Ecosystem for Management of Digital Innovation

In order for a comprehensive ecosystem to be developed, which is aimed at managing the digital innovation effort of a firm, the two frameworks defined by Dery et al. (2017) Nylén and Holmström (2015) were integrated. Moreover, the themes relating to digital strategy and innovation KPIs were incorporated to ensure robustness of the proposed ecosystem. The resulting conceptual ecosystem is presented in Figure 5 below:

Figure 5: A Holistic Innovation Management Ecosystem



(Sources: Viki et al., 2017, p. 30-31; Nylen & Holmstrom, 2015, p. 61; Dery et al., 2017, p. 137)

Moreover, Viki et al. (2017) posit that digital products and services that address the real customer needs evoke positive User Experience; while Bornemann et al. (2015) emphasise the need for digital products and services that are convenient to use. Hence, a proposal is made to incorporate Customer Needs and Convenience as sub-themes under the User Experience theme.

Additionally, for Digital Evolution Scanning, Oldham and Da Silva (2015) posit that scanning should also cover digital tools; hence, the need to incorporate Digital Tools as a sub-theme under Digital Evolution Scanning. Finally, Donate and de Pablo (2015) and Haneda and Ito (2018) claim that knowledge management improves employee connectedness; hence, the proposal to include Knowledge Management as a sub-theme under Employee Connectedness.

2.6 Conclusion

In an effort to address the overarching research question, which is: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?*, this section presented the literature review relating to digital innovation management; starting broadly by defining innovation and thereafter focusing on digital innovation and digital innovation management constructs. These constructs included: innovation strategy and portfolio, innovation KPIs, innovation framework and reasons for engaging in digital innovation.

Subsequently, two frameworks were introduced, namely; “Managerial Framework for Digital Innovation Strategy” (Nylen & Holmstrom, 2015) outlined in Table 2 and “Dimensions and Design Levers for Creating an Effective Digital Workplace” (Dery et al., 2017) illustrated in Figure 4. These two frameworks were integrated; furthermore, constructs relating to innovation strategy and innovation KPIs as informed by Viki et al. (2017) were incorporated. Consequently, a more holistic conceptual ecosystem for management of digital innovation was established, as illustrated by Figure 5.

The subsequent section presents the research questions that guided the testing of the newly developed conceptual ecosystem.

3. CHAPTER 3 - Research Questions

3.1 Introduction

The conceptual ecosystem illustrated in Figure 5 seeks to guide established firms in their digital innovation endeavour. This chapter therefore aims to present the research questions that form the basis of the study. These research questions were informed by the literature and are meant to validate the newly developed conceptual ecosystem, so as to address the main research objective and respond to the main research question: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?*

3.2 Research Question 1

Viki et al. (2017) argue that there must be alignment between the overall strategic plan of the company and its innovation. Therefore, they propose development of “an innovation strategy, which clearly sets out the company’s view of the future and strategic objectives of the innovation” (Viki et al., 2017). Moreover, Kane et al. (2015) declare lack of prioritisation as a barrier to successful innovation; hence, the need for an innovation portfolio consisting of small, incremental refinements and major breakthroughs; hence the first research question:

Research Question 1: *Does the firm have a digital innovation strategy, which is designed to balance between small, incremental refinements and major breakthroughs?*

3.3 Research Question 2

To determine whether or not the innovation is successful, the firm has to define performance metrics or KPIs that differ from the traditional accounting methods (Viki et al., 2017). Moreover, Dery et al. (2017) propose that digital workplace KPIs should be tracked, with the aim of ensuring that the employee experience improves as the firm invests in digital workplace tools; therefore,

Research Question 2: *Which innovation performance indicators has the firm adopted for measuring digital innovation success?*

3.4 Research Question 3

Yunis et al. (2017) claim that ICT based innovations and applications are main drivers of improved organisation performance, competitive advantage, revenue growth and social change. Additionally, Weinelt (2016) theorises that if a company implements digital technologies across its business, it competes against digital natives, outperforms its peers, achieves scale, gains competitive advantage and as a result enhances revenue; hence the third research question:

Research Question 3: *What drives a firm to engage in digital innovation management?*

3.5 Research Question 4

Nylen and Holmstrom (2015) claim that “digital products and services must be easy to learn and use, and also provide a rich user experience”. Additionally, Viki et al. (2017) theorise the importance of digital innovation in addressing the client needs while Bornemann et al. (2015), also argue for ergonomic value, which is convenience to use; hence the fourth research question:

Research Question 4: *How do clients experience the firm's digital products and services?*

3.6 Research Question 5

Nylen and Holmstrom (2015) theorise that “digital innovation involves an articulated value proposition”. Moreover, segmenting clients and bundling digital products and services in an innovative manner and marketing them accordingly improves value proposition and prevents customer churn (Troilo et al., 2017); therefore,

Research Question 5: *How does a firm create and capture value in its digital products and services?*

3.7 Research Question 6

Nylen and Holmstrom (2015) claim that “firms need to scan their digital environment in order to identify opportunities for innovation”. Nonetheless, Dahlander et al. (2016) argue that it is crucial to scan the environment with caution, lest the firm experiences diminishing return on external search; therefore,

Research Question 6: *How does a firm identify opportunities for innovation that emerge in its digital environment?*

3.8 Research Question 7

Svahn et al. (2017) postulate that “to embrace digital innovation, incumbent firms must develop new capabilities to identify novel ideas within the existing institutional context and to engage external audiences”. Additionally, on one hand, Nylen and Holmstrom (2015) theorise that firms need to develop mechanisms to support continuous learning, establish new roles and assemble teams for digital innovation projects. On the other hand, Nylen and Holmstrom (2015) argue that the core capabilities of the firm can create barriers to innovation; nonetheless,

Research Question 7: *Which capabilities are critical for successful management of digital innovation in a firm?*

3.9 Research Question 8

Nylen and Holmstrom (2015) posit that management should allocate “space and time for improvisation” and coordinate improvisation effort. Additionally, Svahn et al. (2017) theorise that managers must strike a balance between control and flexibility to afford exploration; hence the eighth research question:

Research Question 8: *Which measures has the firm put in place to improve the culture of innovation and improvisation?*

3.10 Research Question 9

While Dery et al. (2017) posit that improving employees experience through digitisation of business processes and enhancement of workplace provides flexibility and is a pre-requisite for idea generation, Colbert et al. (2016) argue that this can lead to work-family conflict; nevertheless,

Research Question 9: *Which digital workplace measures relating to employee connectedness, have been put in place to improve the employee experience?*

3.11 Research Question 10

On one hand, Dery et al. (2017) postulate that leadership should enable continuous improvement of employee experience to encourage innovation culture; on the other hand Donate and de Pablo (2015) argue that leadership behaviours may present major barriers; nonetheless,

Research Question 10: *How does leadership facilitate continuous improvement of employee experience within the organisation?*

3.12 Conclusion

The research questions were presented in this chapter. The responses to these research questions are meant to facilitate validation of the conceptual ecosystem that was developed to guide established firms in their digital innovation endeavour, in order to maximise success of those innovation initiatives and that of the firm in general. The following chapter focuses on the research methodology that was followed in this study.

4. CHAPTER 4 – Research Methodology

4.1 Introduction

This section outlines the research methodology and design adopted in this study. Firstly, the study employed extensive literature review to develop a conceptual ecosystem for management of digital innovation, in order to respond to the main research question: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?*

Secondly, a cross-sectional qualitative approach was adopted to validate the proposed conceptual ecosystem. This was achieved through collection of primary data from semi-structured and in-depth interviews with Heads of Information Technology or Digital Innovation or Transformation divisions or departments, from selected established firms. The data was then analysed thematically and deductively in Atlas.ti based on literature; and furthermore, emerging sub-themes were identified.

This chapter presents the research methodology followed in this study and the following will therefore be covered: Methodology and Research Design, the Universe, Sampling Method and Size, Unit of Analysis, Measurement, Pilot, Data Gathering Process, Analysis Approach, Trustworthiness, Limitations and Ethical Clearance

4.2 Methodology and Research Design

To start with, preliminary literature review was conducted to learn about the existing contributions from the experts in the digital innovation management field. This approach is supported by Bloomberg and Volpe (2012), who argue that literature review should be conducted before the actual collection of data in qualitative studies.

From this literature review, fragmented approaches to digital innovation management were discovered as theorised by, among others Nylen and Holmstrom (2015), Dery et al. (2017), Viki et al. (2017) and Kane et al. (2015). Therefore, there was dearth of research specifically on the comprehensive approach for management of digital innovation. Hence, this study was meant to close this gap by establishing a comprehensive ecosystem for management of digital innovation.

As informed by the literature, closing this gap was achieved through integration of “Managerial Framework for Digital Innovation Strategy” (Nylen & Holmstrom, 2015)

outlined in Table 2, with the “Dimensions and Design Levers for Creating an Effective Digital Workplace” (Dery et al., 2017) depicted in Figure 4. Additionally, the digital innovation strategy and innovation key performance metrics constructs proposed by Viki et al. (2017) were incorporated to build robustness into the proposed ecosystem, depicted in Figure 5.

Thus, the study was deductive since the aim was to start with what was already known as defined by the frameworks mentioned above, from which testable propositions in the form of research questions, outlined in Table 1, were developed. According to Saunders and Lewis (2012), this approach “involves the testing of a theoretical proposition by using a research strategy designed to perform the test”. This approach was meant to take advantage of the merits of deductive over inductive approach, which according to Yin (2011) is that deductive approach saves researchers from uncertainty, as it requires starting with relevant concepts rather than waiting for those concept to emerge.

Moreover, this research was exploratory; Saunders and Lewis (2012) suggest that a study is exploratory if “it is about discovering general information about a topic that is not understood clearly by the researcher”, which was indeed the case with the researcher on the subject matter of this study.

Since the study was deductive and exploratory, a qualitative approach was employed and data was collected through audio recorded semi-structured interviews. The qualitative, as opposed to quantitative approach was informed by the fact that there is a dearth of research in comprehensive digital innovation management, hence quantitative approach would not adequately elicit the rich data required to respond to the proposed research question (Bloomberg & Volpe, 2012). This approach is further supported by Saunders et al. (2016), as they argue that “in-depth and semi-structured interviews may be used in relation to exploratory studies”.

Finally, this study was designed to be cross-sectional rather than longitudinal due to time-constraint. The study adopted the design and approach, which comprised two parts being literature review that led to the development of the conceptual ecosystem for management of digital innovation and the qualitative approach anchored on semi-structured interviews. The latter was meant to validate the newly developed ecosystem. This approach is supported by Troilo et al. (2017).

4.3 Universe

The universe comprised of the leaders of Information Technology or Digital or Transformation divisions or departments in established firms. These incumbents qualified as the universe because they usually have first-hand experience in digital innovation initiatives within their respective organisations. Therefore, they were better placed to address the research questions and consequently, inform the comprehensive digital innovation management ecosystem that this study sought to formulate.

The research organisations comprised middle to large firms with a minimum staff complement of 200 employees. To ensure elicitation of rich, relevant and recent information that would be valuable in responding to the research questions, these organisations should have engaged in digital innovation management initiatives. However, it was difficult to have a list of the entire population from the onset, as the researcher was not privy of information regarding the digital innovation, taking place in all medium to large organisations.

4.4 Sampling Method and Size

In the case where it is difficult to have a list of the entire population from the onset, Saunders and Lewis (2012) recommend the use of one or more of non-probability sampling techniques as these methods do not require a complete list of the population. Furthermore, Yin (2011) recommends the use of purposive sampling when selecting a sample for collecting qualitative data.

Coherently, Bloomberg and Volpe (2012) stipulate that the selection of the research sample is purposeful in qualitative research. Thus, purposive sampling was employed as this study was qualitative. The researcher used her judgement to actively choose organisations that would yield insight and understanding of digital innovation management and help answer the research questions to meet the research objectives (Saunders & Lewis, 2012; Bloomberg & Volpe, 2012).

The researcher is based in Lesotho; therefore, for her convenience the research was mostly conducted in Lesotho. However, to maintain some degree of transferability, the study was also extended to other contexts, to cover established firms located outside the borders of Lesotho, specifically in Malawi and South Africa. Thus, the robustness of the resulting ecosystem was tested by exposing it to several research locations (Saunders et al., 2016).

In total, 18 organisations were identified and contacted; 15 of which were based in Lesotho while three were not. These organisations primarily belong to the service industry. The service industry was conveniently chosen due to low economic activity in Lesotho, with regard to digital product innovation. Barrett et al. (2015) refer to service industry as industries such as travel, insurance, finance, retail and healthcare. Storey et al. (2016) argue that the service sector represents 63.6 % of the global economy, hence it was worth focusing on. The research organisations were mostly from the following industries outlined in table 3:

Table 3: Sample – Industry and Size

Service Industry	Number of Organisations
Banking	5
Higher Education	3
Government	3
Insurance	1
Utilities	3
Telecommunications	3
Total	18

Most of these organisations were identified purposively based on the information that is widely available in traditional and social media, with regard to their respective digital innovation accomplishments. A few of these organisation were identified using the snowball sampling method, which according to Pratt (2009) was to be expected, since it is possible for one’s criteria for sampling to change as the study progresses.

4.5 Unit of Analysis

Since the study was concerned with establishment of a digital innovation management ecosystem that would be applicable at the organisational level, the unit of analysis was identified as the organisation itself. The research objectives were concerned with evaluating/determining/establishing a specific digital innovation theme at the organisational level. Thus, using the organisation as the unit of analysis easily facilitated the data analysis, and consequently helped respond to the research questions.

4.6 Measurement (Interview Schedule)

According to Saunders and Lewis (2012), in a semi-structured interview, the researcher would have a list of topics to be covered and predetermined questions to be asked, compiled in a form of an interview schedule, although “the order in which the questions are asked would vary from interview to interview”. Yin (2011) refers to this interview schedule as the research instrument used for data collection. Since this study was qualitative in nature and data was collected through semi-structured interviews, the interview schedule, presented in Annexure 1, was adopted as the research instrument.

The design and development of the research schedule was informed by the literature review as presented in chapter 2 and illustrated on Figure 5. The interview schedule, outline in Annexure 1, comprises questions relating to demographics as well as open-ended questions relating to the digital innovation ecosystem. Questions 1 and 2 are general; Question 1 was initially meant to get the interviewee in the right mood; however, as it turned out, it facilitated cross-checking of responses. Questions 3 and 4 drew from Viki et al. (2017); Questions 5 to 9 drew from Nylén and Holmström (2015); and Questions 10 to 11 drew from Dery et al. (2017).

4.7 Pilot

The interview schedule and the interview technique were piloted to ensure:

- clarity of the questions;
- that the questions and the manner in which they are delivered were not leading or biased;
- that the responses would adequately validate the proposed ecosystem for management of digital innovation.

The pilot also helped determine the interview duration (Saunders & Lewis, 2012); hence made it possible to provide a reasonable interview duration estimate when requesting for the research interview. Zikmund, Babin, Carr and Griffin (2010) recommend the use of a pilot study or pre-test to gather preliminary results intended to enhance the design of the subsequent study.

Additionally, from this pilot, it was learned that as part of the introduction, definitions for innovation, digital innovation and digital innovation management were necessary to help guide both the informant and researcher to stay focused on the subject matter. It was further found necessary to provide an overview of the fragmented theories that

formed the basis of this study, so that the informant could also learn from the session and for the informant to appreciate the topic better.

4.8 Data Gathering Process

For this study, the Ethical Clearance was applied for and the approval was obtained on the 7th June 2018 as demonstrated in Annexure 2. Rich primary data was then collected through semi-structured and in-depth interviews; Saunders et al. (2016) advocate for the use of semi-structured and in-depth interviews for exploratory studies. The interviews took place between 25th July 2018 and 14th September 2018. For the convenience of the informants, the venue for the interviews was always in their building, either in their own offices or in meeting rooms.

Before each interview, each organisation was initially contacted telephonically to determine suitability; thereafter, a formal letter, presented in Annexure 3, requesting access and clarifying the research themes was sent. A few informants agreed to engage further for clarification of the themes before the interviews while majority felt the themes were self-explanatory. According to Saunders et al. (2016), providing a list of themes and not the actual questions to the participants prior to the interview allows them an opportunity to prepare for the interview; hence it promotes validity and reliability. However, one informant requested for the interview questions prior to the interview.

Before every interview, consent of the participants to voluntarily participate in the study was obtained through an Informed Consent Form presented in Annexure 4. In total, 14 interviews were conducted; however, the results of one interview were discarded as it became clear just before the interview that the organisation did not meet the entire criteria. Nonetheless, the researcher went ahead with the interview because the interviewee was keen to participate; therefore, the researcher took the opportunity to practice so as to gain confidence.

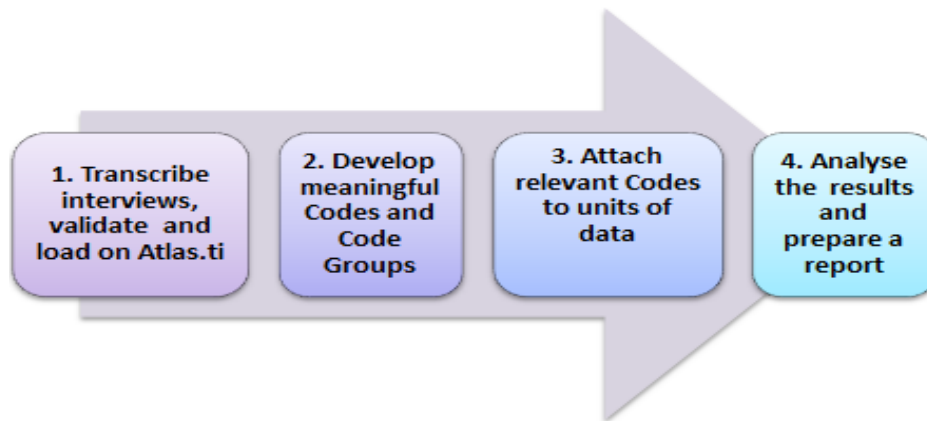
The interviews on average took 80 minutes; with the shortest taking 50 minutes while the longest went up to 180 minutes. The latter took longer because there were two participants in the interview; one participant was responsible for digital innovation within the applications architecture, while the other was responsible for digital innovation within the IT infrastructure space. With permission from the informants, all the interviews were manually and audio recorded and transcribed by an independent transcriber (Troilo et al., 2017). The interview audio records and transcripts were

uploaded on Google Drive, to safeguard against loss of data.

4.9 Analysis Approach

Figure 6 underneath presents an overview of the process that was followed during data analysis stage of the study.

Figure 6: Data Analysis Process



(Sources: Saunders & Lewis, 2012, p. 194; Zikmund et al., 2010, p. 462)

Step 1: An independent transcriber was engaged and the interview audios were transcribed verbatim immediately following each interview. Each transcript represented raw data, just the way the questions were asked and responses were given (Zikmund et al., 2010). The researcher then validated the transcripts for errors (Zikmund et al., 2010) by concurrently checking on the transcript while listening to the corresponding recording and making corrections as necessary. For some interviews, the medium of communication was predominantly Sesotho; therefore, the researcher had to translate information that was recorded on the transcripts in Sesotho. The validated transcript was then loaded in Atlas.ti where data was organised, managed, analysed and stored.

Step 2: According to Saldana (2009) for a qualitative analysis, the codes that are generated need an organised framework. Therefore, the researcher developed meaningful codes and code groups or themes deductively from the literature (Bloomberg & Volpe, 2012), drawing from the “Holistic Innovation Management Ecosystem” presented on Figure 5. The ecosystem was informed by the theory of Viki et al. (2017), framework of Nylén and Holmström (2015) and the model of Dery et al. (2017). The codes and code groups that were developed deductively to respond to specific research questions are outlined in Table 4 below.

