THE IMPORTANCE OF DIGITAL COMMUNICATION COMPETENCE IN THE COMPETITIVE ADVANTAGE CONTEXT OF THE UK PROFESSIONAL BUSINESS SECTOR

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Abbreviations

AI: Artificial Intelligence: *Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings* (Russell and Norvig, 2016)

CBI: Confederation for British Industry

CIPD: Chartered Institute for Personnel Development

C-Suite: 'C-suite gets its name from the titles of top senior staffers, which tend to start with the letter C, for "chief," as in chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO), and chief information officer' (Cambridge Online Dictionary, 2020).

DIGCOMP: European Digital Competence Framework for Citizens: Launched by EU Science Hub (EU Science Hub, 2017 citing Ferrari, 2013)

EC: European Community: The European Community was established in 1957 and included: Belgium, Germany, France, Italy, Luxembourg and the Netherlands. In 1993 the European Community combined with the European Union (EU). In 2018 there were 28 countries in the EU combining the founding 5 Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Demark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom (Lanzieri, 2011)

EU: European Union

GDP: Gross Democratic Product

GDPR: General Data Protection Regulations (2018)

HR: Human Resources

HRM: Human Resources Management

IT: Information Technology

JISC: An academic online survey tool

MSB: UK Medium Sized Business

n = denotes what the number equals

NHS: National Health Service

OECD: *Organisation for Economic Development: The Organisation for Economic Co-operation and Development (OECD) is an international organisation that works to build better policies for better lives*. (www.oecd.org)

R & D (Research and Development)

ROI: Return on Investment

SHRM: Strategic Human Resources

SME: Small, Medium Enterprise (a “definition of small and medium sized enterprises (SMEs) is any business with fewer than 250 employees” Ward and Rhodes (2020, p. 3).

UK: United Kingdom

UK for CE: *The UK forum for Computing Education: UKforCE is an independent committee, acting as a single voice for the computing community on 5-19 computing education issues. It brings together key stakeholders to share the vision of improving computing education across all education jurisdictions of the UK*. (www.ewc.wales)

UNESCO: *The United Nations Educational, Scientific and Cultural Organization: UNESCO is the United Nations Educational, Scientific and Cultural Organization.* (https://en.unesco.org/)

WEF: *World Economic Forum: The World Economic Forum is the International Organization for Public-Private Cooperation* (https://www.weforum.org/)

Abstract

Rapid technological advancement is impacting jobs and work resulting in digital skills being critical in the contemporary UK workforce (Riley et al., 2020). As such and by 2030, 20% of the labour market could be under skilled for their job requirements with the persistent issue of the digital skills gap continuing to impact the UK economy (Nania et al., 2019).

Employing Dynamic Capability Theory proposed by Teece, Pisano and Shuen (1997), the investigation centred on the UK Professional Business Sector to investigate the importance of digital communication competence in that competitive business context. A focus on digital skills sets in that sector is vital to keep ahead of technological advances, innovation alignment and to maintain competitive positioning (Riley et al. 2020). The sector is knowledge based and includes a range of sub sector organisations including: management consultancy, outsourcing, recruitment and office administration amongst others. Dynamic capability measures were employed linking change to restructure, products, services and geographical expansion with a profitability and innovation focus. Strategic learning and knowledge transfer measures linked directly to the digital communication competence focus which was analysed using the European Digital Competence Framework for Citizens (DIGCOMP) (Ferrari, 2013).

The UK based sample of Professional Business Sector largely reflect the dynamic capability measures employed although their organisational focus on learning and knowledge transfer could generally be improved to support their strong acknowledgment of the importance of employee digital communication competence. Nearly all consider the features and intermediate levels of this skill set to be important in their organisational context whilst advanced levels of the competence are key in some businesses and in some roles. These organisations reflect a digital transformation and digital mind-set focus.

Alignment of digital innovation with the business model spotlights learning and knowledge to underpin their value of digital skill sets. Employee development is key in ensuring understanding of online safety principles and improving the overall workforce digital skill level to create distinct dynamic advantage in the changing context of work.

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Chapter 1: Introduction

1 Introduction

1.1 An Overview of the Chapter

The chapter outlines the study rationale highlighting the research problem with the research aim, objectives and the research question then being defined. The contribution to knowledge is explained alongside presentation of an overview of the key literature themes which supports how the study contributes to theory. Contribution to methodology is explained using a research conceptual framework and the outcomes of the research and their contribution to knowledge is discussed. Finally, the chapter concludes by outlining how the whole thesis is organised.

1.2 The Research Context and Rationale for the Study

The rapid acceleration of digital innovation has forced changes to the nature of work and impacts the skills needed to do that work (Briken et al., 2017). Reflecting this, the Industrial Society (2019, p. 4) report that, "*by 2030, 7 million additional workers could be under skilled for their job requirements*." In response the Department of Digital, Culture, Media and Sport (DCMS) (2020) launched a UK Research and Development Roadmap highlighting the national need for higher digital skills in new technology roles as enablers of innovation and productivity. If this digital skill focus fails to be addressed this will continue to inhibit UK economic competition and could cost £141 Billion in GDP growth (Open Access Government, 2019). Additionally, higher level digital skills are crucial to respond to both the threat of automation of jobs and the increasing organisational use of Artificial Intelligence, Big Data and analytics (Moueddene et al., 2019).

This study spotlights the UK Professional Business Sector who utilise these new technologies and need digital skills in the emergent UK 'tech economy' (Riley et al., 2020, writing for the UK Government). They examine how the UK Professional Business Sector could extend national productivity outside London with the deficit in digital skills being seen to be a key barrier to this. This is crucial as digital skills are central to the innovation

and new technology focus which drives competitive contribution within the sector (Brooks et al., 2018). The research extends the study by Riley et al. (2020) by examining this issue and recruiting a national sample which serves to offer a UK perspective.

Competitive positioning aligned with a technological focus relate to Dynamic Capability Theory which has been employed within the study as the main strategic framework for analysis. The theory has emerged to align the market based view with the resource based view which many including Barney (1991) advocate. The construct has also been linked to the digital skills debate which can be extended through a dynamic capability focus (Khalil, and Belitski, 2020). The theory is also applicable as dynamic capabilities link to how organisations develop, adapt and modify their resource base in order to create competitive advantage during periods of volatile change (Teece, Pisano and Shuen, 1997 and others). The study investigates if they achieve this through their strategic focus on learning and knowledge transfer to create innovation capabilities (Bollinger and Smith, 2001; Goh, 1998 and Swart and Kinnie, 2003). These strategic features clearly link to employee skills contributions and explicitly to digital communication competence as a key feature of digital skills in the fourth industrial revolution era defined by Schwab (2018).

Thus, the study makes a unique contribution to theory by investigating how dynamic capability features are linked to the UK Professional Business Sector although this already appears to reflect aspects of the theoretical debate in their strategic focus for professional writers (Brooks et al., 2018 and Riley et al., 2020). The investigation builds on the resource based view and extends that to a dynamic capability focus where more research is needed (Bowman and Ambrosini, 2003). How far digital communication links to a strategic learning and knowledge transfer focus as a contemporary 'skills bundle' extends the resource based view (Barney, 1991) whilst the market based perspective reflects the current UK political and economic context. This offers wider contextual application of the strategic framework to add the necessary clarity required in dynamic capability debates (Pisano, 2017). Thus, to ensure a clearer dynamic capability perspective was achieved, the investigation also uniquely analysed how size of business

impacts competitive advantage. This was achieved by employing the innovation focused Business Process Maturity Model (the Object Management Group, 2008).

The current UK macroeconomic context links to the dynamic capability volatile change focus and reflects the complex Post Brexit economic environment discussed by Edgington (2020) and many other commentators. Despite this, it should be noted at the outset that with the huge impact of political Post Brexit discussions being ongoing and the COVID-19 pandemic impacting the UK economy during write up stages of the PhD process, the study was not focused on explicit examination of these change features and indeed, the latter emerged after the fieldwork had been conducted. Instead, both macro change elements justify the contention that the contemporary volatile change context of the UK applies to the dynamic capability construct.

The study makes a further original contribution to knowledge in that there has been no focus on the importance of digital communication competence as a key contemporary skill set in dynamic capabilities debates. Digital communication competence is a crucial and fundamental area of requisite contemporary digital skill set for many writers including van Laar et al (2019) and Kispeter (2018). The skills set is aligned with digital transformation debates (Kane et al., 2015) and supports organisational growth (the UK Government Communication Service, 2019). Digital communications also enable internal and external stakeholder alignment through revitalised social marketing (Fill, 2009 and Chaffrey and Smith, 2013) and create dynamic employee voice principles (CIPD, 2013). Online security, online safety, sharing content, collaboration, creating employee brand, building knowledge and supporting employee citizenship are key features of the skill set (Ferrari, 2013 and Carretero, Vuorikari and Punie, 2017). Reflecting these online safety features, it presents issues (ACAS, 2020) and also has legal implications CIPD (2018) although these can be addressed through policy and training input (CIPD, 2020).

With the rationale having indicated that the research problem centres on the changing nature of work impacting digital skills requirements to support competitive positioning,

this is linked to the defined research aim, objectives and the research question shown in what follows.

1.3 Research Aim, Objectives and Research Question

The aim of this study is to,

'Critically evaluate the importance of digital communication competencies in the competitive advantage context of the UK Professional Business Sector.'

The research objectives are statements of the researcher's intentions which build on the aim and explain the intended outcomes of the research. In terms of this study these have been remodelled and continuously revisited to ensure they supported ultimate achievement of the overall aim of the study. These are:

1. To critically evaluate the literature on contemporary digital skills to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy.
2. To collect primary data from respondents' in the Professional Business Sector to investigate the key literature themes relating to dynamic capabilities and digital communication competence.
3. To analyse the primary data to understand how Professional Business Sector organisations develop their competitive position in line with a focus on digital communication competence.
4. To draw conclusions and make recommendations on how the Professional Business Sector can utilise digital communication competence to support their competitive advantage.

Design and development of research questions is crucial to any study and in mixed methods research questions these are concerned with testing the unknown (Teddlie and Tashakkori, 2009). Although the research question is presented in this introductory

chapter, it initially emerged from a complete review of the literature and were continuously revisited throughout the whole process to ensure it was consistently aligned with the research aims. Indeed, whilst it can be written at the start, during or at the end of the research process (Creswell, 2014), it sometimes emerges after the data has been gathered (Bryman and Bell, 2015). With this iterative approach being taken, the following question emerged in part after the literature review was completed but was modified during data analysis. Additionally and because neither quantitative nor qualitative method took precedence, the research question applies to both strands of the research in line with Creswell (2008). As such, chapter four of the thesis depicts results addressing the following research question:

Research Question: How far is the UK Professional Business Sector dynamically capable and how important is digital communication competence in that context?

The third research objective focused on data analysis to understand how far Professional Business Sector organisations develop their competitive position in line with a focus on digital communication competence. Chapter five of in the report applies academic debate to the research question to 'mix' the results presented in chapter four and this serves to discuss the key findings which emerged. The researcher has achieved the fourth research objective by drawing conclusions and making recommendations on how the Professional Business Sector can utilise digital communication competence to support their competitive advantage and this is depicted in chapter six of the thesis. In addressing the research aim, objectives and questions the investigation centred on contributing to knowledge as shown in what follows.

1.4 Knowledge Gap Statement

The study centres on the requisite employee digital skills sets which apply to the changing nature of work in the contemporary digitalised era. The investigation shows how digital communication competence represents a key component of this contemporary skills set, underpinning organisational areas of work and contributing to organisational efficiencies and effectiveness. Ultimately, the study focuses on this feature of digital competence as

an important skill set feature in the competitive and innovative organisational context. In addressing this research problem, the research contributes to theory, methodology and to knowledge. For Connelly et al. (2011) this links to a conceptual, instrumental and symbolic contribution.

1.4.1 Contribution to Theory

In employing dynamic capabilities as a strategic framework for analysis, the research aimed to make a unique conceptual academic contribution by examining the importance of digital communication competence in that competitive business context. The literature review indicates that the link between dynamic capabilities and employee skills has been considered but there is no focus on digital communication competence as a key feature of that skill set for Ferrari (2013) and Kispeter (2018). This is an issue given that online safety and cybersecurity line to this area of competence and these are contemporary are organisational threats for the EU (2020). Moreover, section 1.3 indicated how this area of digital competence supports many other organisational outcomes,

In employing Dynamic Capability Theory as the main theoretical framework for analysis and applying that to the UK Professional Business Sector, a further original contribution to theory is made. The study extends understanding of how dynamic capabilities apply within different contexts by focusing on that sector. The study makes a further original contribution to theory by employing the Business Process Maturity Model (The Object Management Group, 2008) as a framework for analysis of how size of business impacts dynamic capabilities and aspects of digital communication competencies. This business process maturity model has not previously been academically applied to dynamic capability debates despite it being innovation focused.

The research shows how far the UK Professional Business Sector are reconciled with features of dynamic capabilities and how important digital communication features and levels are in contributing to their organisational strategic performance. Thus, in summary, the study aimed to contribute to theory by:

- ✓ Making an original contribution by employing dynamic capability as a framework for analysis to examine competitive approaches within the UK Professional Business Sector.
- ✓ Uniquely employing a business process maturity model to analyse how business size impacts dynamic capability measures employed within the study.
- ✓ Providing an original focus by investigating the importance of digital communication competence in the dynamic capability business context.
- ✓ Offering an original contextual analysis of how digital communication competence features and levels apply in the current UK Professional Business Sector context.

Core themes in the research centre on creating this contribution to knowledge and include:

- ✓ Dynamic Capabilities as the Strategic Framework for Analysis within the Study
- ✓ Understanding the Role of Digital Communication Competence in the Contemporary Workplace

These themes reflect how Dynamic Capability Theory, as the strategic framework for analysis employed within the study, is being employed to create a contemporary perspective of how competitive advantage is created. This links to the current contextual issue relating to the future of jobs and skills centred on the current and future need for digital skills. In terms of the study, the literature chapter ultimately focuses on the importance and role of digital communication competence in the competitive business setting. Core and sub related themes are linked to key author contributions and are shown in table 1.1 overleaf.

Table 1.1: Key Themes in the Literature	
The Research Aim: To 'critically evaluate the importance of digital communication competencies in the competitive advantage context of the UK Professional Business Sector.' Addressing Research Objective 1: To critically evaluate the literature on contemporary digital skills to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy.	
Sub Theme Heading	Key Contributory Author (s) and Debate Highlights
✓ Theme 1: Dynamic Capability Theory as the Framework for Data Collection and Analysis	
• The Broader Conceptual Debate Linking Competitive Advantage with Strategic Management and the Study Employee Skills Focus	Ultimately focusing on Barney (1991) (Resource Based View) and linking his work to Teece, Pisano and Shuen (1997) (Dynamic Capabilities).
• Defining & Understanding Dynamic Capabilities	Teece, Pisano and Shuen (1997), Eisenhardt & Martin (2000); Teece (2000); Zollo & Winter (2002); Winter (2003); and Helfat et al. (2007, 2009). Critiques from: Arend and Bromiley (2009); Barreto (2010) and Williamson (2000, 2003).
• Defining Dynamic Capability Frameworks for Analysis: The Dynamism, Capability & Skills Link	Teece, Pisano and Shuen (1997) (assets, processes and paths) and Teece (2007) (sensing, seizing & transforming/responding to threats).