Table 4: Themes / Code Groups, Corresponding Codes and Research Questions

Theme / Code Group	Sub-Theme / Code	Research Question?
Innovation Strategy		Research Question 1
Innovation KPIs		Research Question 2
Reason for a firm to engage in digital innovation management		Research Question 3
Customer (User) Experience	Customer Needs	Research Question 4
	Usability	
	Aesthetics	
	Convenience	
	Engagement	
Value Proposition	Segmentation	Research Question 5
	Bundling	
	Commissions	
Digital Evolution Scanning	Digital Devices	Research Question 6
	Digital Tools	
	Digital Channels	
	Behaviours	
Skills	Learning	Research Question 7
	Roles	
	Teams	
Improvisation	Space	Research Question 8
	Time	
	Coordination	
Employee Connectedness	System	Research Question 9
	Social	
	Space	
	Knowledge Management	
Responsive Leadership	Sustaining Leadership	Research Question 10
	Systemic Learning	
	Symbols (Communication)	

(Sources: Viki et al., 2017, p. 30-31; Nylén & Holmström, 2015, p. 61; Dery et al., 2017, p. 137; Donate & de Pablo, 2015, p. 361; Haneda & Ito, 2018, p. 196; Bornemann et al. 2015, p. 706; Oldham & Da Silva, 2015, p. 6)

Furthermore, to embrace the iterative nature of this qualitative study, as new themes emerged during the analysis, coding was done inductively (Bloomberg & Volpe, 2012). For a new code to be recognised, it had to be mentioned by more than one informant (Troilo et al., 2017). The newly recognised codes have been included in Table 4 above while the final coding schema is presented in Annexure 5.

Step 3: The researcher made a decision as part of step 3, “on the unit of data that would be appropriate for analysis and to which relevant codes and categories” (Saunders & Lewis, 2012) would be attached. Subsequently, the relevant codes were attached to the units of data. To mitigate the risk of coding errors, the researcher consistently referred to the definitions of the codes and code groups (Saldana, 2009), as informed by the literature and presented in chapter 2; the copies of the frameworks were put on the walls for ease of reference during coding (Saldana, 2009).

Step 4: finally, as part of step 4, the results were analysed and a report was developed.

During the course of data collection and analysis, the researcher tried her best to do data analysis after each interview to allow her to inductively identify emerging themes (code groups) or sub-themes (codes) that could be tested in subsequent interviews (Bloomberg & Volpe, 2012; Saunders & Lewis, 2012). This further helped in validating the newly identified themes (code groups) or sub-themes (codes) of the proposed ecosystem and in recognising the point at which data saturation was reached.

4.10 Trustworthiness

Evaluating trustworthiness in the qualitative study involves adopting various criteria, including among others, credibility, dependability, conformability and transferability (Bloomberg & Volpe, 2012).

Credibility – To ensure credibility, the research questions were informed by the literature as outlined in chapter 3. Subsequently the themes were developed from the same literature and a list of themes was shared with the informants via email, to guide their preparation for the session (Saunders et al., 2016). In one case though, the participant requested for the interview schedule ahead of the interview. While in a few cases, the list of themes was followed by a call to take the informant through the themes to ensure common understanding

Dependability – To promote dependability, as part of the introduction during each interview session, the researcher shared the definitions of innovation, digital innovation and finally digital innovation management. These definitions helped keep both the researcher and the informant in check throughout the interview session. To mitigate against the interviewer / interviewee bias in order to improve dependability and anonymity, interviewees were assured of anonymity in the introductory stage of the interviews and through completion of the Consent Form.

Moreover, to ensure credibility and dependability of the raw data, transcription of the interview records was outsourced. The researcher then validated the transcripts to mitigate the risk of error. This was achieved through playing the record while going through the transcript and making corrections as necessary. For some interviews, it was necessary to translate content from Sesotho to English before coding. The transcripts were then loaded in Atlas.ti, wherein the researcher once again read through the transcripts to identify data that supported the themes and hence coding was done thoughtfully.

The raw data in the form of audios, manual records and transcripts are readily available for further interrogation.

Confirmability – Presents the notion of objectivity whereby the findings are expected to be the results of the research, rather than the biases and subjectivity of the researcher (Bloomberg & Volpe, 2012). Given the time and cost constraints, confirmability could not be established, however, the raw material in the form of transcripts, audios, manual records and methodology notes are readily available.

Transferability – Saunders et al. (2016) argue that even though generalisability in qualitative study is questionable, if however, a study is based on existing theory, the researcher may be in a position to argue or justify transferability. Thus, since this study is based on the existing theory as illustrated by Figure 5, it can be argued that it has high degree of transferability. Moreover, the sample was heterogeneous; comprising informants from 13 research organisations belonging to six different industries in three different countries being Lesotho, Malawi and South Africa.

4.11 Limitations

Every research design presents some challenges and limitations (Zikmund et al., 2010). Qualitative studies in particular have inherent limitations relating to generalisability, resulting from the use of small and unrepresentative number of cases (Saunders et al., 2016; Bloomberg & Volpe, 2012; Troilo et al., 2017). Furthermore, other limitations inherent in qualitative study approach arise from the researcher bias, participant reactivity, sample selection, etc. (Saunders et al., 2016; Bloomberg & Volpe, 2012).

Conversely, Saunders et al. (2016) further mention that where the research is grounded on existing theory, the researcher is better placed to demonstrate that their findings have broader theoretical significance. However, while this study is based on existing theory as presented on Figure 5, the following limitations have been noted:

4.11.1 Sampling Bias

Purposive sampling technique was employed and the entire sample was from the service industry hence the findings may not be transferable to production or manufacturing industries. As mitigation, a heterogeneous sample emanating from six different service industries and three countries was engaged.

4.11.2 Interviewer Bias

According to Yin (2011), the researcher is the prime research instrument and hence they need to be aware of their potential biases which can arise from their personal background and motives for doing research. Additionally, Bloomberg and Volpe (2012) argue that qualitative studies are limited by researcher subjectivity since data analysis rests with abilities and choices of the researcher.

The researcher in this particular study is from the IT background and has taken part in digitisation projects, participating as a team member and in some cases as the program manager. Therefore, according to Saunders et al. (2016), they may attempt to impose their beliefs and frame of reference through the questions that will be asked. The researcher has also been involved with some of the research organisations as a student, an employee or as a client; therefore, she had preconceived ideas.

To mitigate these potential biases, the design and development of interview schedule were backed by theory. Furthermore, the definitions of the themes were standardised

across the interviews. To mitigate the bias relating to data analysis, coding was also based on the literature and was validated with the supervisor.

4.11.3 Interviewee Bias

As mentioned in 4.11.2, some of the informants were the researcher's acquaintances. As a result, they might have tried hard to cooperate with the researcher giving responses they thought might be helpful to her (Bloomberg & Volpe, 2012).

Moreover, there was a likelihood of interviewee bias brought about by the position of the participant. The informants are the leaders of digital innovation within their respective organisations; hence, it is likely that some wanted to portray only positive experiences.

As mitigation, the researcher deliberately included in the sample, organisations where the informants were likely to hold different views relating to the study (Yin, 2011). Furthermore, included in the sample were organisations which the researcher had never interacted with.

4.11.4 Cross-Sectional Nature of the Study

Due to time-constraint, the study was designed to be cross-sectional, thus, "data was collected at one period in time", often termed 'snapshot' (Saunders & Lewis, 2012). Therefore, the benefit of a longitudinal approach that allows for evaluation of a phenomenon at various points in a study was not realised (Saunders & Lewis, 2012).

4.12 Ethical Considerations

Every research with human participants, whether qualitative or non-qualitative, needs to be reviewed and approved from an ethical stand point (Yin, 2011; Saunders et al., 2016). The ethical issues need to be considered and addressed throughout the research process (Saunders et al., 2016).

To address the issues of ethics in this study, the following were done:

- a) Ethical Clearance was applied for and the approval demonstrated in Annexure 2 was obtained;

- b) In every interview, consent of the participants to voluntarily participate in the study was obtained through an Informed Consent Form presented in Annexure 4. The participants were allowed time to read through the form before endorsing with a signature. The researcher further emphasised the importance of voluntary participation and promised anonymity when presenting the results.
- c) The consent of the participants was also obtained to audio record the interviews.
- d) To ensure anonymity, pseudonyms were used to refer to participants and their respective organisations, competitors and system names.

4.13 Conclusion

This section outlined the research methodology which the study employed. In a nutshell, the nature of the study was deductive and exploratory. The study employed qualitative and semi-structured approach to establish a comprehensive ecosystem for management of digital innovation, in order to respond to the main research question: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?*

Research design for this study comprised two main tactics; the first was literature review to develop a conceptual ecosystem for management of digital innovation and the second was the qualitative approach centred on semi-structured interviews, which was meant to validate the ecosystem. The participants were purposefully selected. The 12 interviews were conducted face-to-face; while one interview was conducted over a WhatsApp call. All the interviews were audio recorded with permission from the participants.

Data collection during the interviews was guided by an interview schedule, which was developed from the conceptual ecosystem and hence was supported by the literature. The interview audios were transcribed verbatim, validated, translated where necessary, loaded in Atlas.ti and coded deductively as informed by the literature and inductively as codes emerged within the themes or Code Groups. The issues of trustworthiness were observed and accounted for. Finally the limitations and ethical clearance issues were noted and where possible mitigated accordingly. The following chapter presents the results obtained from the interviews.

5. CHAPTER 5 – Results

5.1 Introduction

In this chapter, the key findings relating to the research questions as outlined in Chapter 3 are presented. These results were obtained from the 13 audio recorded semi-structured interviews, which were aimed at testing the comprehensive Digital Innovation Management Ecosystem that was developed as part of this study. This digital innovation management ecosystem comprises a number of themes and sub-themes that were identified from the literature review as presented in Chapter 2 and depicted in Figure 5. The key findings are therefore presented for each theme and sub-themes as identified.

The rest of the chapter covers the description of the research organisation, participants and their context, followed by the findings for each theme or code group, including its sub-themes or codes, and finally the summary of the chapter is presented.

5.2 Description of Research Organisation, Informants and Context

Table 5 below outlines the description of the organisations from which the study was contacted, including the description of the respective participants. To uphold anonymity of the research organisations and the respondents, the names of both the research organisations and that of the participants were replaced with pseudonyms. This was done to ensure alignment with ethical requirements, specifically the Informed Concerned Forms, through which the researcher promised and emphasised anonymity to the participant. Furthermore, company names and systems, which were mentioned during the interviews, have been replaced by pseudonyms.

The sample was heterogeneous as it represented six various industries namely: banking, communications, government, higher education, insurance and utilities. Additionally, the research organisations were located in three different countries namely: Lesotho, Malawi and South Africa. Each firm satisfied the criteria in terms of being an established firm with staff complement of 200+ and having been involved in digital innovation in the past 5 years. The participants were heads of IT, Digital Business, Transformation, etc. The age of the participants ranged from 30 to 54 years and two out of 13 interviewees were females.

Table 5: Description of the Research Organisation and the Informants

Company Pseudo-nym	Industry	Staff Complement	Country	Informant Pseudonym	Gender	Age
Gov1	Government	700	Lesotho	Mr. Gov1	Male	42
Bank1	Banking	876	Lesotho	Mr. Bank1	Male	50
Ins1	Insurance	250	Lesotho	Ms. Ins1	Female	30
Bank2	Banking	293	Lesotho	Mr. Bank2	Male	30+
Utilities1	Utilities	627	Lesotho	Mr. Util1	Male	41
Bank3	Banking	762	Malawi	Mr. Bank3	Male	54
Edu1	Higher Education	980	Lesotho	Mr. Edu1	Male	52
Comms1	Communications	300	Lesotho	Mr. Comms1	Male	52
Edu2	Higher Education	7000	South Africa	Mr. Edu2	Male	43
Bank4	Banking	250	Lesotho	Mr. Bank4	Male	44
Comms2	Communications	250 - 300	Lesotho	Mr. Comms2	Male	43
Utilities2	Utilities	300	Lesotho	Ms. Util2	Female	41
Bank5	Banking	325	Lesotho	Mr. Bank5	Males	Mid 40s

The results of the analysis are presented in the following sub-sections.

5.3 Results: Research Questions 1

Does the firm have a digital innovation strategy, which is designed to balance between small, incremental refinements and major breakthroughs?

This research question sought to determine if the firm has developed a digital innovation strategy and if there was an attempt to balance small, incremental refinements and major breakthroughs within the strategy. The following sub-sections present the results relating to this research question, as they were gathered from the interviews.

5.3.1 Digital Innovation Strategy

From all the interviews, it emerged that no separate digital innovation strategy had been developed, albeit innovation in general was of strategic importance. The following responses clearly demonstrated the strategic importance of innovation within the firms:

Mr. Bank2: *“Our biggest strategy now in the digital banking is to try a cashless environmentgovernment also wants the cashless environment... there is no way we can go cashless without innovation.”*

Ms. Ins1: *“We still need a strategic drive ... Even in a strategic level, innovation is actually one of our values as Ins1 and also as the group.”*

Mr. Bank5: *“I think the Board, the Management and the whole Bank have appreciated the role of technology hence why the strategic objective: To engender innovation and modernization agenda.”*

Although no separate digital strategy had been developed, it appeared that the digital innovation strategy formed part of the corporate strategy and annual business plan, or it was subsumed within the IT or ICT strategy. This was demonstrated by the following responses:

Mr. Comms2: *“It [strategy] is a blue print for the entire organization. So, it has what we call Work Streams... you would see they [work streams] are very inter-linked...”*

Ms. Util2: *“We have corporate strategy from there we develop the IT strategy.”*

Mr. Bank4: *“It will just be IT strategy and not digital strategy as such”.*

Mr. Edu2: *“Yes, the annual plan for that year and on that annual plan you list the innovative projects we call them priorities and once it is approved there, then those are the top strategic projects, innovative project for that year.”*

Furthermore, Mr. Bank3 emphasised the need for ideation and innovation to be guided by the framework and strategy:

Mr. Bank3: *“So ideation is basically encouraged but within one, guided by the framework but also guided by the strategy. We don’t want to innovate just for the sake of innovation because at the end of the day we want to say whatever we innovate has to be in line with the business strategy.”*

Finally, the need to review strategy to align with emerging technological trends was observed from Mr. Bank5, as he expressed that:

Mr. Bank5: *“...we also had a mid-term review of the same strategy anyway. That in a way captures the new ones [emerging technologies] so that you don’t find yourself operating out of strategy. The review of strategy allows you to be able to be relevant at a time, so that when you are operating, should you be operating out of strategy; that should be an exception rather than a norm.”*

5.3.2 Digital Innovation Prioritisation (Portfolio)

Since the firms had not developed digital innovation strategies that were separate from corporate or ICT strategies etc., the notion of digital innovation portfolio including the allocation in terms of small initiatives, incremental refinements and major breakthroughs seemed not to be a key concern to the participants. Nonetheless, in some cases, it seemed that prioritisation of digital innovation initiatives was an issue, as it was alluded to by one informant:

Mr. Comms2: *“This is where the business which is really the executives should decide at the executive and prioritize, such that the decision on what is important does not lie with the guys and the teams...Agree here [pointing toward the top] before it goes down and when it goes down we know that these are the business priorities”.*

Furthermore, Mr. Comms2 shared his frustration that comes with lack of prioritisation,

Mr. Comms2: *“... right now we are very much under pressure as IT to deliver thingsbecause projects come right, left and center everybody thinks their own project are more important than others.”.*

5.3.3 Summary of the findings of Research Question 1

To respond to question one, the informants reported that innovation in general is of strategic importance to their respective firms. Nonetheless, it appeared that the firms had not developed separate digital innovation strategies that are designed to balance between small, incremental refinements and major breakthroughs. Instead, the digital innovation strategy formed part of either the corporate strategy or annual business plan, or it was subsumed within the IT or ICT strategy. Finally, it was gathered that prioritisation with regard to the digital innovation portfolio largely seemed to be of no concern currently; however, challenges and frustrations relating to lack of prioritisation were expressed.

5.4 Results: Research Questions 2

Which innovation performance indicators has the firm adopted for measuring digital innovation success?

This research question sought to determine if the firm has adopted performance metrics used for measuring digital innovation success. The following sub-sections present the results relating to this research question, as they were gathered from the interviews.

5.4.1 Reporting KPIs

From the interviews, some informants attested to the fact that they measure the innovation performance metrics for ICT based innovations, specifically Reporting KPIs, for instance:

Mr. Gov1: "At the cooperate level what we want to measure as lag indicator is the innovation capability or maturity level and some of the lead KPIs we are looking for things like percentage, implementation of ideas from staff and also the maturity level of the actual knowledge management ..."

Mr. Comms2: "...time to market, you can measure that..."

5.4.2 Governance KPIs

From the interviews, some informants claimed that they measure the innovation KPIs for ICT enabled innovation, precisely Governance KPIs, for instance:

Mr. Util1: *"It [business plan] clearly states when these tasks should be completed. We also have what we call our quarterly reporting. I need to go and be in front of the management to report as to how far am I with this task, if it is not done, why is not done. Those are the things that I use as a tools to monitor the progress and the performance."*

Mr. Edu2: *"I am measured on five things which is project delivery, which is on time, on budget, on quality and all those other things, on almost everything ..."*

5.4.3 Global KPIs

From the interviews, majority of the informants indicated that they measure the innovation performance metrics for ICT based innovation, precisely the Global KPIs as outlined below:

Mr. Bank3: *"Of course there is a combination of metrics, Net Promoter Score, Return on Investment, basically I would say those two... Yes, on that one we use our Turn-Around Time, we look at the process to say previously how long would it take for us to complete a particular versus currently."*

Mr. Comms2: *"We measure revenue and ordinary products management life cycle. It's the number of people using the innovation, it is the frequency. It is the amount of revenue it brings, what can I say, we also measure for lack of better word let us call it "noise", how much people resonate with ideas outside and it could be looking at "likes" on our webpage, Facebook and things like that."*

5.4.4 Digital Workplace KPIs

From the interviews, it appeared that the informants were generally not aware of the Digital Workplace KPIs that could be used to measure innovation effort that is targeted towards improvement of internal processes. Nonetheless, Mr. Comms2 and Ms. Ins2 respectively noted that business cases for digital innovation would provide information on this kind of KPIs:

Mr. Comms2: *"We do [measure Digital Workplace KPIs] but I really wouldn't have much specifics because Finance and even when we do the business case for acquisition of things like System1 we still had to put the kind of business case and what would be the benefits, ... what kind of improvements that*

change could bring but measuring of such really is not as aggressively as in that other areas [the other KPIs].”

Ms. Ins1: “All those elements that we put in the business case, as this is what we are going to use to measure whether this is a success, is exactly what we are doing when we are monitoring evaluation”

5.4.5 Summary of the findings of Research Question 2

To address the second research question, the informants seemed to confirm that their respective firms have generally adopted Reporting KPIs, Governance KPIs and Global KPIs. While for Digital Workplace KPIs specifically, it seemed that either the informants did not have the information readily available as some felt that tracking this kind of metrics was the responsibility of the other divisions such as Finance; or these informants were simply unaware of the need to measure Digital Innovation Workplace KPIs.

5.5 Results: Research Questions 3

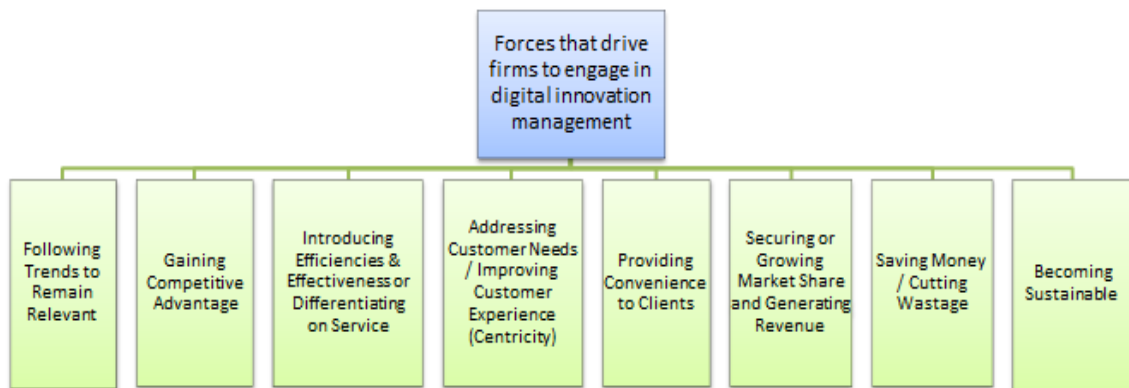
What drives a firm to engage in digital innovation management?