• The Relationship between Volatile Change Periods and Dynamic Capabilities: The Employee Skills and Digital Skills Contribution	Teece, Pisano and Shuen (1997) and Easterby-Smith and Prieto (2007). Restructure and expansion as features of change debates: Ambrosini, Bowman and Collier (2008) amongst others.
• Extending Homogeneity, Heterogeneity and Equifinality in Dynamic Capability and Digital Skills Debate	Teece, Pisano and Shuen (1997); Gelhard, von Delft and Gudergan (2016) & Eisenhardt and Martin (2000).
• Organisational Size, Business Process Maturity: The Dynamic Capabilities & Skills Link	The Object Management Group (2008) (Business Process Maturity Model).
• Underpinning Profitability through a Dynamic Innovation, Product/Service and Market Expansion & Digital Skills Focus	Deeds, DeCarolis, and Coombs (1999); Helfat (1997); McLaughlin (2017); Lawson and Samson (2001) and Teece (2007)
• Linking Innovation Capability, Organisational Learning, Knowledge Transfer and the Skills Focus to Dynamic Capabilities	Easterby-Smith, Lyles and Peteraf (2009) Easterby-Smith and Lyles (2003), Prieto and Easterby-Smith (2006) (Learning & knowledge link); Du Pleiss (2007); Sopa et al. (2020); Saunila and Ukko (2014) and Saunila (2017) (the innovation & skills link).
• Enabling Dynamic Capabilities: The Role of Leaders, Managers and Teams	Augier and Teece (2009) and numerous others (leaders and managers); Eisenhardt, Furr and Bingham (2010) (teams).

• A Unique Contribution to Dynamic Capability Debates: The Employee Digital Communication Skills Focus	Khalil, and Belitski (2020) and Rashid and Ratten (2020) (digital skills must be focused on in dynamic capability debates)
✓ Theme 2: The Contextual Focus: Understanding the Role of Digital Communication Competence in the Contemporary Workplace	
• The Changing Work and Digital Skills Perspective	Schwab (2016, 17, 18) (Macro Context: Fourth Industrial Revolution); WEF (2020a, 2020b) (Rapid pace of digital change); OECD (2016) & Industrial Society (2019) (need for skills to boost economy); PwC (2020a); Deloitte (2020) and Riley et al. (2020) (a tech-led future of work); Kispeter (2018) & Nania et al. (2019) (digital skills to support the future of work).
• The Digital Skills Gap: Ever Widening or Closing up?	Ecorys (2016); Kispeter (2018); Nania et al. (2019) and many other Governmental, national bodies, professional and academic contributors (skills gap debate over the last 5) with GOV (2020); Open Access Government (2019) and Moueddene et al (2019) (the gap persists)
• The Digital Workplace in the UK Tech Based Economy	Deloitte (2018); PwC (2018) (aligning the workforce with the UK economy); Matt, Hess & Benlian (2015); Kane et al. (2015) (digital Transformation & strategy); Several authors (link dynamic capabilities with digital transformation).
• Supporting the Dynamically Capable Digital Workplace through Digital Communications	Various Governmental, academic and professional commentators (The macro perspective); Various (organisational benefits); ACAS (2020); CIPD (2018, 2014) and the EU (2019) (safety & legal implications) and the Department for Digital Culture, Media and Sport (2019) & others (cybersecurity).

Understanding Contemporary Definitions: From Digital Skills to Digital Competence • The Link Between Skills and Competencies • From Digital Skills to Digital Competence • Focusing on Digital Communication Competence	Robinson and Hirsch (2008); Lloyd and Payne (2008) (earlier definitions of skills and McLelland (1973) (emergence of competency debates); Ecorys (2016); Kispeter (2018) & Nania et al. (2019) (worked on behalf of the UK Government to review contemporary emerging definitions of digital skills). DIGCOMP's detailed Competency Framework (Ferrari, 2013); Carretero, Vuorikari and Punie, (2017) (updated the framework) and Van Laar et al. (2017).
A Unique Contribution to Theory & Knowledge: Spotlighting the UK Professional Business Sector: Explaining the Dynamic Capabilities & Digital Skills Link	Deloitte (2018), Ernst Young LLP (2017); Brooks et al. (2018); Riley et al. (2020).

Exploration of these themes supports the achievement of the research aim although this contribution to theory will be investigated through the methodological approach designed by the researcher and summarised below.

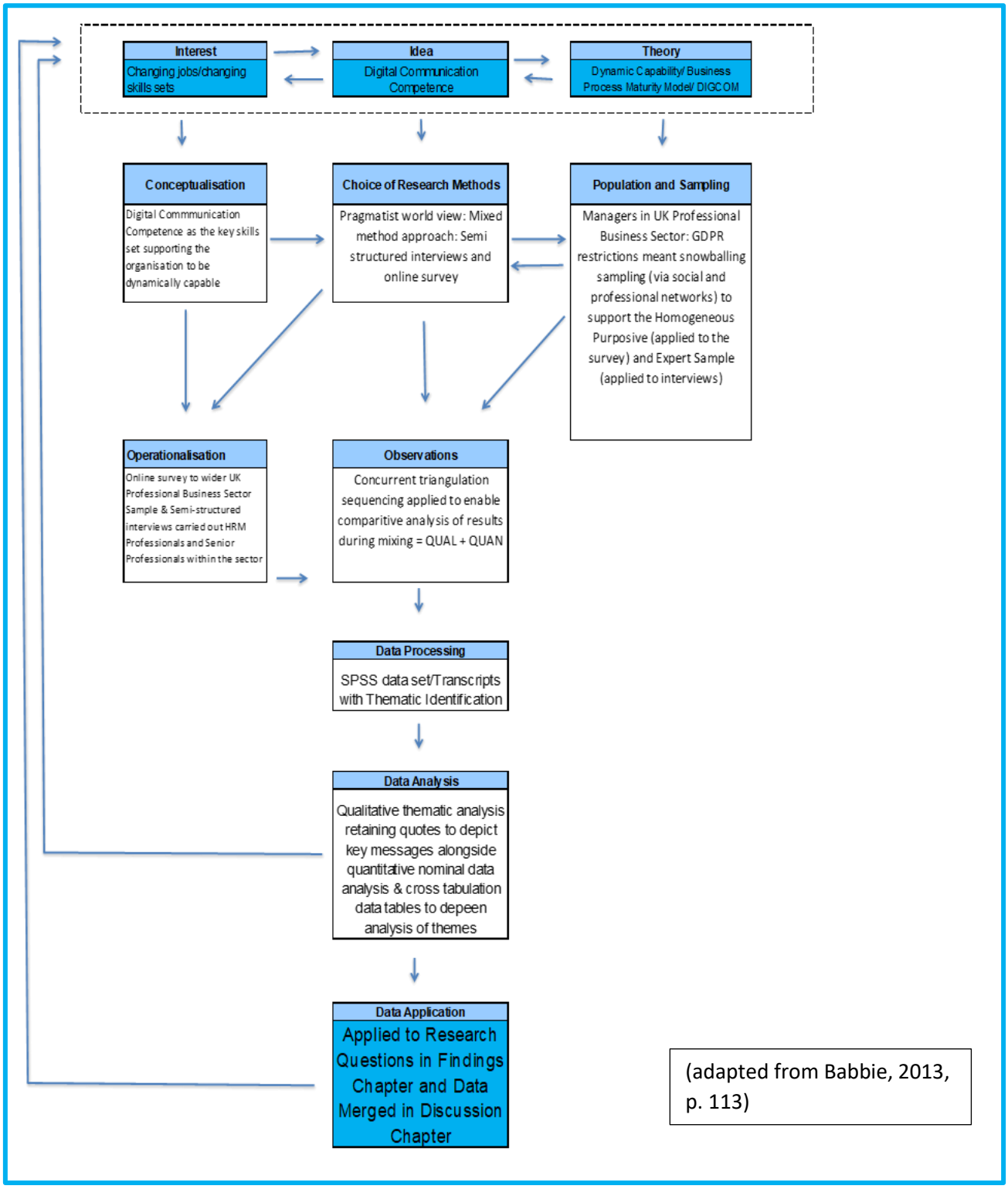
1.4.2 Contribution to Methodology

This study contributes to methodology by using an abductive, mixed method, cross sectional, concurrent triangulated research design to address a contemporary research problem in the UK Professional Business Sector. The study contributes to methodology in response to Erikkson (2013) who provides a critical review of methodological issues in dynamic capabilities research and concludes that:

- There is poor reporting in mixed methods studies with too much emphasis placed on primary data gathering and insufficient attention paid to gathering secondary literature to support depth of understanding. A complete review of literature supported the research question to be defined more clearly, investigation themes to be defined and full analysis of data being aligned with these themes in Chapters Five and Six.
- There is a need for mixed methods in dynamic capabilities research 'to advance theory developments.' Some studies have focused on employing 'multi methods' and thus not gained the value of combining quantitative and qualitative data. Within this study, integration of data is presented within the discussion and concluding chapters.
- Triangulation will add to dynamic capabilities research. As depicted below, the mixed methods approach within the investigation reflected a triangulated concurrent sequencing design. Wider triangulation features are also discussed in section 3.4.1.
- Whilst cross sectional studies of this kind limit how change over time can be measured, they can add to the debate examining factors which influence dynamic capabilities. Within this study, the unique dynamic capability context centres on a knowledge based, innovation focused business UK sub sector operating in the fourth industrial revolution and digitalised era.

In response, a rigorous mixed methods design was employed and which is summarised below. This contribution will be made by employing a research conceptual framework which is based on Babbie (2013, p. 113) and this is illustrated within Fig. 1.1 below.

Fig. 1.1: Research Conceptual Framework



Babbie offers a schematic framework which has been applied to the design of the study. As such, the researcher firstly took their idea and interest in a research problem (the need for digital skills to support the changing nature of jobs in the UK and how that might relate to theory) and then the researcher applied that to the theory they felt it was related to (Dynamic Capability Theory Teece, Pisano and Sheun (1997) and Teece (1997), the Business Process Maturity Model (the Object Management Group (2008) and Ferrari (2013) as the digital communication competence focus). This was then operationalised through the research methods which included a quantitative online survey and qualitative semi - structured interviews as section 3.5 explains. The researcher focused on the chosen way for them to carry out the research which involved a concurrent triangulation sequencing research design as section 3.4.2 discussed and this led to data processing detailing how the data was managed to prepare it for analysis. This involved quantitative data entered into SPSS with qualitative transcripts created to identify codes. Data analysis was linked with data application within an integrated crossover thematic design being employed as shown in section 3.8. Findings are aligned with the research question in the results chapter with data application emerging from the analysis and discussion focus in the final chapters. In line with advice offered by Creswell (2014), 'design mixing' (or fusing) took place during the discussion phase of the reporting (Chapter Five) and linked to the ultimate findings being presented in the final chapter which fed directly back into the initial interest of the researcher and achieved the ultimate aims of the research.

Through the adoption of the summarised features shown above, a contribution to methodology has been made which has served to enhance knowledge through a rigorously designed study. This adds to a conceptual and symbolic contribution for Connelly et al. (2011) with other studies potentially replicating aspects of the methodology strategy and student learning being supported by the academic lecturer's mixed method experience. The innovative purposive sampling practice which was linked to effective and efficient use of social media can serve to enhance students interest in research methodology. This knowledge contribution represents a successful outcome of the data application summarised the model above.

1.4.3 Contribution to Knowledge

The contribution to knowledge also provided a symbolic contribution as Connelly et al. (2011) explain, in that it applies to academia, to the sector the study focuses on and to specific professionals who have participated in the study and relates to the contribution to theory detailed above. This will be highlighted through subsequent publications the researcher is successful in producing with the support of their PhD supervisor, their work based professorial academic mentor and interviewees who want to write with her. Alongside this, conference presentation and paper publications are planned in the final year of the study.

Building on this, the UK Professional Business Sector has been associated with the themes in the study and thus the researcher planned to contribute to the sector knowledge by promoting the professional publication of findings. A three-part HR Zone content series has been planned and the researcher is contributing to organisational development debates as part of an expert group advising the CIPD. At participant level, contribution to knowledge aimed to include interview and survey respondents who might indicate their interest in the research findings. In supporting the organisations who have made a significant contribution to the research, the researcher offers breakfast seminars and distributes white paper summaries to organisations interested in the outcomes. A management consultancy start-up business is keen to work with the researcher to promote the research findings and link them to their service offerings whilst one of the interviewees has asked to write a business white paper with her.

The study contributes to theory and methodology in a focused academic way although contribution to knowledge is more practically and professionally orientated. This contribution emerges from the pursuit of this research endeavour and to understand how this has been achieved the structure of the whole report requires explanation as follows.

1.5 Structure of Report

The introduction has offered an understanding of the research context and rationale for the study which, alongside further deeper scrutiny of the literature, enabled the research

aim, objectives and research question to be defined. This also empowered the researcher to gain understanding of emerging gaps in knowledge which allowed them to explain how the study contributes to theory, methodology and knowledge.

The literature chapter provides an in-depth analysis of the two literature themes: Dynamic Capability Theory as the main framework for analysis within the study and the workplace need for digital communication competence and the focus on the skills set as the contextual focus. Ultimately and in relation to this second theme, digital communication competence is defined as the key skill set focus, with the features and levels of that skills set being debated.

The literature analysis enabled the researcher to devise and employ appropriate methods to investigate key themes derived from that discussion. The methodology chapter depicts how this approach reflected the mixed method world view and methodological stance of the researcher. The chapter also shows how, in adopting a concurrent triangulated sequencing design, the online survey was distributed and semi structured interviews were undertaken with managers working within the UK Professional Business Sector. This enabled data to be gathered which was descriptively and thematically analysed to generate the comprehensive findings detailed in the following chapter.

The discussion chapter indicates analysis of the findings addressing the research question and provides a fundamental insight into how far the UK Professional Business Sector exhibit dynamic capability features reflecting both heterogeneous and equifinality based approaches depending on how this applies to the size of their business. Ultimately, the chapter analyses the importance of digital communication levels and features to their organisations.

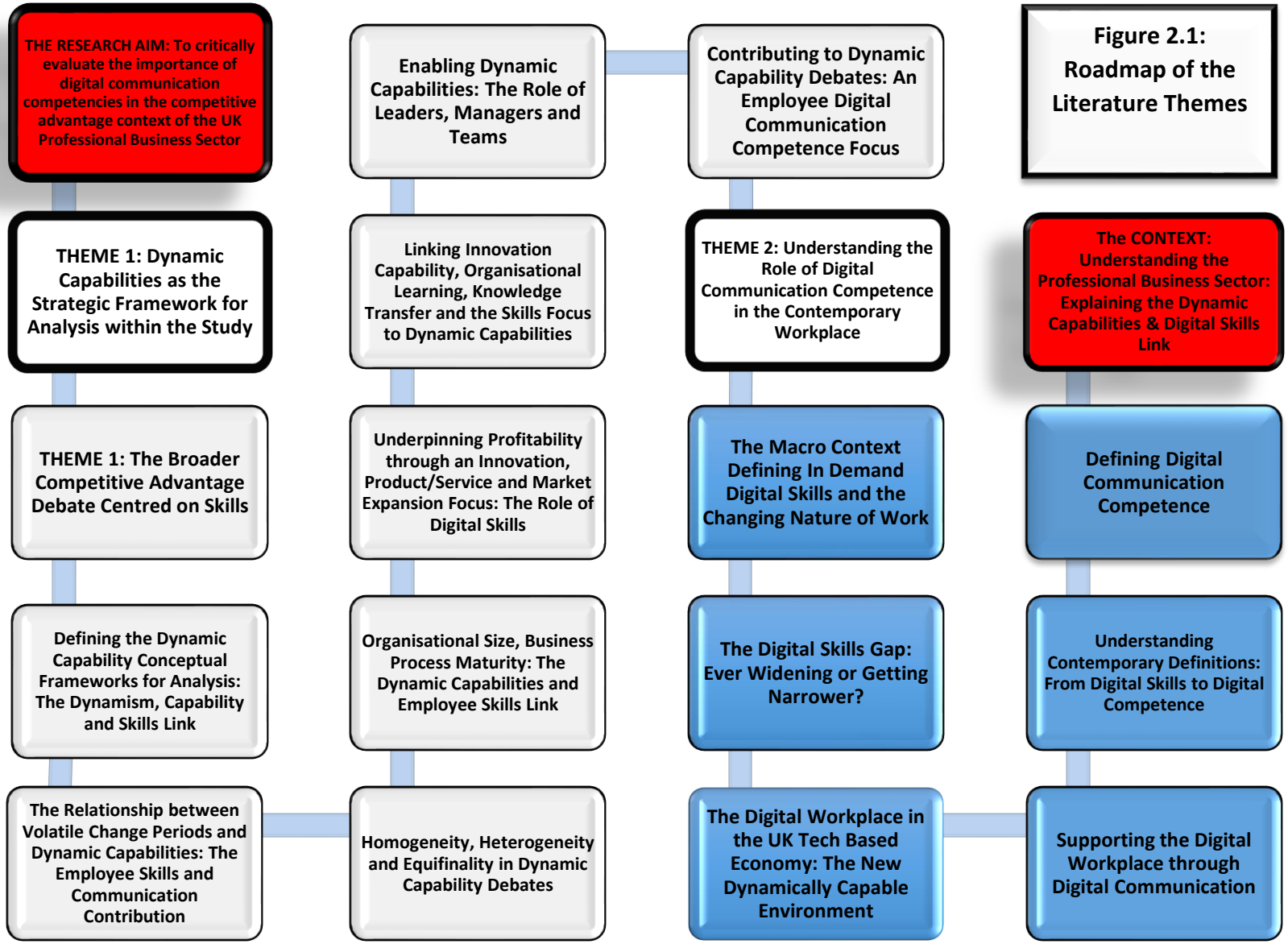
The concluding chapter indicates how the study has achieved its' aims through an in depth review of the literature and a primary research endeavour. In achieving this, the chapter shows how the investigation has contributed to theory, methodology and knowledge. The literature and primary data analysis qualify recommendations to be made advocating a strategic business model adaptation reflecting a digital transformation focus on learning and knowledge transfer which centres on developing and extending the digital skills of the workforce.

Chapter 2: Literature Chapter

2 Literature Review

2.1 Introduction

The literature review addresses the first research objective which is '***to critically evaluate the literature on contemporary digital skills to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy***.' Contributions are drawn from academic, governmental and professional sources as the contextual debate presented is current in national and international focus. Supporting how the chapter addresses this research objective, figure 2.1 below offers a thematic roadmap highlighting the key headings within the literature review and indicates how they link together given that within these thematic elements the employee skills focus will be highlighted. In the dynamic capability thematic debate, the link with digital skills and the digital business context becomes clear and conversely, within the contextual thematic digital skills debate, the link with dynamic capabilities is reinforced. Thus, it appears there is clear linkage between the two themes and the researcher's focus. As depicted later in table 2.9 and figure 2.6 in the summary of this chapter, these themes form the theoretical framework which emerged from the debate within the chapter.


THE RESEARCH AIM: To critically evaluate the importance of digital communication competencies in the competitive advantage context of the UK Professional Business Sector
THEME 1: Dynamic Capabilities as the Strategic Framework for Analysis within the Study
THEME 1: The Broader Competitive Advantage Debate Centred on Skills
Defining the Dynamic Capability Conceptual Frameworks for Analysis: The Dynamism, Capability and Skills Link
The Relationship between Volatile Change Periods and Dynamic Capabilities: The Employee Skills and Communication Contribution
Enabling Dynamic Capabilities: The Role of Leaders, Managers and Teams
Linking Innovation Capability, Organisational Learning, Knowledge Transfer and the Skills Focus to Dynamic Capabilities
Underpinning Profitability through an Innovation, Product/Service and Market Expansion Focus: The Role of Digital Skills
Organisational Size, Business Process Maturity: The Dynamic Capabilities and Employee Skills Link
Homogeneity, Heterogeneity and Equifinality in Dynamic Capability Debates
Contributing to Dynamic Capability Debates: An Employee Digital Communication Competence Focus
THEME 2: Understanding the Role of Digital Communication Competence in the Contemporary Workplace
The Macro Context Defining In Demand Digital Skills and the Changing Nature of Work
The Digital Skills Gap: Ever Widening or Getting Narrower?
The Digital Workplace in the UK Tech Based Economy: The New Dynamically Capable Environment
Figure 2.1: Roadmap of the Literature Themes
The CONTEXT: Understanding the Professional Business Sector: Explaining the Dynamic Capabilities & Digital Skills Link
Defining Digital Communication Competence
Understanding Contemporary Definitions: From Digital Skills to Digital Competence
Supporting the Digital Workplace through Digital Communication

To understand the focus on Dynamic Capability Theory as the framework for investigation and analysis employed within the study, a broader strategic debate is initially presented indicating how this has been significantly linked to the employee skills contribution.

2.2 The Broader Conceptual Debate Linking Competitive Advantage with Strategic Management and the Study Employee Skills Focus

The research aim centres on the need for digital competence to support business success which is widely discussed (WEF, 2019b, Adamik, 2019 and McKinsey, 2021a, 2021b) although debate connecting employee skills with competitive advantage has featured for over thirty years (for example, Noe et al., 2017; David and David, 2016; Byrd, Lewis and Turner, 2004; Porter and Kramer, 2002; Byrd and Turner, 2001; Barney and Wright, 1997; Wright, 1994 and Aaker, 1989). The study focus on competitive advantage is also very prominent in earlier academic discourse and in emergent strategic management debates offered by Porter (1996) and more recently Barney and Hesterly (2009) and Adegbesan (2009). This discussion originated in economic and military literature (Whittington, 1993 and Adegbesan, 2009) and for Porter (2011), is linked to strategic management which can be defined as,

> "*the set of decisions and actions resulting in formulation and implementation of strategies designed to achieve the objectives of an organization.*"
>
> (Pearce and Robinson, 1988, p. 6 cited by Wang, 2014, p. 32).

Strategic management discussion also emerged from sociological and psychological origins (Ramos-Rodríguez and Ruíz-Navarro, 2004, p. 989) and linked to how, "*transaction cost and agency theory, evolutionary economics and the resource-based view*" apply to organisations with "*contingency and resource-dependence theory, and organisational ecology*" also emerging from sociological origins (Wang, 2014, p. 33). Many writers including Mirabeau and Maguire (2014), Jarzabkowski (2008) and Anderson and Neilson (2009), contend that Mintzberg (1978) made a significant contribution to the debate by aligning strategic management with organisational behaviour theories reflecting planned or emergent approaches to defining strategy. Cockburn, Henderson and Stern (2000, p. 5) argue that writers including. "*Andrews, 1971; Selznick, 1957; Chandler, 1962*" made even earlier contributions. They explain how Chandler (1962) devised the 'M Corporation'

concept which defined superior competitive advantage although they concur with Wang (2014) who explains how Porter (1985) extended this by linking differentiation to the strategic management debate and connecting that to competitive advantage. For Cockburn, Henderson and Stern (2000, p. 5) this turned Chandler's view, "*on its head*."

Debate extends to the market based view of strategic management which emerged in the mid twentieth century and relates organisational performance to external forces and industry features as numerous authors contend (for example: Makhija, 2003; Hunt, 2000 and Rivard, Raymond and Verreault, 2005). Indeed, Porter (1980) built his five forces model on Bain's (1968) Structure - Conduct - Performance (SCP) model to indicate how competitive advantage is gained through differentiation in strategic positioning (Olusga, Mokwa and Noble, 1995). Despite this, a limitation to the five forces model indicate it centres on a perfect and static market which is doubtful in contemporary dynamic business environments (Wang, 2014, p. 35). Additionally, industries are complicated with multiple inter-relationships which makes it challenging to apply the five-force model (Narayanan and Fahey, 2005) and for Rumelt (1991) profitability relates to the firm and not to the industry. Concurring with Furrer et al. (2008) and reflecting these critiques, Brahma and Chakraborty (2011) contend that since the 1980 some strategic debates have moved from industry focus and instead have concentrated on organisational internal 'resources and capabilities.'

Hokinsson et al. (1999), amongst many others (for example, Campbell and Park, 2017, Wang, 2014, Stonehouse and Snowden, 2007 and Barney and Arikan, 2001), explain that the resource based perspective is another internationally recognised dominant theoretical approach. Makhija (2003, p. 435) and others explain how that construct centres on examining how internal resources contribute to competitive advantage whilst market based perspectives offered by writers including "*Porter (1977, 1978); Porter (1979); Gilbert (1989) and Tallman (1991)*" examine external market positioning. Whilst Resource Based View debates emerged through preliminary contributions from writers including Ansoff (1965) and Chandler (1962), Rivard, Raymond and Verreault (2005) and others contend that Penrose (1959) initiated debate about how internal processes governed competitive advantage rather than external industrial forces.

Initially, the resource based view would appear to be applicable to the focus of the investigation given that it focused on organisational competencies for Prahalad and Hamel (1990) and many other authors including: Helfat and Peteraf (2003), Barney (2001a), Hooley, Broderick and Möller (1998) and more recently, Kraaijenbrink, Spendera and Groen (2010). With employees being viewed as a key organisational resource supporting organisational competence for Schuler and Jackson (1987) and Porter (1980) this reflects how the debate gained wider support in the 1980s (Hendry and Pettigrew, 1990 cited by Mayo, 2016, Coff, 1997 and Fitz-Enz, 1997). This focus on workers as assets was in sharp contrast to the idea that people should be a cost to be minimised by the organisation (Barney, Wright and Ketchen, 2009 and Becker et al., 1998). As such, intellectual capital debates extended to organisational processes aimed at attracting, developing and retaining employees (Youndt and Snell, 2004 and more recently, McCracken et al. 2017).

McCracken et al. (2017) concur with Tamkin (2004) and build on the employee contribution emphasising the importance of intellectual capital, knowledge work and workers, and high-performance work systems (HPWS). Indeed, employees have been recognised as intangible knowledge based assets (Sveilby, 1997) although conversely, Crain (2009) argues that only certain employees could be considered strategic resource assets. Despite this, and as shown in table 2.1 overleaf, academic perspectives and the employee-based skills focus of the study relate to the idea that employees are a strategic resource.

Table 2.1: Defining Organisational Resources

Definition	Authors
Resources included monetary, physical and human assets	Ansoff (1965)
Organisational resources include skills and knowledge and technological ability	Hofer & Schendel (1978)
A classification of physical, human and technological resources	Amit and Shoemaker (1993)
Classified resources into two categories: property-based and knowledge-based.	Miller and Shamsie (1996)
Added to that and alongside the '*general resources of a firm, there are additional resources, such as physical capital resources, human capital resource and organisational capital resources*.'	Barney (1991)

Source: Wang (2014, p. 35)

The table above reflects how internal resources include physical, human and organisational capital features with Mahoney and Pandian (1992) and Ordonez de Pablos (2005), adding that knowledge and skills are key enablers in the creation of competitive advantage. This is reflected in other recent studies which align their focus with this debate (Chinomona, 2013 and Bhattacharya, Gibson, and Doty, 2005). For Wright, Dunford and Snell (2001) and McCracken at al. (2017) this reflects human capital debates based on the organisational 'stock' of employee skills and in terms of more contemporary debates, the Resource Based View has featured in digital skills debates and their contribution successful digital strategy (Khin and Ho, 2019 and Schallmo, Williams and Lohse, 2019). These authors link strategic success to employee skills, collaboration tools and internal/external analysis which create a resource 'bundle'.

These 'bundles' include unique explicit and implicit resources for Akhtar et al (2019), Tate and Bals (2018) and earlier proponents of Resource Based View (including, Barney, 1991, Peteraf, 1993 and Reed and DeFillippi, 1990). Amit and Schoemaker (1993) argue that resources include, "*all assets, capabilities, organisational resources, firm attributes,*

information and knowledge" which the organisation manages to enable them to, "*conceive and implement strategies that improve efficiency and effectiveness"* (Barney (1991, p. 99). Resources must be 'valuable, rare, imperfectly imitable and non-substitutable' to create sustainable competitive advantage (Barney, 1991, Easterby-Smith and Prieto, 2007 and Talaja, 2012). For Bartlett and Ghoshal (2002) concurring with Halawi, Aronson and McCarthy (2005), employee skills are a resource which contributes to the knowledge base creating a core and distinctive asset. Wang (2014, p. 36) explains how these contribute to "*core competencies, distinctive competencies and strategic assets which offer a competitive edge*."

Distinctive competencies are a unique combination of resources (Papp & Luftman 1995) and for Bolívar-Ramos, García-Morales and García-Sánchez (2012), technological skills are a feature of strategic assets which form part of the resource bundle (Amit & Shoemaker 1993 cited by Wang, 2014, p. 35). Core competencies are distinctive, rare, valuable firm-level resources which competitors are unable to imitate, substitute or reproduce (Barney 1991 and Prahalad & Hamel, 1994) although for Kraaijenbrink, Spender and Groen (2010) defining these bundles is 'unworkable' given it is unclear how these enable long term competitive advantage. The notion of imitability is also questioned by Roumpi, Magrizos, and Nicolopoulou (2019) who propose that homogeneous framework supports business success in social enterprises. Additionally, a lack of focus on external market issues adds to uncertainty in managerial decision making for Amit and Schoemaker (1993).

Delery and Roumpi (2017) contend that a resource based perspective only contributes to competitive advantage when complemented by an external focus on supply and demand. Thus, applying dynamic capabilities to the study offers a dual market and resource based focus as Collis and Anand (2018) support. They concur with Peteraf and Bergen (2003) and many others (including Srivastava, Fahey and Christensen, 2001; Makhija, 2003 and Peters, Siller and Matzler, 2011) and argue this dual focus offers a deeper understanding of how competitive advantage is achieved. Further reinforcement of applicability of the dynamic capability concept to the study is clear in the macroeconomic change and market based view perspective of the dynamic capability debate for Ambrosini and Altintas (2019).

This applies to the unsettled macro political and economic business context of the UK, where achieving competitive advantage is challenging (PwC, 2020). Therefore, employing dynamic capabilities extends the resource based approach by examining which bundles of practices support this in a volatile, changing environment as Ambrosini and Bowman (2009) support. Furthermore, the Resource Based View does not clearly explain how competitive advantage is created and maintained through change (Teece, Pisano and Shuen, 1997 and Priem and Butler, 2001). Indeed, Peteraf and Barney (2003) contend that the Resource Based View was only devised to help understand why organisations within the same industry differ in performance as heterogeneity was seen to be key to competitive advantage (Prahalad and Hamel, 1990). Responding, Teece, Pisano and Shuen (1997) argue that the Resource Based View recognises sources of dissimilarity but does not fully explain them and thus, it fails to define the form of explicit processes which enable sustainable competitive advantage. Indeed, bundles of practice are hard to define and are something of a confusing 'black box' (Sirmon, Hitt and Ireland, 2007).