This research question sought to determine the forces that drive a firm to engage in digital innovation management. The following sub-sections present the results relating to this research question, as they were gathered from the interviews.

5.5.1 Reason for engaging in Digital Innovation Management

From the interviews, it emerged that there are several forces that drive a firm to engage in digital innovation management. Each informant presented more than one motive for engaging in digital innovation. Largely these reasons could be categorised into eight groups as presented in Figure 7 below:

Figure 7: Forces that Drive Firms to Engage in Digital Innovation Management



To substantiate Figure 7, some of the responses are further presented below:

Ms. Ins1: *“One of the big drivers of innovation currently is this underlying need to be a client centric and trying to turn the organization from a very functional almost compliance driven business to a business that speaks to and answers to a client’s needs and a big reason why clients centricity has become a thing, is because of retention. We are trying to retain the 72% - 73% market that we have enjoyed because yes, the new players coming to the market, Insurance A, Insurance B and the cross-border player, Insurance C etc. We are trying as much as possible to differentiate our service because we can’t differentiate our prices.”*

Mr. Bank1: *“Actually the number of reasons, one, but for one thing the world is going digital, so obviously we have to follow that trend. But then also if you look at digitization it simplifies processes. It provides convenience to the customers; we are trying to bring the banking to the door step of the customer and at the time of their convenience, at the place of their convenience. I mean if you don’t go digital you die. Competition out there is quite tough because everybody wants the easy and the comfort.”*

Mr. Bank5: *“I think we are always cautious how do we contribute to one, sustainability of the bank, two to do things in the best way possible, I think those are the two driving forces to our innovation... you see issues of efficiency and effectiveness is what drives us because now the Bank needs to be efficient and effective so it is more of what drives us more than issues of competition because we don’t necessarily compete with other banks... but*

some of the innovations and enhancement that we do is to try to cut on those wastages”

In addition to the reasons mentioned above, Ms. Util2 mentioned efficiencies and specifically indicated that competition for her firm was not an issue; Mr. Edu2 mentioned the need to innovate to save money, Mr. Comms2 mentioned need for revenue generation, while Mr. Edu1 mentioned the need to comply with authorities as a driving force. These findings are respectively illustrated by the following comments:

Ms. Util2: *“...however we are doing that for efficiency, not for completion.”*

Mr. Edu2: *“...there is a financial pressure as well so we have to innovate to save money.”*

Mr. Comms2: *“It is the market share. Your shareholders will not like to hear that you are giving so much nice experience and you don’t show any revenue.”*

Mr. Edu1: *“A regulator is doing accreditation of the institutions so they highly recommend Wi-Fi for the students... It was a compliance issue, yes.”*

5.5.2 Summary of the findings of Research Question 3

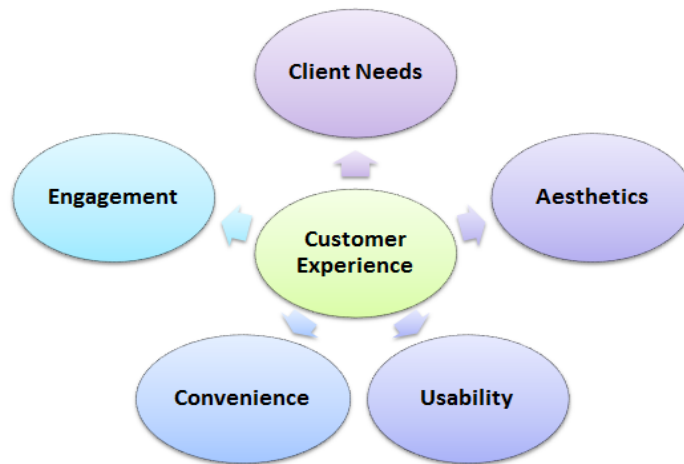
Responding to the third question, the firms indicated that they engage in digital innovation management for an array of reasons including: following trends to remain relevant, gaining competitive advantage, introducing efficiencies and effectiveness, addressing customer need or improving customer experience, providing convenience to clients, , securing or growing market share and generating revenue, saving money or cutting waste, and becoming sustainable. Furthermore, while nine informants mentioned one of the driving forces as the need to gain competitive advantage, it was interesting to discover from the other four informants that competition was not an issue for their respective industries, within their country.

5.6 Results: Research Questions 4

How do clients experience the firm’s digital products and services?

The fourth research question sought to determine the degree of customer experience with the firm's digital products and services. Figure 8 demonstrates high-level view of the results that were gathered from the interviews.

Figure 8: Customer Experience Results



5.6.1 Client Needs

From the interviews, the importance of developing products and solutions that meet the client needs and hence make the client happy was emphasised. These findings are illustrated by the following remarks:

Mr. Edu1: *"I think we looked mostly from the perspective of our clients. I think the applicants were quite willing to use it. In fact they did like it because the process is short, and they do not have to travel... It saves money."*

Mr. Edu2: *"We surprise them [clients] with innovations."*

Mr. Bank1: *"...requirement that can be informed either by customer insights because they would have done the research or they would have met the customer, whatever the customers complain."*

5.6.2 Aesthetics

It was gathered from the interviews that most firms invest in aesthetic properties of their products; albeit a few mentioned that for some of their products, their current concern is more inclined toward functionality and speed. Some of these findings are outlined below:

When referring to one of her firm's applications that was developed in collaboration with their partner XX1, Ms. Ins1, said: *"The XX1 App is gorgeous...it's gorgeous..."* [smiling]

Ms. Ins1: *"With the System2 there was a specific need for it to look very nice because it was going into a very unlucky situation so nobody liked the system. We had to make it very nice. The concentration on aesthetics and usability has been focus on things such as the Intranet and People Soft, so, our HR management system I would call it that. It is very nice, oh! [emphasising] You get in it you don't wanna leave".*

Mr. Bank2: *"...so we have our team that is dedicated to making sure that everything that we take out there look appeasing and attractive to the eye."*

Mr, Edu2 on the other hand alluded to the fact that his company's website did not have aesthetic properties:

Mr. Edu2: *"For example the company website is scrap, they have told us, we are busy with the new one."*

5.6.3 Usability

Usability as a characteristic of a digital product or service seemed to be widely recognised by the informants and they attested to the fact that they make effort to ensure usability, as illustrated below:

Mr. Gov1: *"I would say there is general happiness, the system is user friendly, it is able to help them meet their obligations without the hassle, there is clarity on how the system works, there is training available for them, there is support available for them if they need assistance and we are fairly responsive whenever there is an issue, we respond quite fast."*

Mr. Bank3: *"...the new system is much more user friendly, most especially that is it web-based... there has been very good actually positive feedback from the customers in terms of ease of use and the functionality, so to say look actually now, which basically ties in with our expectations so to say we want users to do most of their banking themselves. They find the banking app actually very easy to use."*

5.6.4 Convenience

As gathered from majority of the informants, one of the characteristics of digital products and services that improve clients experience is convenience. The following quotes substantiate this finding:

Mr. Comms1: *“all the time we are trying to think, how can we make it more convenient for our clients to do whatever it is they want to do, not what we want to do. I don’t know who you are to talk to but I must make it convenient for you to talk to them. I don’t know who you want to pay but as much as possible I have to make it convenient for you to pay, we are driven by that.”*

Mr. Bank3: *“But then also if you look at digitisation it simplifies processes. It provides convenience to the customers; we are trying to bring the banking to the door step of the customer ... at the place of their convenience.”*

5.6.5 Engagement

From the interviews, it appeared that engagement is one of the characteristics of digital products and services which positively impacts on the customer experience. This is supported by the following comments:

Mr. Bank2: *“we make sure that they [systems] are very engaging and we do also take sometimes to make sure that the interface is very user-friendly.”*

Mr. Comms2: *“People are already now getting used to Apps. Anything that is App honestly you really have a very bad design if somebody find it not engaging. They find it very engaging and also user friendly.”*

5.6.6 Summary of the findings of Research Question 4

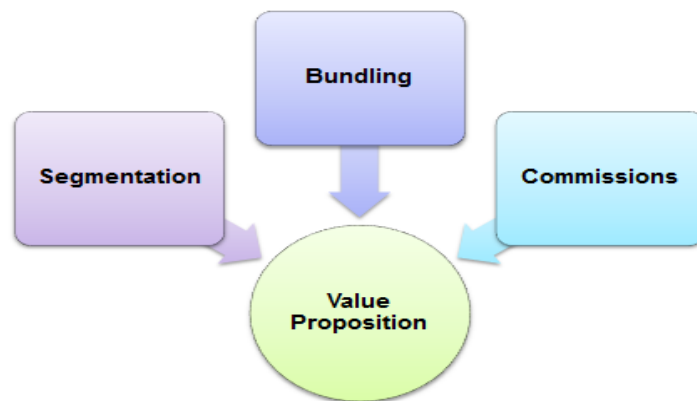
When addressing the fourth research question, the informants claimed that aspects such as aesthetics, usability and engagement are crucial for creating a positive customer experience. In addition, the informants identified the need for digital products and services that address clients’ needs and that are convenient to use.

5.7 Results: Research Questions 5

How does a firm create and capture value in its digital products and services?

The fifth research question was meant to evaluate how the firm created and captured value in digital products and services. Figure 9 illustrates a summary of results that were gathered from the interviews:

Figure 9: Creating and Capturing Value Results



5.7.1 Client Segmentation

From the interviews, it emerged that majority of the firms have adopted client segmentation to facilitate creation and capturing of value from the different client segments. However, in a few cases, the segmentation was reported as primitive or even non-existent. These findings are outlined below:

Mr. Bank1: *“...we have our own private banking which we segmented into our Platinum, Gold, Silver then we have got Prestige, then we have SMEs, then we have got our Corporate so we are able to serve them in different formats.”*

Mr. Comms1: *“For segmentation we have High Value Customers, we have what they call Young and Young at Heart, and then we have Mass... we have Enterprise Customers... Residential Customers...Small and Medium Enterprises”*

Ms. Ins1: *“I have to say our customer segmentation is very primitive, in the retail space our customer’s segmentation is based on occupation. And think this is probably one of the reasons we have had challenges in terms of justifying costs*

to clients... and because I don't fully understand you as segments it is very difficult for me to cross-sell or up-sell you."

It was fascinating to learn that the need for segmentation was not common across the industries:

Mr. Edu1: *"I don't think it [segmentation] applies for us, even bundling."*

5.7.2 Bundling

It was gathered from the interviews that several firms have adopted bundling of products and services; however, as was the case with segmentation, some firms experience challenges with bundling. The results are demonstrated verbatim by the following remarks:

Mr. Comms1: *"It is a combination voucher but it is bundling really, it is looking at your products and saying how are they used and how do I bundle them together... Yes, we try to look at how we bundle products as well, an example mass bundling [pointing at the voucher] is an example of where in mass segment we bundled products for them."*

Mr. Bank2: *"out of the interview questions our consultants as opening the account for you, they will know which appropriate account is for you, whether pay-as-you-use or bundled, and clearly in the bundled there are certain incentives that you get by virtue of holding bundled offering. And out of those, some of those incentives are digital channels, if there are people who are enjoying most incentives in terms of digital channels are those who are on bundled offerings."*

Ms. Ins1: *"...and as results of that unfortunately in the retail space we haven't been able to bundle any of our services. Because I don't fully understand you as segments it is very difficult for me to cross-sell or up-sell you."*

Mr. Edu2: *"...it is equal access for everybody."*

5.7.3 Commissions

It was learned from the interviews that several firms engage in negotiations with the digital channels owners to facilitate easy access of their digital products and services by their clients. While for some firms, the idea seemed to be new. The following responses illustrate these findings:

Mr. Bank1: *"... I am talking about the MNO's [Mobile Network Operators], we only have two so far luckily, I think we contributed for them developing their infrastructure. So we are able to negotiate good price... we have got free Wi-Fi at a place¹ there and we are not charging anything and the private banking as well has free Wi-Fi, these are just the examples."*

Mr. Bank2: *"We even come to an extent that let us provide free Wi-Fi in all our branches, so that if a client comes here in the without and he can come to our Wi-Fi...if you don't have data your app will not work and therefore you need an alternative and that is when you use your cell phone banking because they give that for free..."*

A Mobile Network Operator, Mr. Comms1 confirmed that he has been approached by several banks to negotiate how their internet banking could be whitelisted. This finding triangulated the findings gathered from the banks on the same sub-theme:

Mr. Comms1: *"We have institution like XX2 Bank that do, as in they have been saying, "how do we make internet banking free", and things like that."*

It was interesting to find that the idea seemed to be new to Mr. Bank5, as he mentioned:

Mr. Bank5: *"And maybe we still want to give those services to our customers as well."*

5.7.4 Summary of the findings of Research Question 5

In response to the fifth questions, majority of the informants revealed that they have adopted client segmentation which allows them to bundle product and services accordingly and hence create value for, while also capturing value from the clients. Furthermore, several informants suggested that they engage in negotiations with

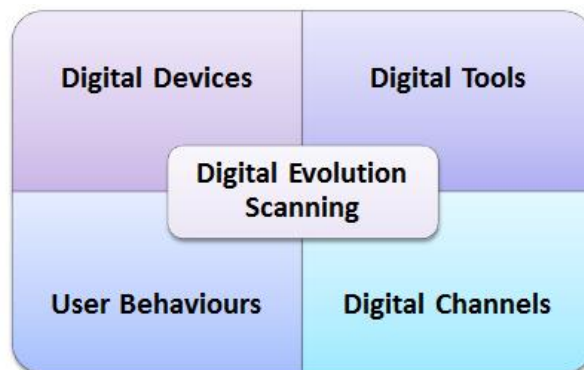
channel owners for their services to be whitelisted and accessed for free by clients. For some firms, segmentation and bundling seemed to be of no concern as they offer equal access to all their clients. While the other firms learned from the interviews that they could actually negotiate with the MNOs to avail services to the clients either for free or at subsidised cost.

5.8 Results: Research Questions 6

How does a firm identify opportunities for innovation that emerge in its digital environment?

The sixth research question was aimed at evaluating how firms identify opportunities for innovation that emerge in their digital environment. Figure 10 illustrates an overview of the results relating to this research question:

Figure 10: Digital Evolution Scanning Results



5.8.1 Digital Devices

From the interviews, it appeared that all the informants and their respective teams set time aside for digital scanning of devices, in order to gather intelligence on hardware components and devices that their respective firms can adopt. The following quotes support this observation:

Mr. Gov1: *“We subscribe to also IT research firms where we get information and insights on the latest technologies, on the latest devices...”*

Ms. Util2: *“Technologies such as the internet are used on our side of construction; including the drones ... we are looking into these things to determine how we can manage the site remotely, while we’re here.”*

Furthermore, it was interesting to find out that the search is not restricted to one’s industry; it extends to adjacent industries as indicated by Mr. Bank3:

Mr. Bank3: *“Yes, we see actually what other devices other industries are using.”*

5.8.2 Digital Tools

Similarly, the firms scan the environment for digital tools to gather intelligence on trends so as to determine which digital tools can be adopted in order to gain competitive advantage or improve internal efficiencies. This observation is supported by the following quotes:

Ms. Util2: *“We are currently scanning the environment for drones and BIM solutions... We are currently scanning, it [BIM – Building Information Management] is at its infancy...”*

Mr. Comms2: *“I think we are looking more on the robotics chart boards, chart boards will make more sense in the Call Centre... One of the things we are considering is digital ID. On digital ID I talk about your voice and maybe facial identities...”*

Mr. Edu2: *“What we do is basically we look for technologies in certain areas for example we would say we want to see how other people are using technology and innovation for student’s life cycle, students experience ... for teaching and learning, for research, high performance computing, for cyber security.”*

It was also interesting to discover that although digital technologies induce work related creativity, they can potentially introduce inefficiencies if employees take advantage. As Mr. Bank5 mentioned:

Mr. Bank5: *“the moment you have Wi-Fi you will also have access to WhatsApp and Skype and you start skyping in meetings”*

5.8.3 Digital Channels

It was gathered from the interviews that several firms are searching for digital channels through which their products and services can be availed, while others are in the process of implementing such channels. This observation is supported by the following quotes:

Mr. Bank4: *“we started a Digital Channels project referred to as project-name1 where basically we’re introducing Internet Banking, Mobile Banking, Agency Banking, and Merchant Banking.”*

Mr. Gov1: *“our long term plan is to extent our services to the client out there so that they can experience and interact with us from wherever ...”*

It was interesting to also learn that as digital channels are being introduced, when accessing specific service, clients still prefer a human interaction as mentioned by Ms. Ins1:

Ms. Ins1: *“I think that our philosophy specifically with Financial Advisor has been to create a symbiosis between a digital and the person because what came up from the survey was that people actually want you to talk to them about the state of their finance, how can they save etc.”*

5.8.4 User Behaviours

It was finally gathered from the interviews that most informants and their respective teams, actively search for customer behaviours in order to observe the trends and determine how the clients can be served better and consequently create value for the firms. The following support this finding:

Mr. Gov1: *“It is something that we have strategically decided that we are going to invest heavily on to understand the behaviour of our clients and why... we believe that it is easier when you understand the behaviour of your clients, you are better position to play, to meet their needs ...”*

Ms. Ins1: *“We really started investing quite a lot in understanding our clients, and understand their behaviour, I still think at the granular level there is work to be done in terms of predictive analytics, fingers crossed that this migration*

becomes one of those unintended results of actually creating quite a nice data warehouse where we can actually start playing.”

Mr. Comms1: *“in other to do that from the system perspective you need to start looking at and understanding your customers differently... So what I am saying in trying to understand your customer, you start looking at what are they’re doing.”*

5.8.5 Summary of the findings of Research Question 6

From the interviews, it was gathered that digital evolution scanning occurs through subscriptions to research organisation, conferences, benchmarking visits, following trends on the internet and soliciting feedback from the clients. It would seem that when scanning, the informants are interested in finding out which digital devices and digital tools are out there or on their way to market, in respective industries as well as adjacent industries.

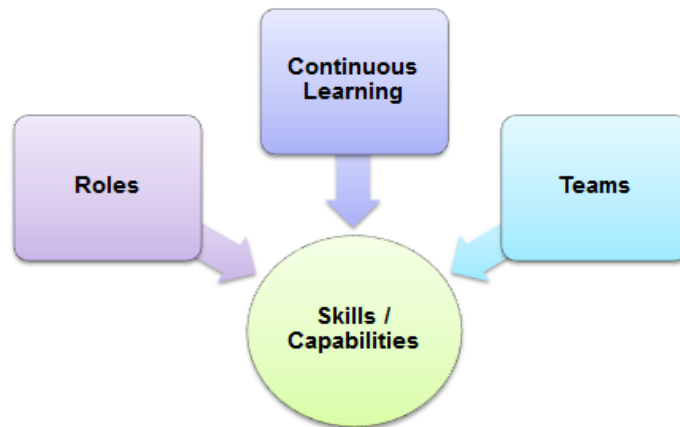
It further appeared that the firms are interested in the various digital channels through which their products and services can be availed. Finally, the firms invest in capabilities to analyse customer behaviour, in order to observe the trends and determine how they can serve the clients better and consequently create value for the firms.

5.9 Results: Research Questions 7

Which capabilities are critical for successful management of digital innovation in a firm?

The seventh research question sought to evaluate the firm’s digital innovation capabilities. Figure 11 provides an overview of the results gathered from the interviews.

Figure 11: Capabilities Results



5.9.1 Roles

Mixed views regarding the roles were gathered from the interviews. While majority of the informants reported that their firms had introduced new roles in order to build digital ambidexterity for successful management of digital innovation, some informants considered innovation as part of each employee's responsibility, whereas some informants mentioned that employees at large consider innovation as the responsibility of IT.