Aligned with the resource based perspective, the study serves to address this confusion by examining how features of dynamic capability debates and digital communication competencies contribute to a bundle which support competitive advantage in the UK Professional Business Sector. Additionally, Barney (2001a, 2001b) confirms that it is vital to explore what bundles support sustainable competitive advantage using a dynamic lens as Bowman and Ambrosini (2003) explain. They cite Helfat (2000) who at the turn of the century argued the dynamic capability view required further investigation and conclude that (p. 290),

> "*an attempt to integrate arguments from the dynamic capabilities literature with the established resource-based view might be valuable in advancing both approaches.*"

Justifying the theoretical focus further, Priem and Butler (2001) contend that the Resource Based View fails to define how managers contribute to the organisational success. Thus, it is important to extend that debate using a dynamic capabilities lens given that the role of managers is variously discussed as section 2.3.7 depicts. Indeed, Barney

(2001b, p. 49) argues that the resource based perspective has significant managerial implications and proposes that their role centres on 'nurturing and protecting' resources. How far they are achieving this with a focus on employee digital skills is centric to the aim of this study as many authors contend they should support employee skills development (for example, Wright, Dunford and Snell, 2001; Saa-Perez and Garcia Falcon, 2001 and Orr, Bush and Vohries, 2011 amongst others). In the current context, that must be linked to technology advancement (Bharadwaj, 2000 and Eltantawy, 2005) and for Debortoli, Müller and vom Brocke (2014) and Akhtar et al. (2019), big data digital skills.

Hence, whilst the first part of this chapter indicates how a plethora of studies have attempted to determine how dynamic capability is created, Pisano (2017) maintains that dynamic capabilities require further investigation. In the current dynamic market environment, contemporary market forces mean that companies are forced to reinvent themselves through their focus on digital systems which offer opportunity to drive competition (Gotz et al., 2020). For them, enabling knowledge creation and innovation capability is key with the market forces of digitalization and technological change meaning employee digital competence is now key as Kispeter (2018) argues. In investigating the importance of digital communication competence in the competitive business environment, this supports understanding of which contemporary, higher level skills contribute to organisational dynamism responding to Teece and Lazonick (2002). Ultimately, the research serves to support Easterby-Smith, Lyles and Peteraf (2009) who explain that the breadth of the topic offers opportunities to contribute to research on dynamic capabilities.

2.3 Defining and Understanding Dynamic Capabilities

The first part of the chapter offers further evidence reinforcing why the study employs dynamic capabilities as a framework for analysis of competitive advantage and it will reinforce the link between employee skills and the theoretical construct. Affirming the focus on dynamic capabilities, Khalil, and Belitski (2020, p. 23) employ the construct in information technology governance and conclude that, "*dynamic capabilities are becoming increasingly digital.*" They add that "*investment in digital skills is key for productivity and sales growth*" in successful businesses. Additionally, the preceding

section indicated how dynamic capabilities have strong links to the Resource Based View (Barney, 1991) and this makes the theory worthy of focus given that that is already a reputable research construct for Easterby-Smith, Lyles and Peteraf (2009). They contend that dynamic capability debates link to the Resource Based View in that it focusses on competencies and organisational performance and it is of established 'importance in the field of strategic management.'

Reinforcing this, Dynamic Capability Theory reflects earlier theoretical debates (Pavlou and El Sawy, 2011) as from a macro perspective it is linked to evolutionary economics (Nelson and Winter, 1982). That concept also links to dynamism, innovation, change and how they support organisational approaches to creating growth (Hodgson, 2012). The linkage with contingency theory is also evident as that posits organisations have unique skills which can be acquired, re-learned and adapted to create competitive advantage (Argyris and Schön, 1978). Responding, Kay, Leih and Teece (2018) confirm that the theory is indeed drawn from pre-existing constructs including the Resource Based View; Porter's Five Forces; contingency theory and evolutionary economics. Despite this, Helfat and Peteraf (2009) caution that the very premise of dynamic capabilities which centres on how competitive advantage can be sustained through change is 'ambitious.'

In order to extend understanding of this 'ambitious' academic construct, it is important initially to review the definitions presented in table 2.2 overleaf. Whilst not representing an exhaustive list, they indicate how proponents of dynamic capabilities have served to illustrate their understanding of the theory. This is widely debated by both proponents of the construct and by critics including: Arend and Bromiley (2009); Williamson (1990); Burisch and Wohlgemuth (2016), Barreto (2010) and others.

Table 2.2 Definitions of Dynamic Capability

Authors	Definitions
Teece & Pisano (1994)	The subset of the competences and capabilities that allow the firm to create new products and processes and respond to changing market circumstances.
Teece, Pisano, & Shuen (1997)	The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.
Eisenhardt & Martin (2000)	The firm's processes that use resources—specifically the processes to integrate, reconfigure, gain, and release resources - to match and even create market change; dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die.
Teece (2000)	The ability to sense and then seize opportunities quickly and proficiently.
Zollo & Winter (2002)	A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness.
Winter (2003)	Those (capabilities) that operate to extend, modify, or create ordinary capabilities.
Zahra, Sapienza, & Davidsson (2006)	The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision maker(s).
Helfat et al. (2007)	The capacity of an organization to purposefully create, extend, or modify its resource base.
Teece (2007)	Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets.

Sources: Teece & Pisano (1994); Teece, Pisano, & Shuen (1997); Eisenhardt & Martin (2000); Teece (2000) and others

Whilst it might be concluded from these definitions that the resource base of an organisation (which includes processes and systems) become dynamic when they are tried and tested out to successfully create business opportunities during periods of change, Burisch and Wohlgemuth (2016) argue definitions need to be explained more clearly. For them, those offered by Teece, Pisano and Shuen (1997) are reflected in later offerings by Wang and Ahmed (2007) and Griffith and Harvey (2001) and all indicate a clear outcome. Conversely, they suggest the definition offered by Eisenhardt & Martin (2000) "*slightly relaxes the assumptions of competitive advantage* "(p. 110). Concurring, Helfat and Peteraf (2009) argue the understanding of dynamic capabilities appears to be emergent with Helfat et al. (2007, p. 4) arguing that dynamic capability is,

> *"the capacity of an organization to purposefully create, extend, and modify its resource base'. The 'resource base' includes the 'tangible, intangible, and human assets (or resources) as well as capabilities which the organization owns, controls, or has access to on a preferential basis."*

The investigation adopts the definition above as measures drawn from the dynamic capability debate within this investigation represent both tangible assets and capabilities, whilst the focus on employee skills as human assets enable capabilities reflecting Helfat et al. (2007). Whilst Arend and Bromiley (2009) argue that this definition is a departure from earlier understanding, Helfat and Peteraf (2009) contend their understanding builds on original definitions provided by Teece, Pisano and Shuen (1997) and encapsulates understanding provided later by Eisenhardt and Martin (2000) and Zollo and Winter (2002). Helfat and Peteraf (2009) also cite Di Stefano et al. (2009), arguing their understanding is the result of these emerging views and emphasise the focus on human assets whilst Eisenhardt and Martin (2000) bring forward the contribution of employee skills reflecting the study focus.

Despite this, understanding of the theory is confused by variously defined terminology for Barreto (2010) including:

- Eisenhardt and Martin (2000), who consider dynamic capabilities to be explicit and clear processes although as shown later, Teece, Pisano and Shuen (1997) define these as 'assets.'

- Helfat et al. (2007) and Winter (2003), who define these as abilities with repetition of ability being reflected in the definition from Helfat et al. (2007). This relates to the original idea that they are tried, tested out and modified processes and systems (Teece, Pisano and Shuen (1997).
- Zollo and Winter (2002), who define them as consistent, reinforced organisational activities.

Responding, critics including Williamson (1996) argue there is no clear definition of what dynamic capabilities mean, that they are often unrecognisable and that they lack visibility. Contrastingly, Easterby-Smith, Lyles and Peteraf (2009) argue that progress has been made through different academic interpretations of definitions of the theory which are interrelated to the 'effects and consequences' although they accept that the initial conceptual framework supporting the theory and indicated below is '*hazy*' (p. 3).

2.3.1 Defining Dynamic Capability Conceptual Frameworks for Analysis: The Dynamism, Capability and Skills Link

Whilst there is some lack of consensus in defining what dynamic capabilities are and how they are achieved, Teece and Pisano (1994) and Teece, Pisano and Shuen (1997) initially sought to clarify the concept by offering a framework to support the understanding of how modification and adaptation links to the theory. Winter (1995, p. 149) contributed to the debate and added that that this allows for "*pragmatic adjustment as new problems are addressed*. "For Teece, Pisano and Shuen (1997), there are three features which include:

1. Asset positions: These relate to the degree to which organisational capability can be improved to support further business growth with existing resources being the started point. Resources are included in bundles of practices which include employee skills (Wright, Dunford and Snell, 2001). Burisch and Wohlgemuth (2016) explain how Winter (2003), as a proponent of dynamic capabilities, defines these existing resources or assets as 'ordinary capabilities' or 'zero level abilities' which are 'acquired or bought' and include the operational elements within the organisation's administration and functions (Winter, 2003). Assets have also been defined as activities (Zollo and Winter, 2002) and processes (Eisenhardt and Martin, 2000)

although Winter (2003) emphasises how these are static in nature and not dynamic in themselves. They support a company to sell a certain product/service although these can be developed into what Teece, Pisano and Shuen (1997) define as 'processes' for them to become dynamic in capability. Governance also serves as an 'asset' platform from which dynamic capability can be enabled through entrepreneurial leadership determining bundles of processes (for example, Teece, Pisano and Shuen, 1997; Helfat et al., 2009 and Teece and Pisano, 1994 and Teece, 2014a) although for Saa-Perez and Garcia-Falcon (2002) employee contribution is key.

2. Processes: When Teece and his colleagues use the term 'processes' they consider how investment and managerial focus can support these asset positions to be reconfigured although this is constrained by pre-established organisational systems and processes and influenced by management and governance and/or leadership control for Barreto (2010). Nieves and Haller (2014) argue it is essential leaders focus on employee skills which support these systems and processes and contribute to the knowledge base of the organisation. In having this skills focus the organisation harnesses knowledge to create innovation, with learning also being key in determining how this reconfiguration of resources can be achieved (Winter, 2003). The ability to address these modify and adapt systems and processes (or assets as defined above) creates capacity for 'dynamic capabilities' (Teece and Pisano, 144). For Zahara, Sapienza and Davidsson (2006) these are called 'substantive capabilities' whilst for Helfat et al. (2007) and Winter (2003) these are 'abilities.' Despite this confusion, the key is leadership focus on adaptation and modification of pre-existing assets which Teece (2007) argues, enables dynamism. Thus, this aspect of the framework builds on the Resource Based View as it links to 'the dark side' of that theory by changing assets into established capabilities (Easterby-Smith, Lyles and Peteraf, 2009). Conversely, for Burisch and Wohlgemuth (2016), this assumption is problematic in that it is based on the premise that,

> "*if the firm has a dynamic capability, it must perform well, and if the firm is performing well, it should have a dynamic capability*."
>
> Cepeda & Vera (2007, p. 427)

Burisch and Wohlgemuth (2016) concur that this does confuse cause and effect whilst Arend and Bromiley (2009) claim it is impossible to forecast and determine these dynamic capabilities.

3. Paths: Despite this, Teece, Pisano and Shuen (1997) argue that capability emerges over time through co-ordinated strategic decisions called 'paths' which are reliant on prior knowledge and learning to drive innovation capability for Teece (2012). In the current context, digital leadership is key (Singh and Hess, 2017 and Rickards et al., 2017) as capability is enhanced and competitive advantage gained when managers recognise they need to rethink digital and technological strategic decisions. Whilst many authors recognise the role of leadership and management skills in driving this (including Pablo et al., 2007), this third aspect of the framework-decisions is problematic as the nature of managerial decision making is contentious (Barreto, 2010). It is dependent on them having both the skills and abilities to be able to recognise the existence of the 'assets and processes' (Pisano, 2017) although in the current digital business context, this is especially vital in digital transformation leadership for Singh and Hess (2017).

For Helfat and Peteraf (2009), this framework is broad with varying definitions of features creating complexity and confusion. Indeed, it is argued that it offers ''*a lack of a coherent theoretical foundation''* (Arend and Bromiley, 2009, p. 76) as it does not explain how the features of dynamic capability work to create dynamism. Burisch and Wohlgemuth (2016) add that even whilst concepts have been identified their value is limited as the following have already been addressed,

> "*Flexibility, learning, and change, i.e. ambidexterity (Gibson and Birkinshaw, 2004, March, 1991), organizational learning (Argyris and Schön, 1978, Levitt and March, 1988), change management (Lewin, 1947, Weick and Quinn, 1999), and absorptive capacity (Cohen and Levinthal, 1990, Zahra and George, 2002).*"
>
> Burisch and Wohlgemuth (2016, p. 112)

Teece, Pisano and Shuen (1997, p. 510) respond, acknowledging that the debate was founded on,

> "*Schumpeter (1942), Penrose (1959), product market imperfections, entry deterrence, Nelson and Winter (1982), Prahalad and Hamel and strategic interaction. The strategic conflict (1990), Teece (1976, 1986a, 1986b, 1988*)."

Despite this, they contend it offers researchers the opportunity to investigate product and process development approaches and broadly in line with the study, a technological contribution. Conversely, the relationship with dynamism continues to be contested for Schreyögg and Kliesch-Eberl (2007) and as such, authors attempt to explicitly define the organisational 'capabilities' (assets/processes which are tried and tested over time to become dynamic) and to assess how they enable 'competence' (organisational 'paths' ability) to achieve competitive advantage (Fernandez, 2004, p. 5 and Grant, 1991). Here, the theory gains a 'capability perspective' building on the 'valuable, rare, inimitable and non-substitutable' features of the Resource Based View debate offered by Peteraf (1993) and others (including McKelvie and Davidsson, 2009). They contend that resources do not simply generate competitive advantage but are dependent on the manner in which they are utilised for them to be considered capabilities.

Conversely, the reconfiguration of resources might be inhibited by core capabilities for Schreyögg and Kliesch-Eberl (2007) cited by Burisch and Wohlgemuth (2016). These include: inability or lack of commitment to structural change for Hannan and Freeman (1984); over commitment to pre-established ways of operating or strategic immobility for Sydow, Schreyögg, & Koch (2009) and finally, previous decisions impacting thought processes (Burisch and Wohlgemuth, 2016 citing Staw, 1979). This extends a wide critical review which contends that the theory is not only just another way of discussing other theoretical constructs and that it fails to add value to those existing debates (Arend and Bromiley, 2009). It is also contested that the construct can be variously interpreted for Burisch and Wohlgemuth (2016) and is inconsistent and creates confusion (Barreto, 2010). Some contend that it does not represent a scientific theory (Williamson, 1990; Newbert in Barreto, 2010 and Thomas & Pollock, 1999 cited by Wang and Ahmed, 2007 amongst others). Certainly, studies serve to confuse the debate with the emerging

research linked to the theory creating, "*the existence of an important but less than coherent stock of work moving in different directions*" for Barreto (2010, p. 274).

Despite this, Teece (2007) extends theoretical understanding by defining a second 'micro - foundations' dynamic capabilities framework, highlighting how a technology focus is a key enabler. Teece (2007, p. 1322) reinforces the emerging fourth industrial revolution study focus defined by Schwab (2016) debated later in the chapter and emphasises that,

> "*To identify and shape opportunities, enterprises must constantly scan, search, and explore across technologies and markets, both 'local' and 'distant."*
>
> Teece (2007, p. 1322)

Concurring, Cetindamar, Phaal and Probert (2009) confirm how technology management is linked to dynamic capabilities and this is something of a forerunner of more contemporary, but similar, digital transformation debates which are aligned with the construct (Warner & Wäger, 2019). With an even more explicit focus, Jacobs and Pretorius (2020) examine features of the fourth industrial revolution employing a dynamic capabilities lens and connect both themes of this research in their concluding recommendations. They found that technology and business model adaptation (reviewed later in this chapter) link the dynamic capability construct to the current digital context and a focus on digital skills underpinning the second key literature theme in this chapter.

Despite this, Matysiak, Rugman and Bausch (2018) argue that understanding how the 'sensing, seizing and transforming/managing threats' debate applies in practice is complicated and difficult to interpret and understand although Teece (2007) contends that it offers more clarity. Yeow, Soh and Hansen (2018, p. 47) agree, arguing that the dynamic capability construct maps neatly onto Eisenhardt and Martin (2000) who define, *"four different dynamic capability actions – leveraging, creating, accessing and releasing."* Indeed, Yeow, Soh and Hansen (2018, p. 47) explain how this perspective has also been extended by*, "Danneels (2010) and Rindova, Martins, & Yeow (2016*).".

Teece (2007) argues that through their entrepreneurial activities, organisations are able to 'seize' opportunities which as Ployhart et al. (2014) explain, involves building engagement to the identified redesigned process to maintain control of strategy. This

requires deeper intuition and an ability to create expert judgements for Hodgkinson and Healey (2011) citing Gavetti (2005). For Teece (2007). leadership vision also enables organisations to 'sense and seize' and this creates capability which emerges over time through co-ordinated strategic decisions which Teece, Pisano and Shuen (1997) called 'paths.' Teece (2016) also argues that leaders must have the ability to ensure others share the strategic vision through a focus on employee skills.

Easterby-Smith, Lyles and Peteraf (2009) contend that senior management generate dynamic capabilities with their vision and these then link to 'transformation' of dynamic capability for Teece (2007) when organisations manage any threats to this transformation. Indeed, a leadership focus on new technology including the Internet of Things, Big Data and Artificial Intelligence supports the ultimate transformation of sensing and seizing activities in the digital workplace (de Mendonça and de Andrade, 2018). For them, 'transformational' dynamic capacity is vital as it can support reconfiguration of current resources to be in line with a new strategic intent with Teece (2007) arguing this also serves to 'manage threats'. In the current business context, transformational dynamic capacity serves to identify any gaps or potential resources which are needed which is especially relevant to creating a new digital strategy (Yeow, Soh and Hansen, 2018).

It is evident that many authors have defined principles, practices and/or processes which serve to enable 'sensing, seizing and transforming/managing threats' although for Arend and Bromiley (2009) these only serve to complicate understand of how dynamic capability is created. Added to this and concurring with Erikkson (2013) they argue that *"weak empirical support''* creates *''unclear practical implications"* (Arend and Bromiley, 2009, p. 77). Ravala and Ritala (2016) contend this is a severe critique although Arend and Bromiley (2009) propose that different interpretations of how 'sensing, seizing and transforming/managing threat' principles should be measured, results in inconsistencies of dynamic capabilities debates. Concurring, Easterby-Smith, Lyles and Peteraf (2009) indicate how lack of agreement on elements of the frameworks impedes progress on deeper understanding of the theory.

In response, the researcher adopts the advice offered by Barreto (2010, p. 273) and in the subsequent sections defines key *"aggregate constructs* (of) *(dynamic capability)"* reinforced through evaluation of the theoretical debates. These are key features of debates which can be used as reliable measures given they are reinforced through many earlier studies (Barreto, 2010). Alongside this *"dimension-related constructs"* are the identified measure indicating the organisational *"propensity to change the resource base"* emerging through the analysis of literature and thus, defined within the study as an outcome of that exercise. Furthermore, whilst debate regarding dynamic capabilities is contentious, it is important to analyse data outcomes using the frameworks offered by Teece, Pisano and Shuen (1997) and Teece (2007) to reflect and also extend earlier dynamic capability debates.

These theoretical debates clearly link to strategic change for Helfat et al. (2009), with Winter (2003) reinforcing that the very nature of dynamic capabilities and how they differ from ordinary capabilities is centred on adaptation and modification of processes through change. With this association being a given for Ambrosini, Bowman and Collier (2008), it is a further important component of the debate.

2.3.2 The Relationship between Volatile Change Periods and Dynamic Capabilities: The Employee Skills and Digital Communications Contribution

The preceding section highlighted how the dynamic capability theoretical concept is based on the principle that organisational competencies build competitive advantage in times of volatile change (Teece, Pisano and Shuen, 1997). This section of the debate will show how restructure has emerged in response to change debates as a modification and adaptation mechanism supporting dynamic capabilities. The discussion here defends how both change impact and restructure emerge as key measures within the investigation with responsiveness to change representing a key *"aggregate construct (dynamic capability)"* reinforcing the theoretical debate for Barreto (2010, p. 273). Restructure in respond to change is the first *"dimension-related construct"* or identified measure indicating the organisational *"propensity to change the resource base"* (Barreto, 2010, p. 273).

The nature of dynamic change is emphasised by Singh and Rao (2016) who concur with Aminu and Mahmood (2015) arguing this is a key dynamic capability feature. Reflecting this, and in line with the study, Jacobs and Pretorius (2020) employ a dynamic capability lens to argue that the fourth industrial revolution represents a macro change impacting worldwide and organisational inputs and outputs must be continually modified with a focus on people and skills. Section 1.2 highlighted how the investigation took place during the UK Post Brexit political and economic era with the final stages overlapping with the COVID-19 pandemic. Both serve to highlight how huge political, social and economic change is creating environmental volatility in the UK for Edgington (2020) although COVID emerged post data gathering and during write up in March 2020 and therefore does not relate to the study findings. Moreover, the Post Brexit era impact has been inconclusive during the lifecycle of the research and instead and as stated in the introduction, these macro change features simply represent the national change context in which the research took place. Instead, the investigation focused on how sustainable competitive advantage is created in conditions of constant UK market change as for Easterby-Smith and Prieto (2007), this ultimately creates capability.

Here, the alignment with organisational skills reemerges in the debate with Tallman (2015) arguing that attention must be paid to changing skill sets to create higher level competence to effectively respond to change. Henderson (2002) adds that learning contributes to transformational and dynamic change. Whilst the relationship between dynamism, change and employee skills is well debated (for example and most recently, Rosenbaum, Moore and Steane, 2018 and Napier, Amborski and Pesek, 2017) this has been extended to focus on digital skills. Küng (2013) explains how digital skills support innovation through change and in a later contribution Küng (2017) adds that digital skills underpin the roadmap to digital transformation and link that to virtual communications. Sousa and Rocha (2019a) concur that this skill set supports digital disruption whilst van Laar et al. (2018) confirm Cordes and Rosemann (2020) and argue that that digital skills are essential in supporting organisational technological change. This links to a digital skills focus when customer needs diversify (Mihalcea, 2017) with managerial and HRM support being key in supporting the digital technological impact for Cimini et al. (2020). Aligning skills with dynamic capability change debates further, higher level skills generate

knowledge which contribute to competitive advantage (Nieves and Haller, 2014). These higher level skills higher level skills extend beyond 'zero level abilities' and improve service offerings through service innovations in change (Agarwal and Selen, 2009).

Whilst higher skills support the dynamic change environment, authors question the link between environmental volatility and dynamic capabilities although this is key to productivity performance for Karna et al. (2015). For Williamson (2000, 2003) and Barreto (2010), more research is needed to understand the environmental conditions which link to dynamic capabilities. Reflecting this, Schilke (2014) examines 279 companies and links dynamic capabilities with productivity and competitive performance concluding these are evident in 'moderately dynamic environments.' Indeed, Zahra, Sapienza, and Davidsson (2006, p. 922) argue that "*a volatile or changing environment is not a necessary component of a dynamic capability.*" Zollo and Winter (2002) concur, arguing that dynamic capabilities could even be evident in stable external environments. Whilst Kay, Leih and Teece (2018) accept stability is a feature of the dynamic capability debate, Teece (2007) reinforces that complexity of business volatility with the current UK political and economic environment undoubtedly facing change and lacking constancy (KPMG, 2020).

Extending this debate, Burisch and Wohlgemuth (2016) question the sustainability of dynamic capability in 'hypercompetitive environments' citing case studies of Yahoo and Excite offered by Rindova and Kotha (2001). Arend and Bromiley (2009) contend that both companies lost their dynamism after that investigation ended and question the permeance of that capability. Burisch and Wohlgemuth (2016), concur with Schreyögg and Sydow (2010) and extend this, arguing that change links to 'complexity and ultimately to 'uncertainty' and "*coping with environmental uncertainty does not eliminate environmental uncertainty*" (Schreyögg & Sydow, 2010, p. 1254). Despite this, and for Teece (2012), even when the macro business environment is stable, the nature of the professional sector can be 'fast moving' and this requires a continual focus on re-energising operations to reflect the 'eco-system' in which the organisation exists. Gotz et al. (2020) explains how this 'eco-system' is digital in the current new technological business environment.

The nature of change also explicitly extends to the internal business context, with restructure being widely associated with dynamic environments for Barbero, Ramos and

Chiang (2017) and Girod and Karim (2017) concurring with Teece (2007). For example, Dixon, Meyer and Day (2010) examine dynamic capabilities in transitional economies and link that to business re-engineering and restructure. This extends the 'seizing' debate advocated by Teece (2007) with organisational restructure also supporting the achievement of dynamic capabilities in a study of U.S. firms (Girod and Whittingham, 2017) and 'reorganisation' being applied to the reduction of costs in organisational development for Barbero, Ramos and Chiang (2017). Certainly, Caniato, Caridi and Moretto (2013) extend the restructure debate by employing dynamic capabilities as the framework for supply chain innovation whilst Lazonick and Prencipe (2005) examine the innovative enterprise, using Rolls Royce as a successful restructure case study. Despite this, Teece (2017b) argues that 'needless restructure' can negatively impact dynamic capability outcomes although Ambrosini, Bowman and Collier (2008) contend it can support dynamic capabilities to be achieved. Indeed, Cantwell and Santangelo (2009) concur with Pitelis and Wagner (2019) and argue that entrepreneurial leadership skills support dynamic capabilities to change or 'restructure' when companies expand.

The response to change and how that links to restructure are key features in dynamic capability debates reinforcing how these have been identified as key construct measures within the investigation. The dynamic capability debate also extends to heterogeneity for Teece (2014b) concurring with Drnevich and Kriauciunas (2011). They contend that dynamic capability conceptual frameworks were created to try and understand how organisations differ in their reactive approaches to maintaining competitive advantage through change. Reflecting this, the construct is based on the understanding that ordinary capabilities can be homogeneous whilst dynamism is founded in heterogeneity (Helfat and Peteraf, 2015).

2.3.3 Extending Homogeneity, Heterogeneity and Equifinality in Dynamic Capability & Digital Skills Debates

Thus, this section indicates how homogeneity, heterogeneity and equifinality have been considered in dynamic capability debates and as such are applied to the analysis of the discussion featured in Chapter Five of this thesis to determine how far they apply within the UK Professional Business Sector. Hoppes and Marsden (2008, p. 23) conclude that,

"*different forms, or levels, of capabilities may have different effects on competitive heterogeneity"* with difference in capability contributing to *"variance in firms.*" For Teece, Pisano and Shuen (1997) and Teece (2012), organisations reflect heterogeneity in their focus with Chen and Fong (2012) concurring with Hoppes and Masden (2008) and arguing that this links to performance measures.

Hoppes and Marsden (2008) add that a learning and skills focus contributes to operational capability and is based on differing processes, systems and approaches. Indeed, heterogeneity in business success also links with employee technology skills (Brambilla, 2018). Concurring, Caravella et al. (2020) argue that competitive growth emerges from a higher innovation skills focus which then links to business heterogeneity. Ramasubbu, Mithas and Krishnan (2008) extend this and assert that heterogeneity links to customers valuing employee technical skills and this creates loyalty to the brand. Indeed, these heterogeneity debates link to digital infrastructure and European digital innovation perspectives with Nepelski (2019) arguing that digital innovation results in disruption. He contends that non ICT businesses must focus on digital skills to support their heterogeneous focus whilst Brunetti et al. (2020) extend the homogeneity and heterogeneity debate arguing that organisational culture should be aligned with digital skills as a common focus to then be applied differentially in companies.

Gelhard, von Delft and Gudergan (2016) concur with Eisenhardt and Martin (2000) and extend the debate, arguing that heterogeneity in dynamic capability configurations links to equifinality which enables strategic performance. Equifinality occurs when organisations approach things differently to arrive at the same end goal (Mills, Durepos, and Wiebe, 2010). Burisch and Wohlgemuth (2016, p. 410) cite Eisenhardt and Martin (2000) and argue that although Teece, Pisano and Shuen (2016) built the dynamic capability concept on Barney's (1991) imitable model, equifinality makes them, "*substitutable and also partly imitable"* thus contradicting the Resource Based View. Extending the debate, Zhara and George (2002) employ Wheeler's Net-Enabled Business Innovation Cycle (NEBIC) and determine commonalities in gaining strategic competitive advantage although for Rothaermel and Hess (2007), dynamic innovation is heterogeneously defined through individual and organisational level drivers (Weerawardena and Mavondo, 2011). Conversely, Leibleini and Madsen (2008) examine

how capability influences technological innovation in smaller organisations and argue that differences in these firms' approaches all linked to their common innovation focus again depicting equifinality.

Homogeneity, heterogeneity and equifinality support the analysis of research outcomes in chapter five of the thesis. This debate can also be applied to how far organisational size impacts dynamic markets for Girod and Karim (2017) and this then linked to secondary framework for analysis employed within the investigation.

2.3.4 Organisational Size and Business Process Maturity: The Dynamic Capabilities and Skills Link

As indicated above and to extend the heterogeneity, equifinality and homogeneity debate within the UK Professional Business Sector, business processual maturity was applied to analyse the impact of size on outcomes within the study. Business processual maturity represents a measure the researcher needed to employ to explain how different sizes of businesses could have different levels of dynamic capabilities.

Reflecting this, Alves et al. (2016) examines how size of business impacts absorptive capacity as a determinant of dynamic capabilities and conclude that larger organisations displayed more potential for absorptive capacity. Reflecting this, dynamic capability investigations have largely focused on larger/ multinational firms based in dynamic sectors including digital and IT (including Augier and Teece, 2007 and Luo, 2000) although more recently, debates have extended to younger businesses and SMEs representing other sectors (for example, Branzei and Vertinsky, 2006 and Arend, 2013). Concurring, Zahra, Sapienza and Davidsson (2006) contend that dynamic capabilities can apply to both new and established organisational types although Teece (2012) argues that business size links to organisational maturity and organisations which have been in operation over ten years are more likely to exhibit dynamic capabilities.

Thus, dynamic capability debate extends to maturity of process for Baker et al. (2011) who applies the Strategic Alignment Maturity Model (SAMM) proposed by Luftman (2000) to examine the alignment of IT and business strategy using a dynamic capability lens. Furthermore, Helfat and Peteraf (2003) examine the organisational lifecycle and maturity of capability although they centred that around the resource-based

perspectives. Rather more in line with this study, Schumacher, Erol, and Sihn (2016) align their focus on business process maturity with the fourth industrial revolution debate advocated by Schwab (2016) (reviewed later in the second part of this chapter). The study builds on these contributions and uniquely applies the Business Process Maturity Model proposed by the Object Management Group (2008) as a framework for analysis of how size of business impacts process innovation maturity and a focus on digital competence.