Mr. Bank1: *"this unit was formed immediately after we implemented our new core banking and the whole objective was to see that this investment is actually benefits the organization... we now have a team that is dedicated to data services, as we are busy building data analytics... we actually consolidated the change management"*

Ms. Util2: *"I think mostly there is a balance between digital and non-digital roles... The Project Management will be outsourced; however they will need to work with our Project Management Unit."*

Mr. Bank4: *"we outsource the Project Manager... we had to increase numbers on the Marketing side and therefore introduced Digital Marketing Officer."*

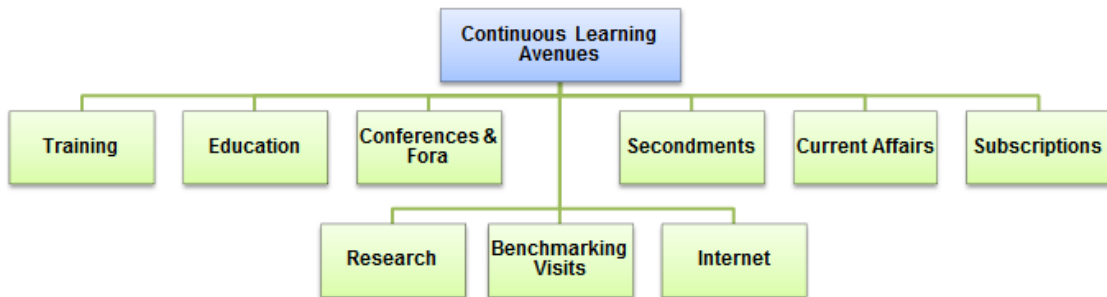
Mr. Edu1: *"...we as an IT unit, we regard innovation as part of our job."*

Mr. Bank5: *"I think other views is, innovation is a technology, it is IT thing."*

5.9.2 Continuous Learning

From the interviews, it appeared that all the firms engage in continuous learning. This continuous learning is achieved through various avenues as illustrated in Figure 12 below:

Figure 12: Continuous Learning Avenues



These findings are supported by the following quotes:

Mr. Gov1: *“we have sort of families, in the region, worldwide we have conferences and forums where we normally engage and talk... We do have research that we subscribe to; we attend conferences from time to time on IT where we see some of the latest technology.”*

Mr. Bank3: *“Yes, we encourage our team to do further studies... so mostly those studies are done online... we do send people on short courses in various fields... when the opportunities arise we do send people to work in other environment like Kenya... Sharing of information is encouraged ... we encourage people to share what they may have picked from the internet.”*

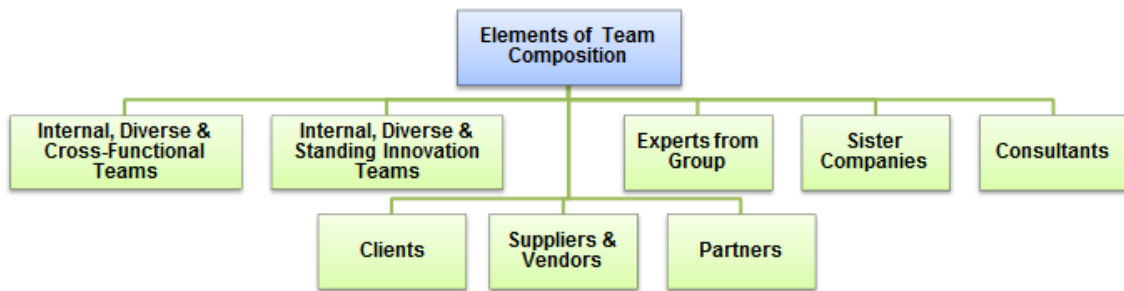
Mr. Bank5: *“We are building on that, there is a continuous learning process all the time.”*

5.9.3 Team

From the interviews, assembling diverse cross-functional teams with requisite skills seemed to be a common approach when kick starting digital innovation initiatives. It was also learned from the few informants that they had standing and diverse innovation teams.

Additionally, collaboration with clients, suppliers, vendors and partners was emphasised by most informants. Furthermore, engaging expertise or learning from the group and sister companies seemed to be crucial and common; and finally engaging external consultants was also explored to augment capacity of the teams. Figure 13 provides a summary of possible team composition as informed by the results:

Figure 13: Elements of Team Composition



The following remarks provide more detail:

Mr. Bank2: *“And most of our innovation that you see us having is actually from internal... these are ideas that originated within the group... I can confirm that there are some companies, some individuals that come with ideas... we scrutinize it and if we feel it is something worth taking, then we start attracting our experts to evaluate and see if we are happy... We identify all the stakeholders making that idea reach out there... Marketing come to party they make noise about it... Business Intelligent Unit comes to party to monitor the progress and its usage daily or weekly or monthly stats of its use and then those steps inform our next steps in terms rolling it out... Then we will be having people from Legal and Compliance to see if this innovation is compliant with the laws and regulations... we have different people, in our panel, we have people with different backgrounds.”*

Mr. Comms1: *“There’s the Innovations Team of CEO which is CEO led. And then there is the New Product Development which is led by our Manager1.”*

Ms. Util2: *“The Project Management will be outsourced; however they will need to work with our Project Management Unit... Yes and then we establish cross functional team...”*

In some cases, it appeared that collaboration was a challenge as indicated by Mr. Edu1:

Mr. Edu1: *“You find that after implementation it is not sustainable because the idea was not looked at holistically, so there are practical elements that have been left out.”*

5.9.4 Summary of the findings of Research Question 7

When responding to the seventh research question, the informants suggested that the skills or capabilities that are critical for successful management of digital innovation include continuous learning, roles and teams.

From the interviews, it appeared that all the firms engaged in continuous learning and that this continuous learning is achieved through various avenues, as illustrated in Figure 12. While the majority of the informants concurred that their firms have introduced new roles in order to build capability for digital ambidexterity, some informants considered innovation as part of each employee’s responsibility, whereas some informants mentioned that their fellow employees considered innovation as the responsibility of IT.

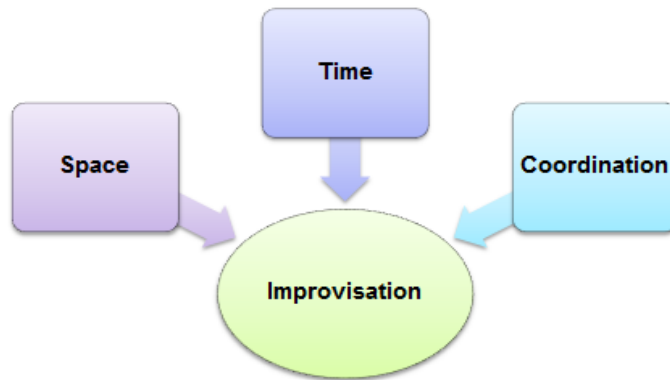
Finally, from the interviews, it appeared that assembling diverse cross-functional teams with requisite skills was a common approach when kick starting digital innovation initiatives.

5.10 Results: Research Questions 8

Which measures has the firm put in place to improve the culture of innovation and improvisation?

The eighth research question sought to determine the measures that the firms have put in place to create an organisational culture that allows for improvisation. Figure 14 provides an overview of the results gathered from the interviews, while the following sub-sections provide detailed results.

Figure 14: Improvisation Results



5.10.1 Space

Regarding physical space, since 12 out of 13 research interviews were conducted in the offices or meeting rooms provided by the informants in their respective workplaces, the researcher got an opportunity to observe the physical spaces from which the informants and their teams operate.

Therefore from these observations, it was gathered that majority of the offices had open plan design; largely with non-transparent walls around the meeting rooms and managers' offices, while in a few cases, the meeting rooms and managers' offices had glass walls. The workstations were largely equipped with laptops, allowing movement between desks and teams. As gathered from Mr. Comms2:

Mr. Comms2: "Because it is open plan and this kind of building is designed to improve that interaction ... say today I want to sit with Finance because today in my schedule I am really going to work with them, I should feel free to sit anywhere... the space here, we are full open plan from MD to whoever the lowest level you can think of... We also have our play game room, I can say our game room currently we have soccer table, we have some TV and some snooker."

Nonetheless, in some firms, the space looked old fashioned and the informants complained about it, as was conveyed by Mr. Comms1, *"The physical space doesn't work for us."*

Regarding logical space, from the interviews, it further emerged that in most firms, flexibility is granted at the stage of ideation and prototyping, albeit guided by the

strategy. However, once the idea is chosen for production and scaling, some level of control appeared to be necessary:

Ms. Ins1: *"It is very flexible in terms of ideation stage... I also do appreciate the level of control that is put in place once you moved from you know ideation to prototyping to production."*

It was also interesting to learn from some of the informants that creating a controlled environment was of strategic importance, aimed at improving productivity. For instance, as Ms. Util2 indicated,

Ms. Util2: *"our environment is quite controlled. We allow you to think about a lot, but there is control... Once you've clocked, you cannot just disappear from work... Here we work, even internet is controlled; it is opened at 11:00 and closed at 14:00 and then re-opened after hours. People should sit down and work."*

A longitudinal design would enable determination of the long term impact of this approach on digital innovation management.

5.10.2 Time

The idea of allocating specific time for innovation seemed to be uncommon as gathered from the interviews. In fact, as Mr. Comms2 mentioned,

Mr. Comms2: *"I think we still have a long journey in terms of how we set up this specific time where guys can be encouraged to just go and innovate, come up with something..."*

However, two out of 13 informants indicated that they do set time aside for innovation, although in the first instance this was conditional:

Mr. Bank2: *"if you have come up with something or you had invested interest in doing something we do have a dispensation to give you time to do it."*

Mr. Bank3: *"we share ideas at least once in a month on Thursday afternoon where we allocate about an hour or so, where whoever has come up with an idea shares with the rest of the team so that they are able to critique it..."*

5.10.3 Coordination

From the interviews, it would seem that all the firms have frameworks or processes they follow for management of digital innovation, albeit mostly not formally documented. It was also apparent that the firms have decision making structures in place to govern digital innovation. These frameworks and structures enable collaboration and coordination within the firms, as indicated by the informants below:

Mr. Comms1: *“There are two; one, we have a standing committee called NDP... NDP team, bringing people from IT, from Networks who then join coming to be part of, from Billing, to discuss those ideas because you can have a cool idea if you cannot bill it... there is an Innovation Team which takes care of the others [other innovation]... Two, we have an innovation drive within the company anybody who is not necessarily a member of NDP can suggest innovations so the email address is innovation@yyy.co.ls ...They just write to innovation address, so we [management] may take those ideas and pick the best and then reward that person who developed it, in public.”*

Interestingly another view challenged the development of the same framework, which seemingly facilitates coordination:

Mr. Bank5: *“I think there was a bit of confusion again whether if you put up a framework to guide innovation, are you not by exactly doing that, are you not stifling this thing called innovation, because it could come in a manner that does not fall within your prescribed framework?”*

While in one instance it became apparent that there was no coordination:

Mr. Util1: *“I think there is no coordination of innovation to be precise because you will find that each division will like to make something that will work for them.”*

5.10.4 Summary of the findings of Research Question 8

In response to this research question, the researcher through her own observation determined that for majority of the firms, the physical spaces had open plan design, which according to Mr. Comms2 improves interaction and hence collaboration. It was further gathered from the interviews that most firms, with exception of the two, do not

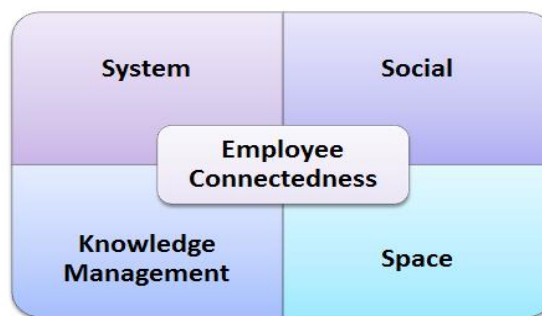
allocate time for innovation as yet. Finally, it seemed that all the firms have adopted frameworks, albeit mostly not formally documented and have put structures in place for coordination of digital innovation.

5.11 Results: Research Questions 9

Which digital workplace measures relating to employee connectedness, have been put in place to improve the employee experience?

The ninth research question sought to determine the digital workplace measures that the firm has put in place to improve the employee experience. Figure 15 provides an overview of the results, while the following sub-sections provide detail.

Figure 15: Employee Connectedness Result



5.11.1 System

From the interviews, it appeared that the firms have implemented systems that automate the internal business processes in order to achieve internal efficiencies and serve the client better. The following quotes support this finding:

Mr. Gov1: *“The administration of all our services is done electronically through a system; our management of payments is 100% or 99.9% electronic.”*

Mr. Bank2: *“...continuously we do upgrade our systems because in any organisation that is heavily depended on IT, like a Bank, you always have to maximize the efficiencies by coming up with the latest solutions that drive those efficiencies...”*

Ms. Ins1: *“For example, the very recent system development or upgrade has*

been PS [system name] that has been completely over hauled to something new. It doesn't really look nice to be honest, but is very fast..."

Mr. Comms2: *"...on boarding of the staff also, we have gone digital in the sense of provisioning of access. Since we are very much technical and Technology Company, you find that everybody that is brought into the company already has basic needs, even at any position. You need to have a laptop, you need to have access to email, access to a certain shared folder etc."*

5.11.2 Social

The interviews revealed that all but one of the firms have attempted implementation of social collaboration platforms. However, some of the firms experienced sustainability challenges and consequently such platforms are not currently active. The following quotes support these findings:

Ms. Ins1: *"we had created what is called an Innovation Hub. An Innovation Hub was just a mix of different individuals within an organization, cross functional, and those individuals would through problems on online... we would pick a problem to work on with the hope of either creating a tech solution or just a business solution to a problem... by virtue of having a domain account, you have your own version of your intranet, they brought elements of social media so that I can follow my colleague, we can create shared document... we have a blog section where you can blog about anything you want."*

Mr. Gov1: *"...we are going to use the same social media to promote our products, to promote ourselves, to change the culture..."*

Mr. Comms1: *"It is for engagement with the clients, we tried Facebook Workplace... It tanked, I won't lie... No I don't think the intranet works or maybe they implemented it incorrectly... It is because it doesn't generate revenue."*

Nonetheless, as mentioned under section 5.8.2, digital tools such as social media may divert attention of the employees resulting in low productivity. Hence, it could be argued that this is the reason for company Utilities2 to restrict the use of internet between 11:00 and 14:00 and after hours, as it was mentioned by Ms. Util2.

5.11.3 Space

The space results have already been addressed under section 5.10.1 wherein the focus was on how space supports the innovative culture of improvisation.

5.11.4 Knowledge Management

It was gathered from the interviews that knowledge management by virtue of facilitating collaboration and sharing of information enables employee connectedness and hence leads to innovation. Most firms appeared to be in the stage of considering implementation of knowledge management mechanisms. The remarks that follow support this finding:

Mr. Gov1: *“...we believe one of the enablers for a truly innovative organization is when they [employees] are able to effectively manage knowledge within the organization.”*

Mr. Bank3: *“...it is mandatory that when somebody goes to the workshop or for a course, what-have-you, the resources they have drawn from that engagement, they need to share with the team ... sharing of information is encouraged...”*

Ms. Ins1: *“what we still need to do is kind of also incorporate all of the IP which is sitting with people who have been here for 20 years, 25 years; we have quite a lot of institutional knowledge still sitting in here [pointing at her head].”*

Mr. Util1: *“We don’t. We have been meaning to implement it, is just that the financial constraints that have been going around...”*

5.11.5 Summary of the findings of Research Question 9

When addressing this research question, the informants indicated that digital workplace measures that the firms have put in place to improve the employee experience include system, social and space; while most firms were also considering putting knowledge management capabilities in place.

Firstly, for systems, it appeared that the firms have implemented systems that automate the internal business processes in order to achieve internal efficiencies and serve the client better. Secondly, for social, the interviews revealed that all but one of

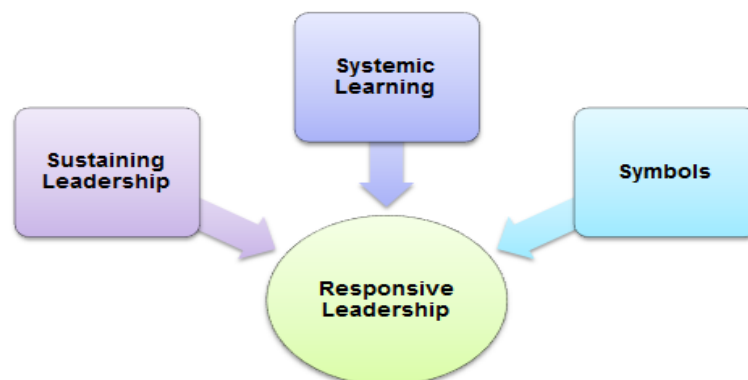
the firms have attempted implementation of social collaboration platforms; however, some of the firms experienced sustainability challenges. Thirdly for space, reference was made to section 5.10.1. Finally, for knowledge management, it appeared that implementation of knowledge management capabilities was at the infancy stage, albeit its importance for creativity and innovation was appreciated.

5.12 Results: Research Questions 10

How does leadership facilitate continuous improvement of employee experience within the organisation?

The tenth research question was aimed at determining the role that responsive leadership plays in facilitating digital innovation processes and workplace. Figure 16 below provides an overview of the results.

Figure 16: Responsive Leadership Results



5.12.1 Sustaining Leadership

From the interviews, it appeared that leaders from the majority of firms exhibited sustaining leadership traits. The leadership seemed to have foresight and they provided resources for experimentation. They provided the safe space and motivated employees to encourage innovation; finally, they awarded innovative ideas that make it to production. This is backed by the quotes below:

Mr. Bank5: "...she [the CEO] believes that through ICT we can now see new things that are being initiated through ICT, new business models that comes out of ICT... I think the Board, the management and whole Bank has appreciated the role of technology hence why strategic objectives: Engender innovation and modernization agenda."

Mr. Bank2: *“Yes, even resources because they will be doing all these things using our internet, laptop and everything and if they feel there is any other software that they need, they make a request and then we assess and then we can even get a software for them and get it installed in that particular laptop as well... it affects our customer on the other side.”*

Mr. Gov1: *“He [the CEO] believes in ideas and he believes people are capable of doing great things and he believes in people being given the opportunity to do great things. He normally just assigns tasks which generally perceived to be difficult. He would say, you can do this, then I will say no, no, I cannot do that, he say, but why not, he sort of pushes you to go beyond your normal line of duty or capacity and in the process you will grow a lot because you push yourself. I believe it’s a culture that management style will promote internal innovation a lot because people are going to be pushed beyond their limits.”*

Mr. Comms1: *“They just write to innovation address, so we may take those ideas and pick the best and then reward that person who developed it, in public.”*

Nevertheless, it was gathered from the frustrations of some informants that leadership did not have sufficient follow through and was failing to provide the required support, as indicated by Mr. Edu1:

Mr. Edu1: *“The Chief Executive simply says I want that done but does not follow it up until the last minutes, in the last minute you find that there was no preparations have been done...”*

Furthermore, Mr. Edu1, turned his frustration into humor, when he metaphorically said:

“They [leadership] expect to get the features that you can get from a jaguar, a Lamborghini and yet they are only willing to pay for [a Toyota]...” [Laughing]

5.12.2 Systemic Learning

It emerged from the interviews that the majority of leaders provide opportunities and resources for continuous learning and they encourage experimentation. Furthermore, the leaders learn from the data in order to make informed decisions. This is backed by the quotes below:

Mr. Bank1: *“Very supportive in fact our training, they make sure that we have got training budget in their respective business units, and also training plan people who got to be trained. I have never heard of an incident where someone has been denied training.”*

Ms. Ins1: *“Yes the leadership as a whole are very deliberate in how they groom the environment... Absolutely, there were quite a big present for us... Ideation server, it was one of the best presents... we got our own server – GL360, for us to play.”*

Mr. Bank2: *“The likes of the our Business Intelligent Unit comes to party to monitor the progress and its usage daily or weekly or monthly stats of its use and then those steps inform our next steps in terms rolling it out... yes and that is well informed thanks to the BI because then we pull the stats and see how this thing doing.”*

Mr. Bank5: *“So we are information driven, so the concept of big data or BI is entrenched in our operations... Analysis, you take all the historic data look at patterns and do predictive analysis.”*

5.12.3 Symbols

It was learned from the interviews that leadership in the majority of firms communicate strategies and new changes using symbols. Largely they appeared to be relying of effective marketing to drive this communication. The following quotes provide clarification:

Mr. Bank5: *“...from the benefit realisation point of view, we will explain to our colleagues in Marketing and Business and they in turn come up with the communication plan both internally as well as externally; to send out the message in terms of what that means to the customers and or what does that means to the staff in general....”*

Mr. Comms2: *“...so that readiness talks to that future where we will be delivering the best out of our all digital initiatives. It is like... the future is gonna be this great, this digital future that we are going to, are you ready?”*

Mr. Edu2: *“We did, in actual fact we even hired a marketing company, they created videos, stories, shows and so forth.”*

Interestingly in some interviews, it was gathered that leadership at the strategic level backed the workplace initiatives that were meant to tighten the very same control against the theories of Nysten and Holmstrom (2015) and Svahn et al. (2017) which advocate for striking a balance between control, structure and flexibility. The following quote from Ms. Util2 backs this finding:

Ms. Util2: *“It is the top; we have good support from the top. Once the top says this is the new way of doing it, and you decide to stick to the old way, then we take it that you didn’t do it ... Not much [of symbols] but because she [the CEO] is a strong person she will just enforce it and then people will do it.”*

5.12.4 Summary of the findings of Research Question 10

In response to this research question, the informants indicated that to facilitate continuous improvement of employee experience, responsive leadership has to exhibit the traits of sustaining leadership, promote systemic learning and use symbols in articulating vision for digital workplace.

Firstly, it appeared from the interviews that leadership from the majority of firms exhibited sustaining leadership traits; while in a few cases, the informants showed frustration emanating from inadequate leadership support. Secondly, it emerged from the interviews that to promote systemic learning, the majority of leaders provide opportunities and resources for continuous learning and they encourage experimentation. Lastly, it was learned from the interviews that leadership in the majority of firms communicate strategies and new changes using symbols.

5.13 Conclusion

In this chapter, the key findings relating to the research questions outlined in Chapter 3 were presented. These findings validated the comprehensive digital innovation management ecosystem that was developed as part of this study. This digital innovation management ecosystem comprises a number of themes and sub-themes that were identified from the literature review presented in Chapter 2 and depicted in Figure 5. The key findings obtained from the interviews and the researcher’s observations were therefore organised and presented per theme.

The first set of results indicated that the firms had not developed separate digital innovation strategies that are designed to balance between small, incremental refinements and major breakthroughs. Instead, the digital innovation strategies formed part of either the corporate strategies or annual business plans, or they were subsumed within the IT or ICT strategies. Finally, it was gathered that prioritisation with regard to the digital innovation portfolio seemed to be less significant; however, challenges and frustrations relating to lack of prioritisation were observed.

The second set of findings showed that respective firms have generally adopted Reporting KPIs, Governance KPIs and Global KPIs, while for Digital Workplace KPIs, the informants seemed to be unaware of the need to measure them.

The third set of results suggested that the firms engage in digital innovation management for an array of reasons including following trends to remain relevant, gaining competitive advantage, introducing efficiencies and effectiveness, addressing customer needs or improving customer experience, providing convenience to clients, securing or growing market share and generating revenue, saving money or cutting waste, and becoming sustainable

The fourth set of findings suggested that aspects such as aesthetics, usability and engagement are crucial for creating a positive customer experience. Additionally the findings indicated the need for digital products and services that address clients' needs and that are convenient to use.

The fifth set of results suggested that in order to create and capture value in their digital products and services, the firms have adopted various forms of client segmentation which allow them to bundle product and services accordingly. It further emerged that they engage in negotiations with channel owners for their services to be whitelisted and accessed for free or at subsidised rates by clients. However, for some firms, segmentation and bundling seemed to be of no concern as they offer equal access to all.

The sixth set of findings revealed that all the firms engage in digital evolution scanning in one form or another. When they search, it appeared that the firms are interested in emerging digital devices, digital tools, channels and user behaviours.

The seventh set of results suggested that the skills or capabilities that are critical for successful digital innovation include continuous learning; roles that require a balance between digital and non-digital; and teams that also required balance between internal team members and engaging external stakeholders.

The eighth set of findings indicated that the firms have made attempts to adopt the culture of improvisation, which involves designing workspace in an open manner to encourage collaboration and ideation; allocating specific time for innovation in order to stimulate ideation; and coordinating innovation effort in order to maximise returns from the innovation investment. However, most firms indicated that they do not allocate time for innovation as yet.

The ninth set of results suggest that digital workplace measures that the firms have put in place to improve the employee experience include system, social and space; and additionally, most firms were considering to put in place knowledge management capability.

The tenth set of findings revealed that to facilitate continuous improvement of employee experience, responsive leadership has to exhibit the traits of sustaining leadership, promote systemic learning and use symbols in articulating vision for digital workplace.

The sub-sequent chapter discusses the key findings for each research questions as they relate to the literature.

6. CHAPTER 6 – Discussion of Results

6.1 Introduction

This study was aimed at the development of a conceptual and holistic ecosystem for management of digital innovation. Moreover, the study was intended at contributing empirically by guiding established firms on how they could better manage their digital innovation initiatives for improved competitiveness and continued sustainability. The key findings of this study, obtained from the 13 semi-structured interviews are discussed in this chapter, as they relate to the research questions. These findings are further compared and contrasted with the extant literature. The rest of the chapter discusses the results, focusing on one research question at the time, as a building block towards the bigger and comprehensive digital management ecosystem.

6.2 Discussion of Research Question 1

Does the firm have a digital innovation strategy, which is designed to balance between small, incremental refinements and major breakthroughs?

6.2.1 Digital Innovation Strategy

From the findings, it appeared that although most firms appreciated and embraced digital innovation at the strategic level, the development of a separate digital innovation strategy was not wide spread. This was attested to, among others, by Mr. Bank4, who acknowledged that they did not have a strategy that was specific to digital strategy; in fact as he mentioned, *“It will just be IT strategy and not digital strategy as such”*.

However, the lack of a separate digital strategy does not imply that there was no consideration at the strategic level regarding which digital innovation initiatives the firm was intending to engage in (Viki et al., 2017). Generally, the digital innovation strategy was mostly considered to be part of either the corporate strategy or annual business plan, or it was subsumed under IT or ICT strategy. Thus, alignment between digital innovation and the strategy, as proposed by Viki et al. (2017) was achieved.

Moreover, where digital innovation strategy appeared to be part of IT or ICT strategy, the IT or ICT strategy in itself seemed to have been developed from the corporate strategy and hence it was cross-cutting in most cases. This was suggested by Ms. Util2 who mentioned, *“We have corporate strategy from there we develop the IT strategy”*. Moreover, Mr. Comms2 conveyed that in the corporate strategy, different

divisions have work streams that draw from each other and are related, he said “... *you would see they [work streams] are very inter-linked...*” This is aligned to the proposal made by Bagno et al. (2017) that innovation strategy should generally be cross-cutting, as opposed to being limited to one department.

Lastly, the need to review strategy to align with emerging technological trends seemed to be acknowledged. This supports the notion of Viki et al. (2017) which suggests that the firm “must use its innovation process as a source of emergent strategy that is responsive to changes in the market”. Mr. Bank5 expressed that his institution was in the process of strategic mid-term review and this was induced by the new technological trends coming into the market, specifically the crypto-currencies. He was preparing for the review of the company’s ICT strategy to maintain alignment.

Therefore, it is submitted that in line with theory, the firms need to develop digital innovation strategies, which may not necessarily be stand-alone strategies.

6.2.2 Digital Innovation Prioritisation (Portfolio)

Since the firms had not developed digital innovation strategy that were separate from either the corporate strategy, business plan, IT or ICT strategy, the notion of digital innovation portfolio seemed to be less significant to the informants. However, it appeared that prioritisation was an issue as it was raised by Mr. Comms2 who argued, “*This is where the business, which is really the executives, should decide at the executive and prioritize, such that the decision on what is important does not lie with the guys and the teams ... right now we are very much under pressure as IT to deliver things because projects come right, left and center everybody thinks their own project are more important than others.*”

This finding is in coherence with the notion of Yoo et al. (2012) which states that heterogeneous and unlimited innovation creates disorder. This theory was further supported by Mr. Bank3 when he mentioned, “*So ideation is basically encouraged but within one, guided by the framework but also guided by the strategy. We don’t want to innovate just for the sake of innovation because at the end of the day we want to say whatever we innovate has to be in line with the business strategy.*”

Kane et al. (2015) declared this lack of prioritisation as a barrier to successful innovation; hence, it is submitted that there is need for prioritisation of digital innovation initiatives at the corporate level.

6.2.3 Summary of Discussion of Research Question 1

Research question 1 sought to determine if the firm had developed a digital innovation strategy and if there was an attempt to balance small, incremental refinements and major breakthroughs within the digital strategy. It appeared that no firm had developed a digital strategy separate from the corporate strategy, business plan or ICT strategy.

However, this lack of a separate digital strategy does not imply that there was no consideration at the strategic level regarding which digital innovation initiatives the firm was intending to engage in (Viki et al., 2017). As Mr. Bank 4 mentioned, *“It will just be IT strategy and not digital strategy as such”*. Part of the corporate strategy, annual business plan, IT or ICT strategy served as digital innovation strategies for these organisations; as Ms. Util2 said, *“We have corporate strategy from there we develop the IT strategy.”* Hence the alignment between the firm strategy and the innovation strategy postulated by Viki et al. (2017) was achieved.

Moreover, the notion of digital innovation portfolio and prioritisation appeared to be less significance; however, as gathered from some of the participants, particularly from Mr. Comms2, it appeared that lack of prioritisation was a barrier to digital innovation as it caused confusion. This finding supports the notion of Kane et al. (2015) who declared lack of prioritisation as a barrier to successful innovation.

All things considered, this means that the firms need to develop digital innovation strategies with clearly prioritised digital innovation portfolios; either as standalone strategies or as part of the corporate or ICT strategies. Therefore, the research findings support the literature with regard to the first research question.

6.4 Discussion of Research Question 2

Which innovation performance indicators has the firm adopted for measuring digital innovation success?

From the findings, it emerged that the firms track Reporting KPIs, Governance KPIs and Global KPIs while Digital Workplace KPIs were not common. The detailed discussion is provided below.

6.2.4 Reporting KPIs

Reporting KPIs seemed to have been tracked by some firms in this study. For instance, Mr. Gov1 attested to the fact that at the corporate level, for lag indicators they measure innovation capability or maturity level; while for lead indicators, they measure percentage implementation of ideas from staff and maturity level for knowledge management. Moreover, Mr. Comms2 suggested that they measure time-to-market. These findings support the theory posited by Viki et al. (2017), which argues that Report KPIs need to be inwardly facing; hence, “focus on the product teams, the ideas they are generating, the experiments they are running and the progress they are making from ideation to scale”.

6.2.5 Governance KPIs

Governance KPIs also appeared to be tracked by some firms in this study. These KPIs, according to Viki et al. (2017) represent measurements that “focus on helping the company make informed investment decisions based on evidence and innovation stage”. Specifically, Mr. Util1 mentioned that on a quarterly basis, he presents progress before the management team, indicating how far he is with implementation and accounting for discrepancy.

Furthermore, Mr. Edu2 mentioned that one of the indicators he is measured on is project delivery comprising “on time”, “on budget” and “on quality” delivery. Therefore, the research results clearly support the theory.

6.2.6 Global KPIs

The Global KPIs appeared to be the widely adopted innovation performance indicators, as expressed by 11 out of the 13 informants. The focus of these metrics according to Viki et al. (2017) is “on helping the company examine the overall performance of their investments in innovation, in the context of the larger business”. Precisely, Mr. Bank3 mentioned that they use a combination of metrics which include the Net Promoter Score, Return on Investment and Turn-Around-Time.

The other informants mentioned that they measure the number of clients using the innovation and the innovation adoption rate; while others mentioned the revenue generated. Regarding the latter, revenue generated seemed to be considered in general terms rather than being specific to the innovation by several firms, which contradicts with the notion of Viki et al. (2017) that key performance indicators for

digital innovation need to differ from the traditional accounting methods. Nonetheless, only one informant, Mr. Comms2 mentioned specifically that “*it is the amount of revenue it [digital innovation] brings*” that is measured; thus aligning to theory.

6.2.7 Digital Workplace KPIs

The findings indicated that the majority of the informants seemed to be unaware of the need to measure Digital Innovation Workplace KPIs. This resulted in misalignment with the theory of Dery et al. (2017), which postulates that Digital Innovation Workplace KPIs should be tracked, with the aim of ensuring that the employee experience improves as the firm invests in digital workplace tools. These specific metrics according to Tay and Aggarwal (2018) may include employee happiness index, employee involvement, utilization metrics, digital dexterity distribution, etc.

However, two informants, namely Mr. Comms2 and Ms. Ins1 mentioned that Digital Innovation Workplace KPIs are usually included in the business cases that motivate improvements for digital workplace. Mr. Comms2 further mentioned that monitoring of such indicators would then be the responsibility of other departments such as Finance.

6.2.8 Summary of Discussion of Research Question 2

From the findings, it appeared that the firms generally track the innovation KPIs to determine success of the digital innovation undertaking. This supports the theory posited by Viki et al. (2017) which states that to determine whether or not the innovation is successful, the firm has to define metrics or key performance indicators that differ from the traditional accounting methods.

However, against this theory of Viki et al. (2017), it was noted that in some cases, the KPIs similar to those used in traditional accounting methods have been adopted. It was further noted that, albeit implementation of the digital workplace initiatives formed part of the responsibility of the informants, monitoring of Digital Innovation Workplace KPIs was not widely done, or possibly did not form part of the responsibilities of the informants.

Therefore, it is submitted that all the four types of KPIs need to be tracked to measure success of digital innovation initiatives.

6.3 Discussion of Research Question 3:

What drives a firm to engage in digital innovation management?

From the findings, it emerged that several forces drive the firms to engage in digital innovation management. The following sub-sections provide more detail.

6.3.1 Trends

“Following trends to remain relevant” was identified as a driving force by nine out of 13 informants. Nysten and Holmstrom (2015) argue that “firms need to scan their digital environment in order to identify opportunities for innovation”. Furthermore, Viki et al. (2017) claim that an ambidextrous firm has capability to exploit current functionality and explore new trends that enable it to reinvent itself. Hence this finding supports the literature.

6.1.1 Competitive Advantage

“Gaining competitive advantage” was also acknowledged as a driving force by nine informants. Salunke et al. (2013) claim that innovation induces firms “to offer superior value in comparison to competitors”, through positively affecting firm performance. Moreover, according to Yunis et al. (2017), if the firms “appreciate the value of relevant technological changes” and capitalise on it, they will achieve sustained competitive advantage. Therefore, this finding is congruent to the theory.

Nonetheless, it was also interesting to discover that for some firms competition was not an issue specifically within their respective industries in home country, largely because they were state owned firms. However, when probing further, it appeared that they compete against themselves and their peers within the SADC region.

6.3.2 Efficiencies and Effectiveness

Introducing efficiencies and effectiveness was expressed as a driving force by eight out of 13 informants. Since usually efficiencies and effectiveness leads to good organisational performance, this finding supports the notion of Yunis et al. (2017), who claim that ICT based innovations and applications have become major drivers of enhanced organisational performance. Furthermore, the finding is in coherence with Salunke et al. (2013), who also claim that digital innovation induces firms “to offer superior value in comparison to competitors”, through positively affecting the

performance of the firm. Thus, when the firm operates efficiently and effectively, it improves its performance and hence becomes competitive.

6.3.3 Customer Needs and Customer Experience

Addressing the customer needs and improving customer experience were identified as driving forces by six out of 13 informants.

Addressing customer needs supports the theory of Viki et al. (2017), which posits that the main responsibility of the innovators in the firm is to design and develop products and services that address the client needs and in turn generate revenue to the firm. Viki et al. (2017) further posit that a sweet spot is achieved when creativity addresses the need of the customer while also generating revenue from serving those needs.

Improving customer experience supports the notion of Nysten and Holmstrom (2015) which claims that customer experience is a central differentiating factor and a competitive force. Moreover, Bornemann et al. (2015) theorise that customer experience facilitates acceptance in the marketplace leading to a positive cash flow and eventually firm value.

6.3.4 Convenience

Providing convenience to clients was also recognised by six informants. This force also supports the theory of Bornemann et al. (2015), which argues that technology underpins the design of products and services, specifically providing the aesthetics, ergonomic and symbolic values, which in turn attract clients and create value for the firm. Ergonomic value specifically corresponds to convenience to use (Bornemann et al., 2015).

6.3.5 Market Share and Revenue

Securing or growing market share and generating revenue was identified as one of the driving forces by six informants. This force is aligned with the theory of Weinelt (2016), which postulates that ICT driven technologies enable the firm to achieve scale, outperform its peers, gaining competitive advantage and market share, and as a result enhance revenue.

6.3.6 Saving Money or Cutting on Wastage

Saving money or cutting on wastage was recognised by two informants as the driving

force. Viki et al. (2017) argue that “it is possible to innovate around internal business processes that are not directly experienced by customers”. This innovation may be driven by need to cut down waste and hence save funds; therefore this finding also supports the literature. Cutting on waste and hence saving resources leads to future sustainability of the firm.

6.3.7 Sustainability

Finally, becoming sustainable was implied by almost all the informants, however specifically mentioned by four. Viki et al. (2017) argue that “technology and software continue to transform business and hence innovation is the way of doing business in the 21st century and a key driver to sustainable growth”. Hence this finding as well supports the theory.

6.3.8 Summary of Discussion of Research Question 3

When analysing these findings through the lenses of the theory, it appeared that the firms engage in exploration of trends in order to identify opportunities that can induce creativity and innovation in the firm (Nylen & Holmstrom, 2015). This kind of innovation leads to introduction of internal efficiencies and effectiveness that save on wastages and differentiate on service; addressing customer needs, providing convenience and hence a positive user experience (Yunis et al., 2017; Viki et al., 2017; Nylen & Holmstrom, 2015).

This positive user experience creates customer value, which in turn leads to retention and positive word of mouth; resulting in high competitive advantage and high propensity for securing the market share and consequently, generating revenue for continued sustainability. Thus, it can be argued that in a nutshell, the firms engage in digital innovation management to improve their competitiveness for continued sustainability.

6.4 Discussion of Research Question 4

How do clients experience the firm's digital products and services?

From the findings, it appeared that user experience is impacted by several aspects of the digital product or service, namely addressing client's needs, aesthetics, usability, convenience and engagement. Each aspect is discussed in the following sub-sections.

6.4.1 Client Needs

As previously mentioned under sub-section 6.3.3, Viki et al. (2017), posits that the main responsibility of the innovators in the firm is to design and develop products and services that address the clients' needs.

Mr. Edu1 mentioned that when they design the digital products, they look mostly from the perspective of the client and hence they develop digital products or services that respond to clients' needs, specifically relating to time and cost efficiencies. Mr. Edu2 indicated that they surprise clients with innovation; while Mr. Bank1 conveyed that the requirements can be informed by customer insights or customer complaints. Thus, these findings support the theory with regard to the development of products and services that address the client needs.

6.4.2 Aesthetics

From the findings, it emerged that most firms invest in aesthetic properties of their products; albeit a few mentioned that for some of their products, their current concern is more inclined toward functionality and speed. Investing in aesthetics properties supports the notion of Bornemann et al. (2015), which argues that appearance facilitates formation of a first impression since it marks the first point of contact between the client and the product or service.