Whilst this study does not aim to be distracted by quality management discussion and wide debate relating to business process maturity, it should be acknowledged that dynamic capability theory has been widely applied to Total Quality Management (TQM) debates (for example, Zhu, Cordeiro and Sarkis, 2013 and Yunis, Jung and Chen, 2013). This has extended to a Six Sigma debate being applied to the theory by Manville et al., (2012) who also link this to employee skills. The TQM link with business process maturity is clear with Tarhan, Turetken and Reijers (2016) offering a literature review of key published process maturity models and indicating how these have emerged during the last twenty-five years. Pöppelbuß and Röglinger (2011) argue that these maturity models are often criticised for having poor designs with Tarhan, Turetken and Reijers (2016) explaining how a number of forerunners preceded the emergence of the Object Management Group model including the Capability Maturity Model (CMM) (Paulk et al., 1993). With that being too focused on software development for Harman (2009) a number of other variants emerged including the People Maturity Model (PMM) (Curtis, Hefley and Miller, 1995). That examines the maturity of workforce issues and ultimately led to the emergence of the Process and Enterprise Maturity Model (Hammer, 2007). This is criticised for having a lack of strategic alignment and no connection between the levels (Tarhan, Turetken and Reijers, 2016).

Initially, the People Maturity Model would appear to be relevant to the study in that it focusses on the role of HRM and the 'people' processes associated with strategic features (Curtis, Hefley and Miller (2009). However, with the investigation focusing on examining the importance of digital communication competence skill set in the dynamically capable workplace, this centralises the aim not on specific HRM processes related to skills sets but on strategic skills based features of dynamic capability theory and how they link to employee digital competence. Reflecting this, Eicker, Kochbeck and Schuler (2008) link

business process management to employee skills and contend that organisational competence is created by focusing on employees. Indeed, the popularity of six sigma methodologies in supporting business process maturity is centred on managerial higher level skills acumen (Pesic, 2015).

Extending the business process maturity employee skills debates, Kerremans writes for Gartner in 2008 and argues that development must focus on employee technology skills and be driven through HRM. He adds that digital communications serve to enhance the six stage business process maturity model he recommends with Eicker, Kochbeck, and Schuler (2008) arguing that this should include employee digital communication skills. Conversely, Looy, Backer and Poels (2014) accept skills are crucial but argue there is no consensual understanding of the skills needed to enable business process maturity. Despite this, Rosemann and Van Brocke (2015) argue that employees contribute to the quality process through their digital skills. Extending this debate, Kane et al. (2017) add that new technologies support business process maturity and concur that employees must have the relevant skills which apply to these features.

This skills link serves to connect the study with Curtis (2004) and Weber and Curtis and Gardner (2006) who created the Business Process Maturity Model and published that through the Object Management Group (2008) in response to criticisms of the Process Enterprise Maturity Model (BPMM). The model has been used as an analytical framework within several smaller studies including: Tarhan, Turetken, and van den Biggelaar (2015); Raschke, and Ingraham (2010) and Columb et al. (2006) employing it as an analytical framework. Fundamentally, employee knowledge and skills underpin effective business process management (the Object, Management Group, 2008) and as such, it is worthy of application within this study given skills and innovation focus of the model and the way it links to modification and adaptation of processes through change link to dynamic capability debates.

> *''The BPMM comprises maturity levels that are associated with the scope of influence of process areas, the capability of monitoring and controlling processes and the influence on process improvement It is based on the principle that any business process essentially consists of activities belonging to four categories; Input, Mechanism, Control, and Output."* For Lee, Lee and Kang, (2007, p. 2.)

The principles of the BPMM are mapped against dynamic capability key features in the table below to reinforce its' applicability to the study.

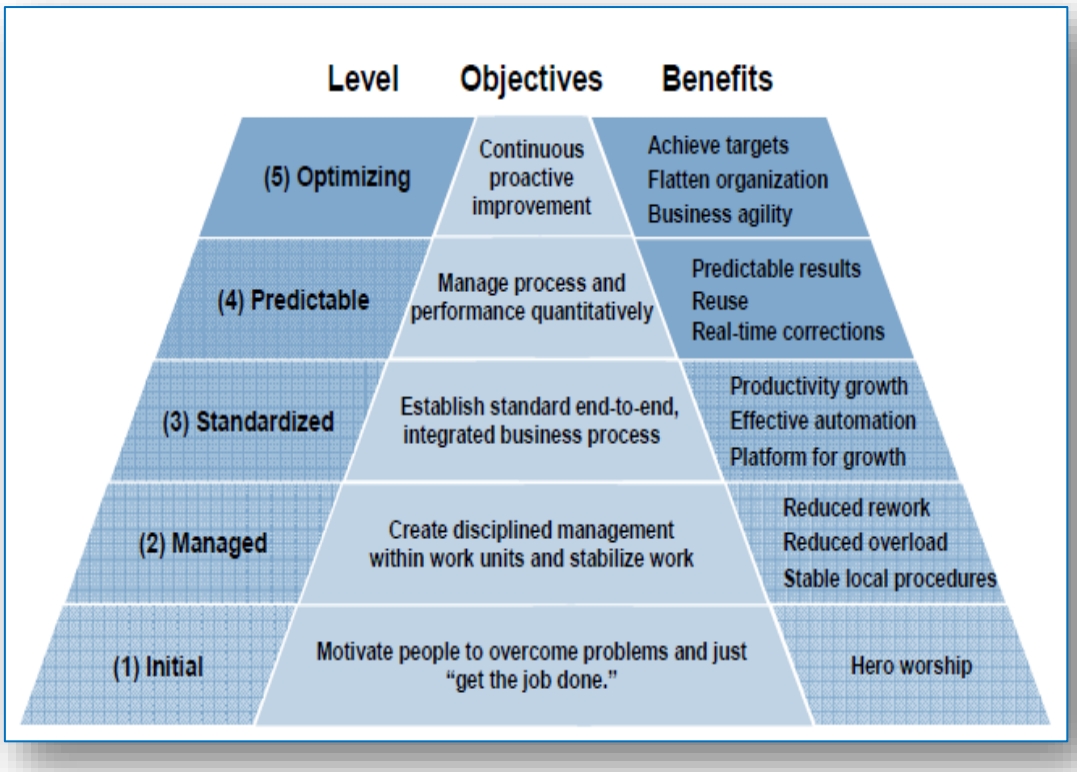
Table 2.3: Principles of the BPMM mapped against dynamic capability debates.

Object Management Group (2008, p. 2)	Teece, Pisano and Shuen (1997) and Teece (2007)
1. *Attributes of a process can be evaluated to determine its capability to contribute to organizational objectives.*	This links to the 'assets' debates proposed by Teece, Pisano and Shuen (1997). These are starting point ordinary capabilities which can become dynamic when they are linked to the next BPMM principle.
2. *Capable processes cannot survive unless the organization is mature enough to sustain them.*	This is related to the adaptation and modification debate proposed by Teece, Pisano and Shuen (1997). Processes can be modified if the organisation has the capacity to achieve this.
3. *Process improvement is best approached as an organizational change programme that stages the improvements to achieve successively more predictable states of organizational capability.*	Modification and adaption enable paths to be created for Teece, Pisano and Shuen (1997).
4. *Each stage or maturity level lays a required foundation on which future improvements can be built.*	This then enables transformation for Teece (2007).

Sources: The Object Management Group (2008); Teece, Pisano and Shuen (1997) and Teece (2007).

With change management being clearly in focus, organisational maturity is measured through identification of the level at which the business can be classified and how this links to features of their processes. This is indicated in figure 2.2 overleaf.

Figure 2.2: Levels and Process features of the Business Process Maturity Model



Source: Curtis (2004)

The study employed the process maturity levels above to analyse how size of the business was linked to level of maturity of features according to this model. In this way, this supported research question five to be addressed as it focused on examining not only the features of dynamic capabilities and how they applied to the UK Professional Business Sector but also on any variations based on size of business. Serving to align this further with the key theoretical focus of the research, the Object Management Group (2008) define 'domain process areas' which are linked to business improvement. Alongside process improvement through modification and adaptation of systems, these link to governance which is also significantly reflected in dynamic capability debates indicated in this chapter given that it links to leadership control (Teece, Pisano and Sceun, 1997 and Teece, 2014). The domain process areas and governance are further associated with the role of leadership and management which is reviewed later in the chapter in section 2.3.7.

In summary, governance, leadership and business improvement features of the Object Management Group (2008) model all link to dynamism. Additionally, leadership contribution to the online survey supported interview outcomes which informed findings indicating how profitability was achieved through a focus on innovation and dynamism. Their heterogenous governance features impacting continuous business improvement link to their innovation focus on business expansion (Curtis, 2004).

2.3.5 Underpinning Profitability through a Dynamic Innovation, Product/Service and Market Expansion & Digital Skills Focus

Dynamic business process maturity is firmly linked to innovation and profitability for Wang et al. (2019) and as such this section will show how these are "*key aggregate constructs*" related to dynamic capability debates (Barreto, 2010, p. 273). Furthermore, a focus on market expansion extends modification and adaptation debates with these ultimately being focused on profitability for Teece (2012). Reflecting this, this section explains why product/service and market expansion features of the debate have been extracted as further dynamic capability measures to be employed within the investigation as "*dimension related constructs*" (Barreto, 2010, p. 273).

2.3.5.1 A Focus on Innovation to Enable Profitability as an Outcome of Dynamism

Profitability is the ultimate outcome of dynamism with Kor and Mahoney (2006) linking this to managerial input, leadership decision making and marketing in technology-based organisations. Grünbaum and Stenger (2013) argues that this requires an 'involving type of leadership' although Cebon (2016) explains that resilience is also needed. Salvato and Vassolo (2018, p. 1728) adds that this is created through quality relationships "*when people are given the opportunity to act, think, and feel creatively"* and this generates profitability. This enables drive, growth, and ultimate survival of an organisation when successful adaptation or 'seizing' is achieved (Teece, 2009). Goddard, Tavakoli and Wilson (2005) extend the debate offered by Teece (2009) and Winter (1995), arguing that flexibility and scalability link to maintaining profitability.

Leiponen (2000) adds that employee skills contribute to organisational competence and lead to profitability. Reflecting this, Barney and Wright (1998) make the link between

productivity, profitability and higher-level skills and the contribution they make to competitive advantage whilst for Nash (2009) this is enabled through a technology and innovation focused strategy. Indeed and in the current context, digital skills support productivity and lead to profitability although the ability to be adaptable and flexible enhances that (Ecorys, 2016). Hsu and Wang (2012) and Pervan, Curak and Kramaric (2018) concur and contend this focus on innovation generates intellectual capital.

Certainly a body of research has contributed significant debate linking dynamic capabilities to intellectual capital whilst Marr (2008) and Singh and Rao (2016) concur that intellectual capital relates to social, human and organisational capital. Despite this, Kianto (2007, p. 354) questions the notion of dynamism in intellectual capital debates but concludes this links to "*value creation processes, activities and change capabilities."* Marr (2008) extends the debate offered by Kianto (2007) and argues that value creation is enabled by supporting employee skills development. Marr, Schiuma, and Neely (2008) add that "*fostering a culture of innovation*" develops intellectual capability but also links this to a human capital focus on skills.

Kindström, Kowalkowski and Sandberg (2013), Deeds, DeCarolis, and Coombs (1999) and Heflat (1997) add that innovative technologies are key enablers in achieving profitability whilst McLaughlin (2017) and earlier, Lawson and Samson (2001) argue new technologies are crucial in creating dynamism. Lawson and Samson, (2001, p. 378) relate this to "*the emergence of the knowledge economy and intense global competition."* This extends a long standing debate whereby innovation has been seen to be central to the development of refreshed "*products, processes and systems"* which are needed to support adaptation in emerging markets*, "technologies and modes of competition (D'Aveni, 1994; Dougherty & Hardy, 1996; Utterback, 1994)."*

2.3.5.2 Service/Product and Market Expansion to Enable Profitability

Hence, service line, product and market expansion link to the 'sensing and seizing' debate defined by Teece (2007). Indeed, Wheeler (2002) concurs with Deeds, DeCarolis and Coombs (2000) and examines new product development in high tech environments and proposes this creates competitive advantage. They agree that an explicit focus on organisational knowledge requires extension to support scientific development of the

product base. Similarly, Fischer et al. (2010) add that organisations must exploit and explore opportunities to create dynamic capability through service based developments whilst Kindström, Kowalkowski and Sandberg (2013) argue that service expansion enables product portfolio development and leads to competitive success. It is contested that within the current digital environment, extension of markets, services and business lines are key in driving profitability and innovation and ultimately achieving dynamic capability (Mikalef and Pateli, 2017).

Deeds, DeCarolis and Coombs (2000) also debate expansion of geographical location and contend there are benefits to both localising and internationalising organisational markets to create dynamism reflecting Luo (2000); Deng et al. (2018) and others. Indeed, Prange and Verdier (2011) employ a dynamic capability lens to examine how this expansion applies to internationalisation and conclude that businesses must not only explore and exploit to 'seize' opportunities but also centre their approach on both making trade-offs and extending their markets. Concurring, Kuuluvainen (2012), King and Tucci (2002) and Lee and Kelley (2008) argue that managerial input into processes aimed at identifying new market opportunities support dynamic capabilities. This serves to reinforce strategic decisions involving extension of business services and markets and links to business model transformation and innovation (Inigo, Albareda and Ritala, 2017). They argue that aligning the business model and identifying methods to support processual changes meets customer solutions concurring with Wang and Ahmed (2007) and Teece (2007, 2018). Indeed and responding to the critique from Arend and Bromily (2009), numerous studies link the 'sensing and seizing' perspective of Teece (2007) to business model redesign including Newbert (2005) who examines this in new firms whilst Liao, Kickul, and Ma (2009) and Ellonen, Wikström, and Jantunen (2009) (amongst others) link business models to technological/ innovation contextual settings.

2.3.5.3 Digital Skill Contribution to Product/Service and Market Expansion

Product, service and market expansion are supported by digital skills which contribute to innovation (Reljic, Evangelista and Pianta, 2019). Demir (2019) adds that digitalisation and digital skills support market expansion whilst Veit, et al. (2014) extend the dynamic capability business model focus adding that business model adaptation ensures this focus

on expansion and is an income generator. Extending this expansion focus to digital skills, Andreea, Mihaela, and Stefan-Claudiu (2020) argue that using these and having a technological focus enables digital marketing businesses to stand out. Reflecting their SME focus, Cassetta et al. (2020) argue that digital skills underpin innovation and contribute to international expansion. They focus on agility, responsiveness, governance and other strategic competencies although their debate reflects Westerman, Bonnet, and McAfee (2012) who argue that digital competence includes social media, big data and analytical competencies. Offering a similar alignment with the digital communication focus of the study, Van Laar et al. (2019) contend that twenty first century digital skills including online communication competencies contribute to product and service expansion.

A focus on employing business lines, service and market expansion as measures of how the resource base can be modified and adapted extends the dynamic capability perspective as Barreto (2010, p. 273) advocates. This adds to the study focus on innovation and profitability as "*aggregate construct measures*" this dynamic capability contribution makes. For Lawson and Samson (2001) and Gebauer (2011), a management focus on innovation enables innovation capability to be achieved although Garavan et al. (2016) emphasises how this links to learning practices (Eisenhardt and Martin 2000) and knowledge processes (Lichtenthaler and Lichtenthaler 2009) which are subsequently highlighted next.