Ms. Ins1 expressed how gorgeous one of their Apps was; while Mr. Bank2 indicated that they have a dedicated team that ensures that every product or service that is taken to the market looks appealing and attractive to the eye.

6.4.3 Usability

Furthermore, the findings indicated that usability forms part of the features of digital products and service that are crucial for creating a positive customer experience. These findings are supported by Mr. Bank3 and Mr. Gov1 who claimed that their systems are user friendly. Mr. Bank3 further mentioned that they have received positive customer feedback in terms of ease of use and the functionality and finally; he claimed that the client find the banking app very easy to use. These findings support the theory of Nylén and Holmström (2015), which states that digital products and services must offer high levels of usability, whereby usability refers to ease of use.

6.4.4 Convenience

The findings suggest that one of the aspects of digital products and services that evoke clients experience is convenience. This is supported by Mr. Comms1 who mentioned that they make it more convenience for their clients to do whatever they want to do; it could either be making a call or making a payment and that should be done at the convenience of the client. Moreover, Mr. Bank3 indicated that digitisation provides convenience to the customers.

These findings support the notion of Bornemann et al. (2015), which states that ergonomics value that corresponds to convenience of use, attracts clients and creates value for the firm; hence, encouraging the firms to ensure that convenience is taken into account during design and development of digital products and services.

6.4.5 Engagement

According to Nylén and Holmström (2015) firms should make an effort to develop digital products and services that evoke engagement in order to “make the experience of their products and services meaningful to the clients”. From the findings, it appeared that engagement is one of the features of digital products and services which positively impacts on the customer experience; hence the findings support the literature. As Mr. Bank2 and Mr. Comms2 mentioned, they ensure that their systems are engaging and that the interfaces are user friendly.

6.4.6 Summary of Discussion of Research Question 4

In accordance with theory, the findings indicate that to evoke user experience, digital products and services should be designed and developed to address the real need of the clients (Viki et al., 2017). These products and services should be designed with aesthetics value in mind to ensure that they look attractive to the user, as this marks the first point of contact (Bornemann et al., 2015; Nylén & Holmström, 2015). These products and services should offer high levels of usability (Nylén & Holmström, 2015). They should also be convenient to use, as convenience is said to attract clients and creates value for the firm (Bornemann et al., 2015). Finally, they should evoke engagement (Nylén & Holmström, 2015). These findings support literature from various experts as indicated.

Therefore, this means that to evoke positive customer experience, the firms need to invest in ensuring that their products and services address the real needs of clients.

The firms should further invest in the aesthetics, usability and convenience properties in order to achieve high levels of user engagement.

6.5 Discussion of Research Question 5

How does a firm create and capture value in its digital products and services?

The research findings gave the impression that most firms create and capture value in their digital products and services through segmenting their clients, bundling the products and services, and negotiating with the Mobile Network Operators. More detail is provided below.

6.5.1 Client Segmentation

Client segmentation refers to analysing the customer base to determine the characteristics and context of the individual customer in order to make strategic decisions on the manner in which to reach, delight and retain customers (Nylen & Holmstrom, 2015; Troilo et al., 2017). The findings support this literature in the sense that Mr. Bank1, having listed all the segments they have adopted, mentioned that the segments help them serve the customers in different formats.

Ms. Ins1 on the other hand attested to the fact that their segmentation in the retail space is very primitive and as a result, they are unable to justify the cost to clients. Furthermore, since they do not understand this segment, they are unable to up-sell and cross-sell in this segment. Thus, client segmentation creates value to the clients and in turn helps the firm to capture value from the clients.

6.5.2 Bundling

Having segmented the clients, firms need to bundle digital products and services in an innovative manner and market them accordingly in order to improve value proposition and prevent customer churn (Troilo et al., 2017). The findings support the literature as it seemed that several firms have adopted bundling of products and services; however, as was the case with client segmentation, some firms experience challenges with bundling.

Mr. Comms1 mentioned that they consider how their products are used and from that analysis, they determine how best these products can be bundled together. For

example, they developed a mass bundled product for their mass segment. Furthermore, Mr. Bank2 indicated that there are certain incentives that the clients in bundled offerings get and those include digital channels. Conversely, Mr. Edu2 alluded to the fact that bundling is not applicable to his firm as there is equal access for everybody.

6.5.3 Commissions (Negotiations)

In order for digital products and service to be affordable and hence create value to customers, firms need to negotiate with the channel owners on both relationships and on commission charged (Nylen & Holmstrom, 2015). For instance, Apple Store is known for charging 30% commission on sales (Nylen & Holmstrom, 2015). The findings support this theory as several firms were found to be engaging in negotiations with the digital channels owners to facilitate easy access to their digital products and services by their clients. Nonetheless for some firms, the idea seemed to be new.

For instance, Mr. Bank1 confirmed that they negotiate with Mobile Network Operators to whitelist their internet banking sites so that the customers can access for free; and they negotiate better rates so that they can offer free Wi-Fi to client. Mr. Bank 2 mentioned that their cell phone banking is accessible for free and can be used even when the client does not have data. Mr. Comms1, confirmed that the banks have approached him, negotiating how internet banking could be availed to the clients free of charge. While Mr. Bank5 seemed to have learned from our engagement that he could negotiate on behalf of his clients.

6.5.4 Summary of Discussion of Research Question 5

In accordance with the literature, the findings seemed to indicate that most firms create and capture value in their digital products and services through segmenting their clients, bundling the products and services and negotiating with the Mobile Network Operators on how the digital channels could be availed free of charge or at subsidised rates to the clients (Nylen & Holmstrom, 2015). It would seem that segmentation is still primitive for the retail market in some firms; while some firms are less concerned with segmentations and bundling because they offer equal access to all their clients.

Some informants, who were not aware of possibility to negotiate commissions with channel owners, learned from this interview and seemed willing to explore. Therefore, this means that in order to create value in and capture value from digital products and

services, firms need to segment their clients, bundle the services and negotiate commission with channel owners.

6.6 Discussion of Research Question 6

How does a firm identify opportunities for innovation that emerge in its digital environment?

From the findings, it appeared that the firms identify opportunities for innovations that emerge in their digital environment through digital evolution scanning, as presented in detail below.

6.6.1 Digital Devices

The findings suggested that all the firms engage in digital scanning of devices. These findings support the notion of Nylén and Holmström (2015), which argues that “firms need to scan their digital environment in order to identify opportunities for innovation. This involves gathering information on new digital devices...” As Mr. Gov1 mentioned, they keep abreast with digital devices through their subscription to IT research firms where they obtain information and insights on the latest technologies and devices. Additionally, Ms. Util2 indicated that they are looking into new technologies such as drones to facilitate remote monitoring of projects.

Furthermore, it was interesting to find out that the scanning is not restricted to the industry to which the firm belongs; instead, it extends to adjacent industries as was indicated by Mr. Bank3.

6.6.2 Digital Tools

Similarly, the findings suggested that the firms scan the environment for digital tools to gather intelligence on trends so as to determine which digital tools can be adopted, in order to improve internal efficiencies or gain competitive advantage. Oldham and Da Silva (2015) claim that these digital tools improve idea generation and implementation through providing access and exposure to information, access to likeminded individuals and opportunity for collaboration.

Therefore, the firms need to gather data on digital tools in order to identify opportunities for innovation. Ms. Util2 mentioned that her firm is scanning for Building Information

Management solution while Mr. Comms2 indicated that his firm is considering robotic chat-bots. Mr. Edu2 mentioned that they look for technologies that improve student experience, cyber security, etc.

The findings, specifically from Mr. Bank5 seemed to indicate that although digital technologies induce work related creativity, they can potentially introduce inefficiencies if employees take advantage of these capabilities. This support the theory of Colbert et al. (2016), which argues that while social media can be an integral work tool, it provides easy access to online shopping , family and friends as well; hence, it can divert employee focus leading to reduced productivity.

6.6.3 Digital Channels

It emerged from the findings that several firms are searching for digital channels through which their products and services can be availed, while others are in the process of implementing such channels. These findings support the notion of Nylén and Holmström (2015), which argues that “firms need to scan their digital environment in order to identify opportunities for innovation. This involves gathering information on digital channels...”

As Mr. Bank4 stated, they have started a Digital Channels project aimed at introducing several banking channels including Internet Banking, Mobile Banking, Agency Banking, and Merchant Banking.” Whereas Mr. Gov1 mentioned that their long term plan is to extend service to their client to allow for interaction at the convenience of the client.

Interestingly it was found out that even when the digital channels are available, clients prefer to interact with an officer when discussing personal financial matters.

6.6.4 Behaviours

According to Nylén and Holmström (2015) as multiple digital channels get pervasive, new user behaviours surface; hence, the need to continuously scan the user behaviour, as these new behaviours can lead to emergence of new markets. The findings supported this theory as it emerged that most firms actively search for customer behaviours in order to observe the trends and to determine how they can serve the clients better and consequently create value for the firms.

As Ms. Ins1 indicated, they have started investing in understanding their clients' behaviour. She further mentioned that they have plans to build capabilities for data analytics. This finding is congruent to the theory of Troilo et al. (2017) which suggests that data analytics can be leveraged by the firms in search of customer behavioural trends. Moreover, Mr. Gov1 mentioned that at the strategic level, they have decided to invest heavily in understanding the behaviour of their clients.

6.6.5 Summary of Discussion of Research Question 6

The findings suggested that the firms continuously engage in digital evolution scanning of the environment in order to identify opportunities for innovation. Specifically the firm scans the environment for the new and existing digital devices, digital tools, digital channels and evolving user behaviour. The scanning is done within and beyond the firms' respective industries. These findings support the theories suggested by Nylen and Holmstrom (2015), Oldham and Da Silva (2015) and Troilo et al. (2017) as detailed above.

Therefore, this means that in an effort to becoming ambidextrous, the firms should scan the digital environment for emerging digital devices, tools, channels and evolving user behaviour.

6.7 Discussion of Research Question 7

Which capabilities are critical for successful management of digital innovation in a firm?

The findings relating to this question suggest that the roles, continuous learning and teams are critical capabilities required for successful management of digital innovation.

6.7.1 Roles

From the findings, it appeared that the firms have introduced new roles and engaged external roles in order to increase the chances of success in managing their digital innovation effort. As Mr. Bank1 indicated, his new function was established to ensure that the digital innovation investment benefits the organization; while Mr. Bank4 mentioned that they outsourced the Project Manager and introduced Digital Marketing Officer. These findings support the theory of Nylen and Holmstrom (2015), which states that in order to reap the benefits of digital innovation, firms need to acquire new skills, both internally and externally, while establishing new digital roles.

Additionally, digital innovation initiatives may require a balance of in-house roles and outsourced consultants (Nylen & Holmstrom, 2015; Svahn et al., 2017). The findings further support this theories, as Ms. Util2 specifically mentioned that mostly there is a balance between digital and non-digital roles. She further indicated that in their upcoming projects, Project Management will be outsourced; however, the consultants will need to work with the company's Project Management Unit.

6.7.2 Continuous Learning

From the findings, the need to engage in continuous learning through various learning avenues was expressed by all the informants. These continuous learning avenues include training, education, conferences and fora, secondments, subscriptions, internet, research, current affairs and benchmarking visits.

To substantiate these findings, Mr. Gov1 mentioned that in their industry, they have families in the region and this facilitates interaction. He further mentioned that they have world-wide conferences and forums where they normally engage one another. Finally, he mentioned that they subscribe for research and attend IT conferences to learn about the latest technologies. While Mr. Bank5 stated that they have a continuous learning process.

These findings support the notion of Nylen and Holmstrom (2015), which argues that digital technologies are evolving by nature; therefore, digital innovation requires continuous learning, whereby these technologies are explored for identification of new opportunities for products, services, and markets innovation.

6.7.3 Teams

From the findings, the need to establish cross-functional teams when engaging in digital innovation initiative was expressed by all the informants. As indicated by Mr. Bank2 their innovative ideas mostly come from within their group; while others originate from external stakeholders; they also collaborate with the likes of Marketing, Business Intelligence, Legal and Compliance.

In a few cases, it seemed the firms have their internal, diverse and standing innovation teams, as indicated by Mr. Comms1, *"There's the Innovations Team of CEO which is CEO led. And then there is the New Product Development which is led by our Manager1."* These findings support the theory of Bagno et al. (2017), which suggests

that specific organisational function, “with its own team, missions, roles and responsibilities”, is required for management of radical innovation.

The findings further suggested that the capabilities of such teams can be augmented through collaboration with clients, suppliers, vendors and partners; engagement of expertise from the group and sister companies; and finally through engagement of the external consultants. These findings support the notion of Dahlander et al. (2016), which claims that if a team has diverse membership, its creativity and productivity improves; and the notion of Svahn et al. (2017), which posits that “incumbent firms must develop new capabilities ... to engage external audiences”.

6.7.4 Summary of Discussion of Research Question 7

The findings relating to this research question suggest that the roles, continuous learning and teams are critical capabilities required for digital ambidexterity and hence for successful management of digital innovation. The findings indicated that to augment capability, the firms have introduced new roles and have engaged external roles. Furthermore, the firms engage in continuous learning through various learning avenues. Finally, the firms attempt to establish cross-functional teams when engaging in digital innovation initiatives; it was common to amplify the capacity of such teams through collaboration and engagement of external stakeholders.

These findings support the theory of Nylen and Holmstrom (2015), which suggests that “in order to reap the benefits of digital innovation, firms need to acquire new skills, both internally and externally, while establishing new digital roles. In doing so, firms should promote continuous learning of the unique properties of digital technologies in order to secure dynamic innovation teams.”

Therefore, this means that to build digital ambidexterity capabilities necessary for successful management of digital innovation, firms should invest in establishing in-house roles and outsourcing relevant roles; invest and engage in continuous learning; and finally, invest in building capable teams.

6.8 Discussion of Research Question 8

Which measures has the firm put in place to improve the culture of innovation and improvisation?

The findings relating to this question suggest that several measures have been put in place to facilitate the organisational culture that allows for improvisation. The following sub-sections provide more detail.

6.8.1 Space

Regarding the physical space, from the observations made by the researcher, it was gathered that majority of the offices had open plan design; largely with non-transparent walls around the meeting rooms and managers' offices, while in a few cases, the meeting rooms and managers' offices had glass wall. The open plan design supports the theory of (Dery et al., 2017), which states that firms which excel in digital innovation have designed and created physical spaces that are open and flexible. Anecdotally, the glass walls represent transparency and hence, take collaboration and ideation to the next level.

Benefits of the open plan design were demonstrated by Mr. Comms2, as he indicated that since their office design is open plan, interactions and collaboration between divisions has been improved. Nonetheless, space seemed not to be ideal for a few firms, as Mr. Comms1 mentioned that their space does not work for them.

Moving on to the logical space, according to Svahn et al. (2017) to allow for exploration of digital possibilities, managers must create an environment that balances control and flexibility. From the interviews, it emerged that in most firms, flexibility is granted at the stage of ideation and prototyping, although guided by the strategy. However, once the idea is chosen for production and scaling, it appeared that some level of control was necessary. This was indicated by Ms. Ins1, who mentioned that they are very flexible in terms of ideation, while there is some degree of control when moving from ideation to prototyping to production. This supports the notion of Svahn et al. (2017), indicated earlier.

6.8.2 Time

The findings indicate that majority of the firms do not currently allocate specific time for innovation. This was evident from the contribution of Mr. Comms2, who mentioned that they still have a long journey to go in terms of setting up specific time that encourages the employees to innovate and produce something meaningful. This finding is in conflict with the theory of Nylén and Holmström (2015), which states that dedicated time should be allocated for innovation.

Nonetheless, two out of 13 informants namely Mr. Banks2 and Mr. Bank3 indicated that they set time aside for innovation, although in one instance this was conditional. Therefore, contrary to what majority of the informants indicated, the findings supported the literature; hence it is important for the firms to allocate time for innovation, as Google allocates 20% of working hours to “skunkworks” (Nylén & Holmström, 2015).

6.8.3 Coordination

According to Haneda and Ito (2018), to mitigate various types of uncertainties, there is a need for corporation and coordination across business units and divisions. This cooperation and coordination increase knowledge spillovers that are necessary for innovation. The findings support this theory since from the interviews, it would seem that all the firms have frameworks or processes they follow for coordination of digital innovation, albeit mostly not formally documented. It was also apparent that the firms have decision making structures in place to govern digital innovation.

To this effect, Mr. Comms1 mentioned that they have two standing committees; one comprises cross-functional team which focuses on new product development, while the other focuses on all kinds of innovation. He further mentioned that they have an email address to which staff through ideas. Then management would pick the best idea for production and reward the idea owner publicly.

Conversely in one instance it became apparent that there was no coordination, as Mr. Util1 indicated that there was no coordination of innovation due to a silo mentality.

6.8.4 Summary of Discussion of Research Question 8

In accordance with theory, the findings relating to this question suggest that the organisational culture in various firms generally allows for improvisation. It would seem that largely the physical spaces are designed in such a way that they facilitate cooperation and collaboration; the digital innovation effort is mostly well coordinated; while allocation of time for innovation was done by only a few of the firms.

Therefore, this means that to adopt an innovation culture that supports improvisation, the firms should design physical spaces in such a way that they are open and flexible; they should allocate time for innovation; and finally, they should coordinate the innovation effort.

6.9 Discussion of Research Question 9

Which digital workplace measures relating to employee connectedness, have been put in place to improve the employee experience?

The findings relating to this research question revealed that the firms have put several measures in place, aimed at building digital workplaces that enable employee connectedness and consequently, influence employee experience positively. The detailed discussion is presented below.

6.9.1 System

The need for systems that automate internal processes was expressed by all the informants. According to Dery et al. (2017), systems in this case refers to the latest technology solutions that are fast, digitise as many processes as possible, embrace mobility, and include HR activities such as on-boarding. Therefore the findings support this theory.

For instance, as Mr. Bank2 mentioned, they maximise efficiencies by introducing the latest solutions that drive those efficiencies. Ms. Ins1 also indicated that one of their systems is very fast. Furthermore, Mr. Gov1 mentioned that administration of their services is done electronically. Finally, Mr. Comms2 indicated that they have digitised their on-boarding process to ensure that when the new employee first reports on duty, their laptop is ready to facilitate mobility and that access to systems is already granted.

6.9.2 Social

According to Dery et al. (2017), “social” refers to the social media platforms, which are used to facilitate collaboration internally between employees and externally with clients and other stakeholders, in order to support ideation. The findings support this theory as the analysis of the results indicated that only one firm had not implemented social media tools due to lack of funding. However, out of the 12 firms that have implemented the social media tools, only four claimed to have been successful. It would seem that the rest struggled with management of the platforms, in terms of making the platforms interesting so that they could pull the audience.

Nonetheless, the findings still support the literature as indicated by Mr. Ins1 when she mentioned that they have an innovation hub, which is where a cross-functional team shares problems using an online platform, with the hope to develop technical or business solutions, thus supporting ideation. They have also introduced a group social media page for staff.

Furthermore, Kane et al. (2015) claim that social media can kick-start the momentum and eventually transform the organisational culture into a digital culture. The findings supported this theory as raised by Mr. Gov1, when he indicated that they are going to use social media to promote their products, to promote themselves and to change the culture.

As it was mentioned under section 6.6.2 there is likelihood though of social media impacting productivity negatively in line with the theory of Colbert et al. (2016). Hence, the findings supported the literature as Ms. Util2 mentioned that to boot productivity, her company restricts the use of internet between 11:00 and 14:00 and after hours.

6.9.3 Space

The findings relating to this measure have been adequately addressed under sub-section 6.8.1. Those findings equally support the theme on employee connectedness.

6.9.4 Knowledge Management

Haneda and Ito (2018) theorise that knowledge management boosts innovation; while Donate and de Pablo (2015) claim that knowledge management improves firm’s innovation performance. Therefore, the findings support these theories as Mr. Gov1 indicated that as an organisation, they believe one of the enablers for a truly innovative

organisation is when the employees are able to effectively manage knowledge within the organisation.

Moreover, according to Donate and de Pablo (2015) knowledge management leads to improved employee connectedness. The findings support this theory as Mr. Bank3 mentioned that since sharing of information is encouraged, the employees who have the opportunity to attend workshops or courses are mandated to present what they have learned to the rest of the team, leading to information transfer and connectedness.

However, the findings indicated that for majority of the firms, implementation of knowledge management capabilities was at the infancy stage, albeit its importance for creativity and innovation was appreciated. This was confirmed by Mr. Util1, when he mentioned that they currently do not have knowledge management capabilities; however they have been meaning to implement it.

6.9.5 Summary of Discussion of Research Question 9

In accordance with theory, the findings revealed that the firms have put several measures in place to build digital workplaces that enable employee connectedness and as a result, positively influence the employee experience. These measures include social, space and knowledge management.

Regarding system, the findings indicated that all the firms have implemented systems that automate the internal business processes in order to achieve internal efficiencies and serve the client better.

Concerning social, the findings revealed that only one firm had not implemented social media tools due to lack of funding. Nonetheless, out of the 12 firms that have implemented the social media tools, only four seemed to have been successful in this endeavour. For space, reference was made to section 6.8.1.

Finally regarding knowledge management, the findings indicated that for majority of the firms, implementation of knowledge management capability was at the infancy stage, albeit its importance for creativity and innovation was appreciated.

Therefore, this means that to create the digital workplace that supports employee connectedness and hence boosts employee experience, the firms have to invest in

building systems that automate internal processes, social media solutions, open physical spaces and knowledge management solutions.

6.10 Discussion of Research Question 10

How does leadership facilitate continuous improvement of employee experience within the organisation?

In relation to this research question, the findings revealed that to facilitate continuous improvement of employee experience, responsive leadership has to exhibit the traits of sustaining leadership, promote systemic learning and use symbols in articulating vision for digital workplace. The following sub-sections delve deeper into the discussion of these findings.

6.10.1 Sustaining Leadership

The findings support the notion of Kane et al. (2015), which states that although he or she is not a “technology wizard” the sustaining leader has foresight on how technology can transform their business. This was evident from the contribution of Mr. Bank5, which indicated that their leader believes that the bank can re-invent itself through ICT based innovation. He went further to show that the board, management and the whole bank have appreciated the role of technology and hence one of the strategic objectives was “*Engender innovation and modernisation agenda*”.

According to Svahn et al. (2017) sustaining leadership provides required support and resources to commence and sustain the digital innovation journey. The findings support this theory as Mr. Bank2 indicated that the leadership provides resources for experimentation to sustain the innovation journey.

Moreover, the findings were aligned with the theories of Dery et al. (2017) regarding creation of safe space for innovation and Hughes et al. (2018) regarding building followers’ confidence. This was evident from the contribution of Mr. Gov1, which indicated that their leader believes that employees are capable of doing great things; he assigns challenging tasks, he motivates and supports the employees to achieve required outcome.

Finally, in accordance with the theory of Jasimuddin and Naqshbandi (2018), which states that “leaders develop, exemplify, acknowledge, appreciate and reward new and

innovative ideas coming from followers”, the findings revealed that sustaining leadership incentivises innovation. As Mr. Comms1 mentioned that employees submit their ideas through an innovation email address, the best ideas are picked and the employees who created the ideas are rewarded.

6.10.2 Systemic Learning

The findings revealed that leadership provide opportunities for continuous learning, as indicated by Mr. Bank1 that leadership ensures that there is training budget and he claimed that he has never heard of anyone who was denied training. These findings supported the notion of Dery et al. (2017), which state that sustaining leaders provide opportunities for continuous learning.

The findings further revealed that the leaders encourage experimentation with new technologies, as mentioned by Ms. Ins1 that their leadership is very deliberate in how they groom the environment; indicating that their leadership acquired an ideation server for her team to support experimentation.

Finally, it appeared from the findings that leadership employs evidence-based decision making, as Mr. Bank2 indicated that having launched a product, Business Intelligence Unit gets involved to monitor progress through analytics so as to provide leadership with information that supports decision on the next steps.

6.10.3 Symbols

According to Dery et al. (2017) leadership directs development of clear digital vision and strategy, makes the strategy explicit both internally to the employees and externally to stakeholders. The findings support this theory, as Mr. Bank5 indicated that when launching a new product or service, through the help of Marketing, they develop and implement a communication plan covering both internal and external communication.

According to Mr. Comms1, their communication involves stories and symbols, in accordance with the notions of Dery et al. (2017) and Kane et al. (2015), which state that to boost buy-in, the leader effectively communicates the vision and strategy using the stories and symbols both internally to the board and employees; and externally to other stakeholders. On the same, Mr. Edu2 also indicated that they outsource

marketing for creation of videos, stories, etc.

6.10.4 Summary of Discussion of Research Question 10

In accordance with theory, the findings revealed that leadership facilitates continuous improvement of employee experience within the organisation through exhibiting the traits of sustaining leadership, promoting systemic learning and using symbols in articulating vision for digital workplace.

Firstly, regarding sustaining leadership, the findings indicated that leaders have foresight on how technology can transform their business; they provide required support and resources to commence and sustain the digital innovation journey; they create safe space for innovation and build followers' confidence; finally, they incentivise employees for their innovative ideas that make it to production. These findings support the literature.

Secondly, concerning systemic learning, the findings revealed that leadership provides opportunities for continuous learning; the leaders encourage experimentation with new technologies; and leadership employs evidence-based decision making. These findings similarly support the literature.

Lastly, with regard to symbols, the findings suggest that leadership directs development of clear digital vision and strategy makes the strategy explicit both internally to the employees and externally to stakeholders, and that this communication involves stories and symbols. These findings as well support the literature.

This therefore means that to facilitate continuous improvement of employee experience, the firm should invest in building responsive leadership, for the leadership to be sustaining; to promote systemic learning; and to use symbols in communicating digital strategies.

6.11 Conclusion

In this chapter, the findings corresponding to each research question were discussed in relation to the literature. The discussions focussed on one research question at the time and each research question evolved around a theme. These themes in turn formed building blocks towards development of the comprehensive digital innovation management ecosystem, meant to guide the firms in building digital ambidexterity.

The findings indicated that the firms develop digital innovation strategies as part of the corporate or ICT strategies; thus supporting the theory of Viki et al. (2017). Moreover, although the digital innovation portfolio was not deliberately developed by these firms, it emerged that lack thereof leads to confusion and hinders innovation (Kane et al., 2015). Hence, in line with theory, the need for both the digital innovation strategy and innovation portfolio was established.

From the analysis, it emerged that the firms generally track the innovation KPIs to determine whether or not their digital innovation undertaking is succeeding (Viki et al., 2017); however, Digital Workplace KPIs proposed by Dery et al. (2017) seemed to be unfamiliar to the informants. Furthermore, contrary to the theory of Viki et al. (2017), it was noted that in some firms, the KPIs similar to those used in traditional accounting methods have been adopted.

The insights derived from the findings indicated that the firms engage in digital innovation management for an array of reasons including: following trends to remain relevant, gaining competitive advantage, introducing efficiencies and effectiveness, addressing customer need or improving customer experience, providing convenience to clients, securing or growing market share and generating revenue, saving money or cutting waste, and overall becoming sustainable.

Regarding user experience, the insights derived suggest that the features of digital products and service such as addressing real client's needs, aesthetics, usability, convenience and engagement are crucial for creating a positive customer experience (Nylen & Holmstrom, 2015; Viki et al., 2017; Bornemann et al., 2015).

With regard to value proposition the findings suggested that most firms have adopted client segmentation which allows them to bundle product and services accordingly and hence create value for, while also capturing value from the clients (Nylen & Holmstrom, 2015). Furthermore, several informants claimed that they engage in negotiations with channel owners for their services to be whitelisted and accessed for free or at subsidised rates by clients (Nylen & Holmstrom, 2015).

Concerning digital evolution scanning, the findings suggested that the firms continuously engage in digital evolution scanning of digital devices, digital tools, digital channels and evolving user behaviour, in order to identify opportunities for innovation

(Nylen & Holmstrom, 2015; Oldham & Da Silva, 2015).

Regarding skills or capabilities, the findings revealed that the roles, continuous learning and teams are critical capabilities required for successful management of digital innovation (Nylen & Holmstrom, 2015).

Concerning improvisation, the insights derived indicated that the organisational culture in various firms generally allows for improvisation; physical space in various organisations is designed to be open in order to facilitate cooperation and collaboration; the digital innovation effort is mostly well coordinated; while allocation of time for innovation was not commonly practiced (Nylen & Holmstrom, 2015).

With regard to employee connectedness the findings revealed that the firms have put several measures in place to build digital workplaces that enable employee connectedness and consequently influence the employee experience positively (Dery et al., 2017). These measures include system, social, space and knowledge management (Dery et al., 2017; Haneda & Ito, 2018; Donate & de Pablo, 2015).

Lastly regarding responsive leadership, the findings revealed that responsive leadership facilitate continuous improvement of employee experience within the firm, through exhibiting the traits of sustaining leadership, promoting systemic learning and using symbols in articulating vision for digital workplace (Dery et al., 2017).

The last chapter presents the recommendations and conclusions to this research paper.

7. CHAPTER 7 – Conclusion

7.1 Introduction

The purpose of this study was to develop a comprehensive ecosystem for management of digital innovation, aimed at helping established firms build capability for digital ambidexterity, to ensure success of digital innovation initiatives for improved competitiveness and longer term sustainability.

This was achieved through building on the framework of Nylén and Holmström (2015) outlined in Table 2, by adding the missing dimensions relating to the digital workplace as proposed by the model of Dery et al. (2017), depicted in Figure 4. Additionally, the concepts theorised by Viki et al. (2017) relating to digital innovation strategy and digital innovation key performance indicators (KPIs) were incorporated to make the ecosystem even more robust. Subsequently, a qualitative analysis of the newly developed ecosystem, centring on the semi-structured interviews, was conducted to validate this ecosystem.

This chapter presents the conclusion to this study comprising a summary of Research Findings, the Proposed Framework, the Implications for Management, the Limitations of the Research and finally, the Suggestions for Future Research.

7.2 Research Findings

This study successfully responded to the research question as it was presented in Chapter 1. The main research question was: *How can established firms consistently manage their digital innovation for improved competitiveness and continued sustainability?* In response to this research question, the following eight themes emerged from the key findings:

7.2.1 Digital Innovation Strategy

The key findings suggested that the digital innovation strategies were generally not developed as stand-alone documents; rather they were incorporated within the corporate strategies or subsumed as part of the ICT strategies. The fact that the digital innovation formed part of these strategies indicates alignment to the notion of Viki et al. (2017) in so far as the digital innovation strategy is concerned.

Moreover, although the notion of digital innovation portfolio and prioritisation appeared to be uncommon, the lack of prioritisation seemed to be a barrier to digital innovation as it caused confusion (Kane et al., 2015). Therefore, it could be argued that the innovation portfolio that balances priorities is necessary to guide digital innovation.

7.2.2 Innovation KPIs

One of the key findings indicated that the firms generally track the innovation KPIs to determine whether or not their digital innovation endeavours are succeeding (Viki et al., 2017). However, in contrast with the theory of Viki et al. (2017), it was noted that for some firms, the KPIs similar to those used in traditional accounting methods have been adopted. Additionally, monitoring of Digital Innovation Workplace KPIs (Dery et al., 2017) seemed to be scarce, or possibly did not form part of the responsibilities of the informants.

7.2.3 Digital Innovation Management Driving Forces

The insights derived from the key findings indicated that a variety of forces drive firms to engage in digital innovation management. It emerged that these forces include exploration of trends in order to identify opportunities that can induce creativity and innovation in the firm (Nylen & Holmstrom, 2015); for competitive advantage (Salunke et al., 2013; Yunis et al., 2017); to improve efficiencies and effectiveness within the firm (Yunis et al., 2017); to address customer needs and offer superior customer experience (Viki et al., 2017; Nylen & Holmstrom, 2015); for offering convenience to clients (Bornemann et al., 2015); to improve market share and revenue (Weinelt, 2016); for saving money and cutting on waste (Viki et al., 2017); and ultimately for sustainability of the firm (Viki et al., 2017).

7.2.4 Customer Experience

The key findings suggest that to evoke customer experience, digital products and services should be designed and developed to address the real needs of the clients (Viki et al., 2017). These digital products and services should be designed with aesthetics value in mind to ensure that they look attractive to the user, as this marks the first point of contact (Nylen & Holmstrom, 2015; Bornemann et al., 2015). These products and services should offer high levels of usability (Nylen & Holmstrom, 2015). They should also be convenient to use, as convenience is said to attract clients and creates value for the firm (Bornemann et al., 2015). Finally, they should evoke engagement (Nylen & Holmstrom, 2015).

7.2.5 Value Proposition

The key findings suggested that most firms create and capture value in their digital products and services through segmenting their clients, bundling the products and services and negotiating commission with the Mobile Network Operators, on how the digital channels could be availed free of charge or at subsidised rates to the clients (Nylen & Holmstrom, 2015). It would seem that segmentation is still primitive for the retail market in some firms; while some firms are less concerned with segmentations and bundling because they offer equal access to all their clients.

7.2.6 Digital Evolution Scanning

The key findings indicate that the firms continuously engage in digital evolution scanning of the environment in order to identify opportunities for innovation (Nylen & Holmstrom, 2015). Specifically the firm scans the environment for the new and existing digital devices, digital tools, digital channels and evolving user behaviour (Nylen & Holmstrom, 2015; Oldham & Da Silva, 2015). Interestingly, it appeared that the scanning is done within and beyond the firms' respective industries.

7.2.7 Capabilities

The key findings revealed that the roles, continuous learning and teams are critical capabilities required for successful management of digital innovation (Nylen & Holmstrom, 2015). The findings indicated that the firms have introduced new roles and engaged external roles in managing their digital innovation effort and investment. Furthermore, the firms engage in continuous learning through various learning avenues. Finally, the firms attempt to establish cross-functional teams when initiating digital innovation initiatives. It was also common to augment the capacity of such teams through collaboration and engagement of external stakeholders (Nylen & Holmstrom, 2015; Svahn et al., 2017).

7.2.8 Improvisation

The insights derived from the key findings indicated that the organisational culture in various firms generally allows for improvisation. It appeared that the physical spaces in various organisations are designed to be open in order to facilitate cooperation and collaboration (Dery et al., 2017); the logical spaces balance control and flexibility, and allow for experimentation (Svahn et al., 2017); and the digital innovation effort is mostly well coordinated (Dery et al., 2017). Contrary to the notion of Dery et al. (2017) allocating time for innovation was not common; however, the need to allocate time for innovation was largely embraced.

7.2.9 Employee Connectedness

The key findings revealed that the firms have put several measures in place to build digital workplaces that enable employee connectedness; hence, positively influence the employee experience (Dery et al., 2017). These measures include system, social, space and knowledge management. It emerged that all the firms have implemented systems that automate some of the internal business processes. Although 12 out of 13 firms reported to have implemented social media solutions, only four claimed success. Finally, for majority of the firms, implementation of knowledge management capabilities was at the infancy stage.

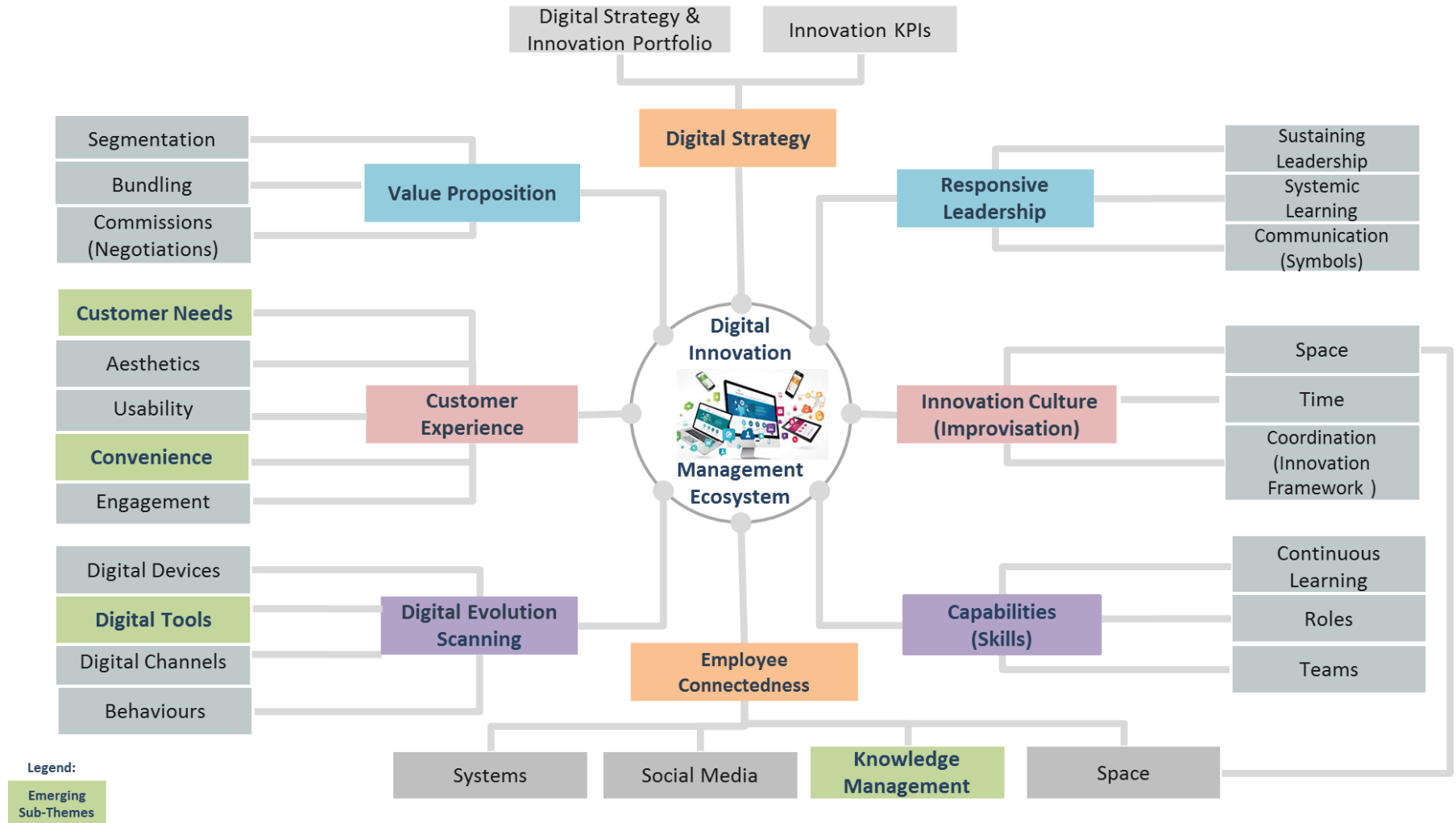
7.2.10 Responsive Leadership

The key findings suggest that responsive leadership facilitate continuous improvement of employee experience within the firm, through exhibiting the traits of sustaining leadership, promoting systemic learning and using symbols in articulating vision for digital workplace (Dery et al., 2017). It emerged that sustaining leadership included traits such as having foresight, creating safe space for innovation, building followers' confidence, and incentivising employees for innovative ideas.

Systemic learning appeared to be focusing on providing opportunity for continuous learning, encouraging experimentation with new technologies, and making evidence-based decisions. While symbols appeared to be concerned with leaders directing development of clear digital vision and strategy, making the strategy explicit both internally to the employees and externally to stakeholders; and ensuring that this communication involves stories and symbols.

7.3A Proposed Framework

Figure 17: Digital Innovation Management Ecosystem



This Digital Innovation Management Ecosystem is a comprehensive framework that helps an established firm build capability for digital ambidexterity, to ensure success of digital innovation initiatives for improved competitiveness and longer term sustainability. It consists of eight building blocks namely Digital Strategy, Responsive Leadership, Innovation Culture, Capabilities, Employee Connectedness, Digital Evolution Scanning, Customer Experience and Value Proposition.