2.3.6 Linking Innovation Capability to Organisational Learning & Knowledge Transfer in the Dynamic Capability Skills Debate

With innovation capability being key in dynamic capability debates this is enabled by strategic learning and a focus on capturing organisational knowledge for Calantone, Cavusgil and Zhao (2002) and this ultimately links to employee digital skills for Ansari, Barati and Sharabiani (2016). In attempting to clarify which processes create competitive bundles which is unclear for Katkalo, Pitelis and Teece (2010), the study has a strategic learning and knowledge transfer foci as these create innovation capability and now emerge in this review as key "*dimension-related constructs"* linked to dynamic capability

debates for Barreto (2010, p. 273). These features form a bundle linked to employee skills and explicitly, to digital communication competence.

Learning and knowledge management link to adaptation and modification as they support how organisational routines (assets) evolve, are developed and how they might be used in dynamic capability debates (for example, Eisenhardt and Martin, 2000 and Zollo and Winter, 2002). Managing organisational knowledge leads to the potential to create competitive advantage (Drucker, 1997, Carneiro, 2000 and Eisenhardt and Martin, 2000) and thus, even for critics including Barreto (2010), learning and the acquisition of knowledge are unequivocally connected to dynamic capabilities.

This leads to creation of innovation capability which underpins profitability in dynamic capability debates (Teece & Pisano, 1994; Teece, Pisano, & Shuen, 1997; Eisenhardt & Martin, 2000 and Teece, 2000, 2007, 2012). As Hii and Neely (2000, p. 5) explain, innovation capability relates to the ability to devise new ideas, is linked to extending markets and, "*implementing marketable innovations by leveraging existing resources and capabilities*." Many advocate this links to an employee skill focus (for example, Sopa et al., 2020; Saunila and Ukko, 2014 and Saunila, 2017 amongst others) and further reinforces the study focus on the importance of a contemporary skill set in the dynamic business context (Nieves and Haller, 2008).

Employee skills also link to the evolution, development and the employment of dynamic capabilities (Ansari, Barati and Sharabiani, 2016 and Gonzalez and de Melo, 2019) and through the transfer of knowledge this guarantees employees "*with the most appropriate skills sets are selected to assist in the innovation process*" (Du Plessis, 2007, p. 24). Whilst several writers including Easterby-Smith and Prieto (2007) and Oliva et al. (2019) focus on the broad concept of knowledge management in their dynamic capability debate, the investigation focusses on knowledge transfer which has been substantially linked to organisational learning and to an innovation focus for Walker (2016). Knowledge transfer is defined as "*how knowledge acquired in one situation and applies to another*" (Singley and Anderson, 1989 cited by Karlson and Gottschalk, 2004, p. 3).

In the digital age knowledge transfer involves supporting employees having the ability to code and recognise knowledge and transfer that across the company (Ferrari, 2013), to

create tacit knowledge (Winter, 2002) and drive dynamism for Zott (2003). Gómez and Ballard (2013) argue that tacit knowledge is driven through 'information allocation' which involves sending new information to the employee to enable them to react which Carretero, Vuorikari and Punie (2017) arguing this is enhanced through digital communication systems. Indeed, new technology supports the 'storage, distribution and management of organisational knowledge' and leads to knowledge transfer (Easterby-Smith and Prieto, 2007). Gómez and Ballard (2013) propose that this results in 'collective reflexivity' supporting dissemination or sharing of information which for Argote, McEvily, and Reagans (2003), engenders social interaction and builds relationships. Ferrari (2013) explains how this enables online organisational citizenship and also enhances online collaboration in the virtual environment for Herciu (2020). Collective reflexivity can support alignment of employees with the strategy through that knowledge transfer process for Zott (2003). Chang (2012) adds that digitalisation of communication supports knowledge transfer as a core cross functional feature across all of the dynamic elements.

Effective knowledge transfer involves learning from errors to build on what has gone before and establish learning experiences to reinforce modification and adaptation of systems and processes (Eisenhardt and Martin, 2000, Zollo and Winter, 2002 and Yeow, Soh and Hansen, 2018). Organisational learning capacity is underpinned by employee skills for Chaston, Badger and Sadler-Smith (1999) whilst a heterogeneous approach to adapting and modifying routines is supported by a clear, strategic learning focus (Swift and Hwang, 2008). Singh and Rao (206) explain how this is enabled by organisational learning which creates intellectual capital and drives dynamism with this being enhanced by digital learning in the contemporary workplace (Schuchmann and Seufert, 2015 and De Sousa and Rocha, 2019a).

A strategic focus on learning is linked to organisational learning theory, although that has been criticised for being too prescriptive and idealistic (Wang and Ahmed, 2003). Instead, the study reflects Marsick and Watkins (1999) who argue that leaders and managers support organisational learning whilst employee competencies serve as 'strategic learning building blocks' (Goh, 1998). Skills underpin wider employee learning and reinforce organisational culture in the dynamic environment (Bollinger and Smith, 2001) and a learning culture supports change and innovation in the digital environment (Vey et

al., 2017). Driving innovation through learning must be recognised by leaders with line managers also being vital (Zheng, Zhang and Du, 2011 and Sloman, 2007). They make the connection between strategy, HR and the team to help build on and create new knowledge and skills to achieve a learning focus (Schuchmann and Seufert, 2015).

Ultimately, strategic measures extracted from this debate were employed to reflect the strategic focus of the debate. These included: senior/ line management support for learning and aligning employees with strategy through knowledge transfer. These linked to the skill focus resources bundle and support innovation which leads to profitability. Leaders, managers and teams are central in driving this capability as the subsequent debate reinforces and as such, their participation in the research was key.

2.3.7 Enabling Dynamic Capabilities: The Role of Leaders, Managers and Teams

Leaders and managers supported the achievement of the research aim as their strategic perspectives reflect that they are key agents in connecting the need for change with organisational contingent resources (Augier and Teece, 2009). Their role underpins the original conceptual debate offered by Teece, Pisano and Shuen (1997) in that they enable conversion of asset positions into processes and paths and are centric in leading the organisation through 'sensing, seizing and transforming' (Teece, 2007). They are pivotal in driving dynamic capability (Shoemaker, Heaton and Teece, 2018) and reflecting the second literature theme, their role in digital transformation strategy is undisputed (Kane et al., 2015, Singh and Hess, 2017 and Rickards et al., 2017).

Their leadership role relates to defining individual and group-level decisions concerning the systems and processes which help to shape strategy (Eisenhardt, Furr, and Bingham, 2010) which supports them to react to external threats for Harreld, O'Reilly and Tushman (2007). Dickson et al. (2011) contend this requires political understanding to drive dynamism whilst Martin (2011) argues this links to strategic collaboration which is vital in business teams. To achieve resource based decisions their focus links to investment and resource allocation (Sirmon and Hitt, 2009 and Lee and Kelley, 2008) and their role in governance (Teece, 2012). As such, the senior executive team are deemed an internal

'attribute' in the dynamically capable environment (Martin, 2011; O'Reilly III and Tushman, 2008 and Lawson and Samson, 2001).

Middle managers underpin strategy and enable innovation (Jones, 2006; Mantere, 2008 and Whittington, 2006) and in this way, they support leaders to 'sense and seize' (Teece, 2007) through their understanding of external and internal business environments (Harreld, O'Reilly III and Tushman, 2007 concurring with Ambrosini, Bowman and Collier, 2008 and Helfat, 2016). Their macro focus involves understanding of technological developments, legal implications, customer requirements and the need to remain competitive and helps gain market advantage (Mantere, 2008). For King and Tucci (2002), this builds on their static market experience and serves to enhance opportunity for new market entry, expansion and growth. Ambrosini and Bowman (2009) add that managerial judgement and perception impacts ability to respond to environmental changes and this impacts responses and decisions. Indeed, when managers fail to initiate extension of business lines/ services or entry into new geographical locations then this can serve to negatively impact dynamic capabilities (King and Tucci, 2002 citing several earlier studies). In the current context, business line expansion requires both a market and resource based focus on digital innovation projects which involves managerial and team contribution (Pandza and Thorpe, 2009).

Both leaders and managers must have the motivation and personal drive to act on these strategic decisions (Zahra, Sapienza and Davidsson, 2006) and for many, their style is crucial (including Dixon, Meyer and Day, 2010 and Lee and Kelley, 2008) as are their skill sets and traits (Pablo et al., 2007). Certainly, leadership and managerial skill set contribution to dynamic capabilities has centred on entrepreneurial skills (for example, Teece, 2016, 2014) and Pitelis and Wagner (2019) although for Schoemaker, Heaton and Teece (2018), trust building skills are also required. Schweitzer and Gudergan (2010) concur with Fitzgerald et al. (2014) and align transformational, transactional and servant leadership traits with dynamic capabilities, concluding that a transformational style is crucial to competitive advantage. Managers and their skill base are also seen to be a key organisational resource (Stashevsky et al, 2006) and more recently, their own digital skills are seen to be vital in supporting performance (Ellis-Chadwick and Estrella-Ramón, 2017) and a workforce 'digital mind-set' (Carcary, Doherty and Conway, 2016). For this, they

need ‘managerial cognitive capability’ which is the capacity to perform both physical and mental activities (Helfat and Peteraf, 2014).

Managers are the connection between upper level strategic sight and downward alignment with employees (Ployhart and Hale (Jnr.), 2014). For Nonaka, Hirose and Takeda (2016), dynamic capabilities are embedded in collective activities with teams underpinning the innovative business strategy (Eisenhardt, Furr and Bingham, 2010). In the dynamic business environment the organisation’s scientific team are crucial in contributing to innovation success in new product development for Deeds, DeCarolis and Coombs (1999) concurring with Darawong (2018) who argues they drive ‘radical innovation.’ Macher and Mowery (2009) concur Eisenhardt and Martin (2000) adding that ‘functional diversity across team types’ contributes to problem solving in new product development.

Lawson and Samson (2001) argue this requires ‘collaboration capacity’ in global teams with HRM supporting global team staffing challenges for Harvey, Novicevic, and Garrison, (2004). Garavan et al. (2016) add that strategic HRM play a role in supporting organisational learning and knowledge management which enables scalability, flexibility and contributes to business growth. For them, strategic human resource development (SHRD) teams must focus on the skills required to drive innovation in dynamic business environments and this must involve skills based training (Lopez-Cabrales et al. 2017) aligned with a new technology focus (Luo, 2000). Leaders must support and ensure this is part of their vision given that SHRD can be seen to be unsuccessful without this focus for Garavan et al. (2016). McCracken and Wallace (2000) expand on this and argue SHRD must be aligned with the culture, business model and be linked to policies and practices down the line. Certainly, their perspective on redefining SHRD reflects a wide debate concerning: how to define it (Werner, 2014); the different perspectives on how it works in practice (Short and Gray, 2018) and how the function achieves credibility and trust (Gubbins et al., 2018).

Noe and Tews (2008) debate the issues in SHRD and contend that employee needs assessment must focus on alignment of skills with the business strategy whilst Noe et al. (2017) add that different business strategies require human capital requirements and this exerts pressures on training functions. Greives (2003) highlights the well espoused

debate critiquing the link between SHRD and competitive performance whilst Noe and Tews (2008) explain that a strategic issue linked to SHRD relates to whether to outsource the function. Cohen (2017) adds that strategic decisions of this nature and changing job markets and skills requirements limit the success of SHRD and Garavan (2007) concurs explaining that SHRD must respond to both planned and emergent strategies. Numerous authors including Garavan (2007) question how SHRD can be successfully evaluated to show return on investment whilst Grieves (2003) explains that sometimes training professionals lack the ability to become strategic business partners. The supporting role of line managers in creating linkage between strategy and employee is also well debated (for example, Garavan, 2007 and Sikora and Ferris, 2014). Reinforcing this myopic debate, Garavan and Carberry (2012) argue that,

> "*The Achilles heel of SHRD remains the stakeholder perception, executives, managers and employees alike, that its costs (e.g. resource, time and financial investment) may outweigh benefits (e.g. learning, behavioral change, bottom-line impact) (Swanson, 1998).*"
>
> Gubbins et al. (2018, p. 193)

Whilst this varied debate is acknowledged as it is associated with the skills and training link, the study does not centre on the role of SHRD and training although it does spotlight senior and line management support for learning as a dynamic capability feature which links to the summarised SHRD debate presented. Understanding of this will be gained through leaders and managers perspectives and this will extend the dynamic capability debate and aligning that with the focus on employee digital communication competence.

2.4 An Original Contribution to Dynamic Capability Debates: The Employee Digital Communication Skills Focus

Using managerial perspectives, the study investigates the importance of digital communication competence in their strategic learning and knowledge transfer bundle. The chapter has shown how dynamic capability and the subsequent measures extracted from those debates link to the contemporary UK tech-led economy, the digital transformation context and further to digital skills and digital communication competence. Reflecting this, Khalil, and Belitski (2020, p. 23) argue that "*dynamic*

capabilities are becoming increasingly digital" and add that, "*investment in digital skills is key for productivity and sales growth. "* This reinforces the importance of the study in investigating the importance of digital communication competence in the UK Professional Business Sector competitive context. Deeper understanding of how employees digital skills contribute to competitive advantage through a significant UK political and economic change period is centric in this research focus and spotlights the UK using Khalil, and Belitski's (2020) perspective.

Given that the study refers to the term 'employees,' here clarity of terminology is required. Whilst there is a contentious debate and legislation linked to the employment of sub-contractors and agency temporary staff for the CIPD (2021), for Atkinson (1984) 'workers' are positioned outside the core groups of employees in the organisation confirming the general consensus and contemporary debate offered by the CIPD. The notion of the 'workforce' and 'employees' needs to be considered and as indicated Atkinson's model of the flexible firm (1984) supports the debate. As depicted in the figure overleaf, Atkinson defines a core, first and second peripheral group of what he explains are 'employees.' This includes those employees working full time and those on a variety of part time and casual contractual roles and in the contemporary workplace these include fixed term and zero hour contacts (CIPD, 2021). As such, this investigation focusses on evaluating the digital communication competence needs of what the study defines as 'employees.'

Fig. 2.3: Atkinson's Model of the Flexible Firm

Adapted from Atkinson (1984, p. 29)

Whilst Atkinson's model is heavily critiqued in organisational flexibility debates it is employed within this study to support which parts of the workforce will be considered in the digital skills focus on the study. Although the organisation must look at the total talent within the workforce in an inclusive way and extend that to the employed group (Campbell and Hirsch, 2009), an inclusive workforce talent debate highlights the key role of agencies in sourcing highly skilled employees for Morris, writing on behalf of People Management Magazine in 2019. She proposes looking to recruiters as 'specialists in job roles, technologies, or industries' is an option for organisations in that they have wider access to skills talent and thus it is their responsibility to source a highly skilled talent pool with the requisite skills sets already in place on appointment.

This is further reinforced by the HR architecture model proposed by Lepak and Snell (1999) who argue that subcontractors are seen to be 'qualified individuals' on some type

of short term tenure given that they are an independent business for a contract of services. As such, the organisation should seek to employ them with the skills they need to offer that contract of service (CIPD, 2020 and Lepak and Snell, 1999). In summary then 'employees' within the context of this study are core and peripheral groups identified by Atkinson (1984) and identified by the CIPD (2020) and for Lepak and Snell (1999) these are core and job based employees. These include all staff in full, part time and fixed term roles including temporary (but not short term agency work), zero hour and internship contracts but excluding sub-contractors and agency workers temporarily supplied on behalf of an agency (that is, less than 12 weeks). The latter is justified in line with the Agency Workers Regulations (2010) (CIPD, 2020) but also links to the notion of alliance workers who are expected to bring the requisite skills needed on appointment (Lepak and Snell, 1999).