- a) *Digital Strategy*, as the first building block, clearly identifies digital innovation projects that the firm decides to engage in (Viki et al., 2017). These projects are clustered into a Digital Innovation Portfolio that balances small, incremental refinements and major breakthroughs within the digital strategy (Kane et al., 2015). Additionally, as part of the digital strategy, the firm has to define and track the Digital Innovation KPIs to determine whether or not its digital innovation mission is being successful (Viki et al., 2017).
- b) *Responsive Leadership* as the second building block suggests that firstly, Sustaining Leadership should have foresight on how new technologies can transform their business. These leaders create safe space for innovation, provide resources, build followers' confidence and reward employees for innovation (Dery et al., 2017; Svahn et al., 2017; Hughes et al., 2018). Secondly, Systemic Learning focuses on the need for leaders to provide opportunity for continuous learning, encourage experimentation with new technologies, and make evidence-based decisions (Dery et al., 2017). Lastly, responsive leadership makes the strategy explicit both internally to the employees and externally to stakeholders; and ensures that this Communication involves stories and symbols (Dery et al., 2017; Kane et al., 2015).
- c) Responsive Leadership creates an environment that is conducive for an *Innovation Culture*. Innovation Culture (Improvisation), as the third building block, requires that firstly, the physical Spaces within the firm should be designed to be open and flexible in order to facilitate collaboration and ideation; while logical Spaces should balance control and flexibility (Nylen & Holmstrom, 2015). Secondly, to encourage staff to ideate and innovate, dedicated Time should be allocated for ideation and innovation (Nylen & Holmstrom, 2015). Finally, innovation should be Coordinated within the firm to ensure alignment to strategy, deal with overlaps and avoid waste. Coordination of innovation requires adoption

of an Innovation Framework which provides a unifying language, and manages the firm's investment decisions and product development practices (Viki et al., 2017).

- d) With the right innovation culture in place, as the fourth building block, leadership should invest in *Capabilities* that underpin innovation. That is, the firm needs to “acquire new skills, both internally and externally, while establishing new digital Roles. In doing so, the firm should promote Continuous Learning of the unique properties of digital technologies in order to secure dynamic innovation Teams” (Nylen & Holmstrom, 2015). Continuous Learning is achieved through various learning avenues while capacity of the teams is augmented mostly by engaging external resources.

- e) With the appropriate capabilities in place, as the fifth building block, the firm should build digital workplaces that enable *Employee Connectedness* to positively influence the employee experience and consequently induce creativity (Dery et al., 2017). This is done through implementation of Systems that automate the internal business processes, Social Media solutions to improve connectedness, Knowledge Management solutions to improve collaboration (Dery et al., 2017; Donate & de Pablo, 2015) and Spaces that are physically open and logically flexible (Nylen & Holmstrom, 2015).

- f) Employee Connectedness, by virtue of enabling collaboration within and outside the firm, enables *Digital Evolution Scanning* as the sixth building block. This in turn facilitated teams to continuously engage in scanning of the environment in order to identify opportunities for innovation (Nylen & Holmstrom, 2015). The teams specifically scan the environment for emerging Digital Devices, Digital Tools, Digital Channels and evolving Customer Behaviour (Nylen & Holmstrom, 2015; Oldham & Da Silva, 2015).

- g) Digital Evolution Scanning induces teams to ideate and innovate in order to develop products and services that create a positive *Customer Experience*. This kind of products and services address the real Customer Needs, have Aesthetic and Usability properties, are Convenient to use and evoke Engagement (Viki et al., 2017; Nylen & Holmstrom, 2015; Bornemann et al., 2015). Customer Experience is the seventh building block.

- h) Finally, as the eighth building block, the “firm needs to clearly articulate the *Value Proposition* of each digital product or service” (Nylen & Holmstrom, 2015). This is achieved through Segmentation of clients, Bundling the products and services and negotiating with the Mobile Network Operators on Commissions charged so as to avail the digital channels to the clients either for free or at subsidised rates. (Nylen & Holmstrom, 2015).

7.4 Implications for Management

This section outlines practical recommendations for business managers, should they need guidance on how to build digital ambidexterity through adoption of this comprehensive Digital Innovation Management Ecosystem. The business managers should:

- a) Develop digital innovation strategies with clearly prioritised digital innovation portfolios; either as standalone strategies or as part of the corporate or ICT strategies. This strategy should outline the digital innovation portfolio with clear priorities to facilitate guided digital innovation.
- b) Track the four types of KPIs to measure success of digital innovation initiatives.
- c) Invest in ensuring that their products and services address the real needs of clients; they should further invest in the aesthetics, usability and convenience properties in order to achieve high levels of user engagement.
- d) Segment their clients, bundle the services and products, and negotiate commission with channel owners in order to create and capture value from digital products and services.
- e) Invest in capabilities that facilitate scanning of the digital environment for identification of the emerging digital devices, tools, channels and evolving user behaviour.
- f) Invest in establishing in-house roles or outsourcing relevant roles; invest, support and engage in continuous learning; and finally, invest in building capable teams.
- g) Invest in physical spaces that are open and flexible; allocate time for innovation; and coordinate the innovation effort.
- h) Invest in social media solutions, knowledge management solutions, and in building systems that automate internal processes.
- i) Should invest in capacitating themselves to be responsive leaders who exhibit the traits of sustaining leadership; they should promote systemic learning and use symbols and stories in communicating digital strategies.

7.5 Limitations of the Research

This study due to its qualitative nature is subject to some limitations; specifically, generalisability to other contexts is limited and this is exacerbated by the following:

- a) The sample size was 13; hence too small to claim generalisability of the result; moreover, the sample was also limited to the service industry and the majority of firms were based in Lesotho.
- b) The study did not focus on macro-environment, which could possibly influence digital innovation success; for instance the regulatory environment, government or political policies, infrastructure development, cost of mobile data etc.
- c) Researcher's subjectivity since data analysis rests with abilities and choices of the researcher.
- d) The duration of data collection did not allow for a longitudinal design.

7.6 Suggestions for Further Research

Based on the limitation of the current study and the insights derived from this research, the researcher recommends the following as potential avenues for future research:

- a) Expanding the sample size in terms of numbers would improve generalisability of the Digital Innovation Management Ecosystem.
- b) The study could be replicated in other contexts or settings, for instance in different locations.
- c) Since the sample was deliberately limited to service industry, future research may bring further insight by exploring the Digital Innovation Management Ecosystem in production or manufacturing industries.
- d) A comparative study of the firms in both developed and developing markets to uncover the similarities and differences in so far as management of digital innovation is concerned.
- e) Exploring the impact of macro-environment on management of digital innovation for instance regulatory environment, government or political policies, infrastructure development, cost of data etc.
- f) A quantitative approach could be adopted to validate the Digital Innovation Management Ecosystem.

7.7 Conclusion

This study explored the digital innovation management in the established and middle to large sized organisations, with the intention of developing a comprehensive Digital Innovation Management Ecosystem, aimed at helping these firms build capability for digital ambidexterity; to ensure success of their digital innovation initiatives for improved competitiveness and longer term sustainability.

This was achieved through integration of two frameworks and addition of two extra concepts from the third framework; all identified during literature review. This resulted in an ecosystem model comprising a total of eight themes. The newly developed Digital Innovation Management Ecosystem was then validated deductively through 13 semi-structured interviews with a heterogeneous sample, comprising firms from 6 service industries and based in 3 countries.

The key findings indicated that digital innovation is largely facilitated by responsive leadership within the firm. This kind of leadership is responsible for providing the strategic direction in terms of the priorities that guide ideation and innovation. Moreover, the leadership is responsible for creating an environment that is conducive for innovation, where structure and flexibility are balanced. The leadership is similarly responsible for investing in capabilities necessary for digital innovation; including capabilities that support employee connectedness.

Additionally, the key findings indicate that employee connectedness enables digital evolution scanning, which in turn facilitates ideation and innovation for development of products and services that evoke a positive customer experience. Lastly it emerged that value proposition for digital products and services should be well articulated.

The study contributed to the literature through the development of the comprehensive Digital Innovation Management Ecosystem. Furthermore, the study contributed empirically through practically guiding the established and middle to large sized firms on how they could develop capabilities for digital ambidexterity to ensure success of their digital innovation initiatives for improved competitiveness and longer term sustainability.

Reference List

- Bagno, R. B., Salerno, M. S., & da Silva, D. O. (2017). Models with graphical representation for innovation management: a literature review. *R&D Management*, 47(4), 637-653.
- Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age: key contributions and future directions. *MIS quarterly*, 39(1), 135-154.
- Bloomberg, L. D., & Volpe, M. (2012). *Completing your qualitative dissertation* (2nd Edition). United States of America: SAGE Publications.
- Bornemann, T., Schöler, L., & Homburg, C. (2015). In the eye of the beholder? The effect of product appearance on shareholder value. *Journal of Product Innovation Management*, 32(5), 704-715.
- Colbert, A., Yee, N., & George, G. (2016). The digital workforce and the workplace of the future. *Academy of Management Journal*, 59(3), 731-739.
- Dahlander, L., O'Mahony, S., & Gann, D. M. (2016). One foot in, one foot out: how does individuals' external search breadth affect innovation outcomes?. *Strategic Management Journal*, 37(2), 280-302.
- Dery, K., Sebastian, I. M., & van der Meulen, N. (2017). The Digital Workplace is Key to Digital Innovation. *MIS Quarterly Executive*, 16(2).
- Donate, M. J., & de Pablo, J. D. S. (2015). The role of knowledge-oriented leadership in knowledge management practices and innovation. *Journal of Business Research*, 68(2), 360-370.
- Fichman, R. G., Dos Santos, B. L., & Zheng, Z. E. (2014). Digital innovation as a fundamental and powerful concept in the information Systems curriculum. *MIS Quarterly*, 38(2).

- Haneda, S., & Ito, K. (2018). Organizational and human resource management and innovation: Which management practices are linked to product and/or process innovation?. *Research Policy*, 47(1), 194-208.
- Hughes, D. J., Lee, A., Tian, A. W., Newman, A., & Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *The Leadership Quarterly*.
- Jasimuddin, S. M., & Naqshbandi, M. M. (2018). Knowledge-oriented leadership and open innovation: Role of knowledge management capability in France-based multinationals. *International Business Review*.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review and Deloitte University Press*, 14.
- Nagji, B. & Tuff, G. (2012). Managing your innovation portfolio. *Harvard Business Review*, 90(5), 66-74.
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1).
- Nylén, D., & Holmström, J. (2015). Digital innovation strategy: A framework for diagnosing and improving digital product and service innovation. *Business Horizons*, 58(1), 57-67.
- Oldham, G. R., & Da Silva, N. (2015). The impact of digital technology on the generation and implementation of creative ideas in the workplace. *Computers in Human Behavior*, 42, 5-11.
- Pratt, M. G. (2009). From the editors: For the lack of a boilerplate: Tips on writing up (and reviewing) qualitative research. *Academy of Management Journal*, 52 (5), 856–862.
- Saldana J, 2009. *The coding manual for qualitative researchers*. Sage Publications, London Chapter 1-2 pages 1-44

- Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2013). Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms. *Journal of Business Research*, 66(8), 1085-1097.
- Saunders, M. N., & Lewis, P. (2012). *Doing research in business & management: An essential guide to planning your project*. London: Pearson Education.
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Edinburgh Gate: Pearson
- Sousa, M. J., & Rocha, Á. (2018). Skills for disruptive digital business. *Journal of Business Research*.
- Storey, C., Cankurtaran, P., Papastathopoulou, P., & Hultink, E. J. (2016). Success factors for service innovation: A meta-analysis. *Journal of Product Innovation Management*, 33(5), 527-548.
- Svahn, F., Mathiassen, L., & Lindgren, R. (2017). Embracing Digital Innovation in Incumbent Firms: How Volvo Cars Managed Competing Concerns. *MIS Quarterly*, 41(1).
- Svahn, F., Mathiassen, L., Lindgren, R., & Kane, G. C. (2017). Mastering the digital innovation challenge. *MIT Sloan Management Review*, 58(3), 14.
- Tay, G. & Aggarwal, A. (2018). Toolkit: A Metrics Framework to Guide Digital Workplace Program Success. Gartner. Retrieved from <https://www.gartner.com/document/3859671?ref=solrAll&refval=209435213&qid=a49a50cf6cc7048732072345531dc298>
- Troilo, G., De Luca, L. M., & Guenzi, P. (2017). Linking Data-Rich Environments with Service Innovation in Incumbent Firms: A Conceptual Framework and Research Propositions. *Journal of Product Innovation Management*, 34(5), 617-639.
- Van Ommeren, E. (2018). *How and Why of Creating an Innovation Lab – Critical Success Factors*. Paper presented at Gartner Symposium, Cape Town

- Viki, T., Toma, D., & Gons, E. 2017. *The Corporate Startup: How Established Companies Can Develop Successful Innovation Ecosystems*. Retrieved from:
<http://thecorporatestartupbook.com/assets/preview/The%20Corporate%20Startup%20-%20Look%20Inside.pdf>
- Weinelt, B. (2016). *Digital Transformation of Industries: In collaboration with Accenture Digital Enterprise, World Economic Forum White Paper*. Retrieved from:
<http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/digital-enterprise-narrative-final-january-2016.pdf>
- Xu, L. D., Xu, E. L., & Li, L. (2018). Industry 4.0: state of the art and future trends. *International Journal of Production Research*, 56(8), 2941-2962.
- Yin, R. K. (2011). *Qualitative research from start to finish*. New York: The Guilford Press.
- Yoo, Y., Boland Jr, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization science*, 23(5), 1398-1408.
- Yunis, M., Tarhini, A., & Kassar, A. (2017). The role of ICT and innovation in enhancing organizational performance: The catalysing effect of corporate entrepreneurship. *Journal of Business Research*.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Research Business Methods*. Boston: South-Western Cengage Learning.

Annexure 1: Interview Schedule

Interview Schedule

Part 1 – Background Questions to be used to get the respondent comfortable and to start a flow of questioning

Position Held:

Tenure in the role:

Professional Qualification:

Total Staff Compliment:

Part 2 – Interview Questions

1. Has your company engaged in digital innovation initiative within the past 5 years? Please provide me with more details on the initiative.
2. What drives a firm to engage in digital innovation management?

Probe: Do you believe that adequate and consistent management of digital innovation leads to competitiveness and sustainability?

3. Does your company have an innovation process/ model / framework? Please take me through the process.

Probe: Alignment with strategy

4. Which innovation metrics do you track?

Probe: Innovation Rate, Happiness Index (Clients & Employees), Net Promoter Score, Return on Investment, Time-to-Market Index, Digital Workplace Spend per Employee, Employee Training Index

5. How do clients experience the firm's digital products and services?

Probe: Are the products or services:

- a. Usable
- b. Appealing
- c. Engaging

What other characteristic is presented by your product or services?

6. How does your firm create and capture value in its digital products and services?

Probe: Articulate value proposition in terms of:

- a. Customer segmentation
- b. Bundling of products or services
- c. Negotiations with channel owners

How else do you create value to your customers?

7. How does your company identify opportunities for innovation that emerge in its digital environment?

Probe: Which key elements do you gather information on?

- a. Digital tools e.g. Big Data, Internet of Things, Artificial Intelligence, etc
- b. Devices
- c. Channels
- d. Customer Behaviour

Is there any other key element that you focus on?

8. Which capabilities are critical for successful management of digital innovation?

Probe: Which capabilities are crucial?

- a. Continuous learning
- b. Roles – balance between digital vs non-digital roles
- c. Teams – Ability to assemble cross-functional team
- d. Collaboration with external stakeholders

What other capabilities have you identified as critical?

9. How does your firm's organisational culture allow for improvisation?

Probe: Does management:

- a. provide improvisation space balancing structure and flexibility?
- b. allocate time for innovation?
- c. Coordinate innovation efforts to deal with overlaps and to manage waste?

What else does management do to allow for improvisation?

10. How do employees experience the organisation's digital internal processes and workplace?

Probe: Have you established the following for improved employee experience:

- a. systems
- b. social
- c. physical space

What else have you put in place to improve the digital workplace for positive employee experience?

11. How does leadership facilitate continuous improvement of employee experience within the organisation?

Probe: What measures has the organisation taken for continuous improvement of employee experience?

- a. Sustained leadership
- b. Systemic learning
- c. Symbols

How else does leadership facilitate improved employee experience?

Part 3: Wrapping up with further demographics

Gender:

Age:

Annexure 2: Ethical Clearance Approval

**Gordon
Institute
of Business
Science**
University
of Pretoria

07 June 2018

Ntene Puseletso

Dear Puseletso

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee

Annexure 3: Research Organisation Access Request Letter

**Gordon Institute
of Business Science**
University of Pretoria

8th August 2018

Company A
Industrial Area
Maseru

Dear Madam / Sir

Request for a Research Interview Session with Head of IT / Digital / Innovation

I am an MBA candidate at Gordons Institute of Business Science (GIBS), a business school subsidiary to University of Pretoria. I am currently conducting a research in the field of Digital Innovation, as part of this programme. The study endeavors to employ a qualitative approach to establish an ecosystem for management of digital innovation; hence, my target audience for the proposed semi-structure interview is Head of Information Technology / Digital / Innovation.

This letter, therefore aims to request for an interview with the target audience in your organisation. Their contribution in the form of sharing experiences and views in so far as digital innovation ecosystem is concerned, will be highly appreciated. This also provides an opportunity for your organisation to reflect on whether or not it is well organised for digital innovation and if it is benefitting from its innovation effort and investment. I would appreciate if the appointment could take place on the **20th August 2018 (09:00 – 11:00 am)**.

I have twelve questions to ask and the interview will tentatively take one hour and thirty minutes (1 and ½ hours). I have attached a copy of ethical clearance approval from GIBS, which gives permission for me to continue with data gathering. Additionally, I have attached a copy of interview themes to help the prospective interviewee prepare for the session in advance.

I appreciate your consideration of this request. Thank you so much for your time; I am looking forward to this session.

Warm Regards,



Puseletso Ntene



Ethical Clearance
Approval - Ntene Puse



Research Themes -
PNtene - Final.docx

Annexure 4: Informed Consent Form

Informed Consent Form:

I am conducting research on digital innovation management, and am trying to establish a holistic ecosystem (framework) for management of digital innovation. Our interview is expected to last for approximately an hour, and will help us understand how an established firm / organisation / institution can consistently manage their digital innovation for improved competitiveness and continued sustainability. **Your participation is voluntary, and you can withdraw at any time without penalty.** All data will be reported anonymously, with identifiers used in place of your name and that of your firm / organisation / institution. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher: Puseletso Ntene

Research Supervisor: Rob Levin

Email: p.ntene@lra.org.ls

Email: rob.levin2@gmail.com

Phone: +266 62 727 180

Phone: +27 82 413 6544

Signature of participant: _____

Date: _____ 2018

Signature of researcher: _____

Date: _____ 2018

Annexure 5: Coding Schema

Table 6: Coding Schema

Theme or Code Group	Sub-Theme or Code
Group-less	Barriers
	Benefits
	Budget
	Capacity
	Challenges
	Client Training
	Enabler
	Government
	Reason for engaging in Digital Innovation Management
	Regulation
Digital Evolution Scanning	Channels
	Commissions
	Cyber Security
	Devices
	Digital Tools
Digital Innovation Strategy	Digital Innovation Strategy
	Innovation Performance Metrics
Employee Connectedness	Employee Experience
	Knowledge Management
	Social
	Stability / Availability
	System
Improvisation	Agile Approach
	Coordination
	Culture
	Experimentation
	Incentives / Rewards
	Space
	Time
Responsive Leadership	Sustaining Leadership

	Symbols
	Systematic Learning
Skills / Capabilities	Learning
	Roles
	Service Providers / Suppliers
	Team Redeployment
	Teams
Customer Experience	Aesthetics
	Behaviours
	Client Feedback
	Client Requirements
	Engagement
	Speed / Performance
	Usability
Value Proposition	Bundling
	Commissions
	Convenience
	Segmentation