The study also seeks to respond to some of the criticisms of dynamic capability studies contested by Arend and Bromiley (2009) and others. They argue that there is a *''lack of a coherent theoretical foundation''* (p. 76) although the study serves to reinforce the dynamic capability debate by employing the Teece, Pisano and Shuen (1997) and Teece (2007) constructs depicted in section 2.3.1 as frameworks for analysis. Indeed, it is acknowledged that whilst there has been huge interest in the theory it is considered problematic to measure empirically (Easterby-Smith, Lyles and Peteraf, 2009) concurring with Erikkson (2013). For Arend and Bromiley (2009, p. 77) this links to *"weak empirical support''* and serves to make it uncertain which processes apply to creating dynamic capabilities. Table 2.9 and section 2.8 summarise the key measures which have been extracted from published literature and those debates have helped form the *"dimensions-related constructs and features"* defining the debate on how the resource base is modified and adapted for Barreto (2010, p. 273). The study investigates if digital communication competence is important feature of "*dimension related constructs"* underpinning competitive advantage in the UK Professional Business Sector.

The digital skills focus must extend to the whole employee pool within the organisation for Nania et al. (2019) and thus, whilst skills apply to individual employees they also apply to the whole workforce to drive organisational performance (Sousa and Rocha, 2019a, p. 327). In the digital era there must be a focus on employee skills in the dynamic

organisational environment (Rashid and Ratten, 2020) reflecting how technology skills have featured in Resource Based View debates. In line with the study, Pant et al. (2018) extend an earlier debate offered by Meso and Smith (2000) and link technology skills to knowledge transfer using a resource based lens. As indicated earlier, Ellis-Chadwick and Estrella-Ramón (2017) also employ the Resource Based View and focus on digital skills to discuss Mexican town development.

Despite this, how employees contribute to dynamic capabilities was less clear at the start of the twenty first century (Wooten & Crane, 2004; Salvato, Sciascia and Alberti 2009) with Teece and Lazonick (2002) contending that unique skills and capabilities should receive a greater focus as these were not clearly defined. Morgan, Vorhies, and Mason (2009) debate patterns of 'skills and knowledge which are developed over time to become set routines' although this debate largely discusses skill in the organisational context of firm ability and not employee skills per se. Reflecting the digital study context, Ahmad, Paperta and Pflaum (2018) examine dynamic capability implantation skills to focus on an Internet of Things (IoT) strategy and linked that to alliance, entrepreneurial and technological orientation competencies in driving a differentiation strategy. With a greater focus on the current study again, Mendonça and Andrade (2018) link dynamic capabilities to digital transformation and focus on the Internet of Things, Big Data and Artificial Intelligence.

Offering a clearer employee skills focus, Luo (2000, p. 360 -361) examined international expansion using a dynamic capabilities lens and found that capability at strategy/business level included technology and operational abilities. Technological capabilities included, "*patents, trade secrets, proprietary designs, product and process innovation*" whilst operational skills were linked to marketing and promotional skills and a focus on distribution capacities. This workforce skills debate extends to research scientist skills in new product development (Deeds, DeCarolis and Coombs, 2000) and the ability 'to collectively encode, store, and retrieve information or knowledge' in varying contexts for (Argote and Ren, 2012).

The knowledge management focus links to this study although with closer association, Nagarajan and Prabhu (2015) provide an insight into employee technical competence linking that to dynamic capabilities but they did not focus on a unique digital skill set.

Similarly, Yan and Gao (2016) concur with Wright, Dunford and Snell (2001) and link dynamic capabilities to HR practices and emphasise that employee skills should be developed but fail to articulate which skills sets need building on. Indeed and at the turn of the last century, Zahra, Sisodia and Matherne (1999) linked technology skills to dynamic capabilities to reflect the focus on changing skills sets at that time.

Extending the debate and with the UK focus on digital competence being centric to jobs now and in the future for Kispeter (2018), explicit attention should be paid to the digital skill set of employees although until very recently dynamic capability studies have largely lacked focus on digital competence. Despite this. some very recent but rather under cited studies have reinforced the link between digital skills and dynamic capability and as such, this study served to build on Khalil, and Belitski (2020) and Rashid and Ratten (2020). The study extended their focus and examined if dynamic capabilities were aligned with a specific digital skill focus by uniquely examining the current need for digital communication competence in the competitive context of a specific UK contemporary workplace. This is the final *"dimension-related construct"* or measure indicating organisational *"propensity to change the resource base"* for Barreto (2010, p. 273) and links to the second theme for the literature. As such, the next section begins by establishing the macro, global and UK context which underpins the contemporary need for digital competence.

2.5 Understanding the Role of Digital Communication Competence in the Contemporary Workplace: Setting the Scene of the Macro Context of In - Demand Skills and the Changing Nature of Work

In the current dynamic digital business environment, many authors argue that new technology skills must be in focus to support competitive advantage and dynamic capability (for example, Bharadwaj et al. 2013 and more recently, Fellenstein and Umaganthan, 2019 and Jacobs and Pretorius, 2020). Indeed, in working towards an understanding of how digital communication competence supports the contemporary workplace, these initial sections set the scene to ultimately arrive at the focus of the investigation featured in section 2.5.4. The initial sections are also important in aligning dynamic capability debates with the current business content and they ultimately

reinforce the study focus on digital communication skills, how these support the changing nature of the work and how they contribute to business success.

The link between digital skills and the changing nature of work sits within the context of a macro debate regarding the fourth industrial revolution for Schwab (2016, 2017 and 2018), who built on Drucker, (2000) in examining the current digital revolution. For Gupta et al. (2020) the fourth industrial revolution is also labelled 'Industry 4.0' in contemporary debates although earlier writers also recognised the emergence of this. Maynard (2015) explains how digital technologies dramatic impact manufacturing in Germany with Bloom et al. (2014) arguing that the fourth industrial revolution started to take effect at the end of the last century. This is deeply debated by authors contributing to what they define as *Industrie 4.0.* in Briken at al. (2017) as shown within this section and by Teipen writing within that text. She examines how the new economy links to video industries and contends there are dominant economies including the USA, Japan, the UK and France who are leading the global way by aligning their value chains with this focus.

Additionally, Jacobs and Pretorius (2020) concur with Yeow, Soh and Hansen (2018) and apply this debate to dynamic capabilities whilst professional commentators McKinsey (2020a) argue that new technologies have resulted in 'improved agility and customer centricity' in the fourth industrial revolution manufacturing context. Certainly, Peccarelli (2020, p. 2 writing for the WEF) concurs that the fourth industrial revolution is ''*rewriting the business rulebook*.'' This macro debate broadly relates to the Internet of Things (IoT) which has been keenly discussed over the last decade (by Pfeiffer writing in Briken et al, 2017); Atzori, Lera and Morabito, 2010; Wortmann and Flüchter, 2015 and Tan and Wang, 2010 amongst many others) and for which for Schwab (2016, 2017, 2018) and all these authors, review the speed of technological development. Briken et al. (2017) acknowledge this debate but contend it presents a rather 'black and white' picture on the changing world of work with the nuances on how this impacts and their success being more deeply depicted in academic debates. They argue this links to a changing focus on which skills and competencies are required but that then creates different power structures.

Shultze (2019) maintains this has major implications for governments, policy makers, industry and business leaders. Briken et al. (2017) concur and explain different national

perspectives are linked to Industrie 4.0. Pfeiffer writing in Briken et al. (2017) concurs and adds that countries are starting to race towards this focus through new programmes. For example, she cites Hannah (2015) who explains how the US have created a Smart Leadership Coalition whilst Butollo and Luthje (again in Briken et al. (2017) discuss the Made in China 2025 programme. Pfeiffer (2017) contends that Germany's Industrie 4.0 is the key competitor for these countries whilst Butollo and Luthje writing in Briken et al. (2017) argues that China's Industrie 4.0 alignment is creating global manufacturing power.

Despite this, Pfeiffer (writing in Briken et al. 2017) argues that national programmes are in an evolutionary phase and certainly, academic debate continues to be unfolding and current with Spagnoletto, AlabdulJabbar and Jalihal (2019) discussing how people strategies can be shaped in the Fourth Industrial Revolution on behalf of the WEF. Additionally, Seet et al. (2018) apply this digital development in the Australian context whilst Molná et al. (2020) very recently investigated how this applied to the Hungarian automotive industry. Adding to the debate, Atkinson (2018) links strategy to new technology and indicates this necessitates structural change.

This is essential as the Fourth Industrial Revolution has led to the proliferation of emerging mega trends which can be defined as physical, digital and biological clusters (Park, 2018; WEF, 2017a and 2017b). Physical clusters are linked to autonomous vehicles, 3D printing, new materials and advanced robotics for Manyika et al. (2013) who argue these 'disruptive technologies' serve to have transformational impact on global work and society. Will-Zocholl writing in Briken et al. (2017) emphasises how virtual work is creating a significant impact on the reorganisation of work which in turn impacts on new modes of digital communications being essential. Li, Hou and Wu (2017) concur and contend the world is 'galloping' into a world of new technologies which will have major impact on governments and business. For Schwab (2016), these clusters centre on the Internet of Things (IoT) and focus on technologies connecting things with people.

The link between this new world of work and dynamic capability debates is nothing new with Heflat and Winter (2011) revisiting critiques of the theory in this context. In 2009, Cetindamar, Phaal and Probert examined technology management activities using a dynamic capability lens whilst numerous more recent studies make the link between

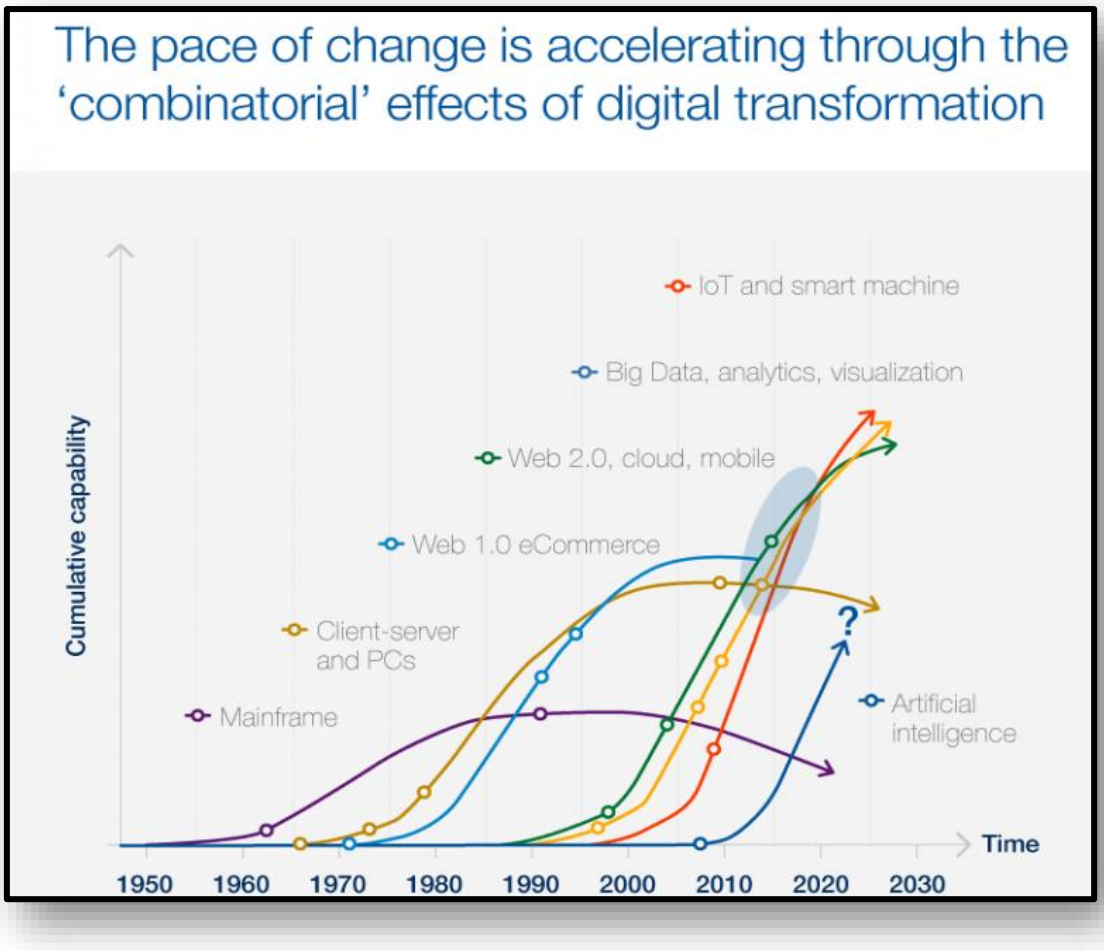
emergent technologies and the theory (for example, McLaughlin, 2017, Khanagha, 2015 and Carcary, Doherty and Conway, 2016). This has led to a plethora of investigations linking dynamic capabilities to digitalisation including most recently, Wamba and Queiroz (2020) connecting the construct with blockchain and fourth industrial revolution debates. Certainly and most recently, authors have made the connection between 'Industry 4.0,' new technological features and dynamic capabilities (Gupta et al., 2020) with many focusing on manufacturing and industry (for example, Ghobakhloo, and Fathi, 2019). This extends a long standing debate focusing on automation in manufacturing and dynamic capabilities (for example, Cumuffo and Volpato, 1996 and more recently, Macher and Mowery, 2009) with very recently, Bag, Gupta and Luo (2020) applying dynamic capabilities to advanced manufacturing debates and centring their focus on new technologies. Additionally and in line with the new technology focus of the study, several authors have investigated the relationship between Artificial Intelligence and dynamic capabilities including most recently Gallego-Gomez and De-Pablos-Heredero (2020). These studies reflect how society is becoming increasingly digitalised with significant debate surrounding the definition of 'digital' and 'digitalisation' (Dufva and Dufva, 2019).

They explain that,

> "*in information technology, the term digital refers to the binary number system, which was adopted in the mid-20th century as a primary logic for digital computers (Ceruzzi, 2012; Steiner, 2013*). *By digitalisation we refer to the actions of transforming various previously physical or analogue actions into digital data systems*."
>
> Dufva and Dufva (2019, p. 19)

For Bukht and Heeks (2017), the concepts have led to significant debate on how this will impact society given they are forcing rapid changes on the way people work and live. Indeed, as indicated in figure 2.4 overleaf, the sum of all these digital technology effects including, "*mobile, cloud, artificial intelligence, sensors and analytics among others"* is serving to accelerate digital impact rapidly (WEF, 2020a, p. 1).

Figure 2.4: Applying Digital Transformation to the Pace of Change



Source: WEF (2020a, p. 1)

Over the last decade authors including Manyika et al. (2013) and Li, Hou and Wu (2017) have argued that the speed of technological acceleration has been great and 'pervasive' as depicted in the figure above with Jacobs and Pretorius (2020) also proposing this presents challenges to governments, organisations and individuals. Reflecting this, and from an economic and trade perspective, Consultancy UK (2018a, p. 2), argue it is globally imperative that countries respond to this fast paced digital change as failing to do so could mean they could, "*miss out on as much as $1.5 trillion in GDP growth over the next 10 years.*" Despite this, Schultze (2019) argues that some governments are struggling to keep up with the pace of technological change.

The acceleration of technological innovations has run alongside wider global macro forces and radically forced changes to the nature of work and the skills needed to do that work (Mühleisen, 2018 and Schwab and Davis, 2018). Reflecting this,

> *"Rapid technological innovation, globalization, demographic shifts, climate change and geopolitical transformations are having an unprecedented impact on the work and skills landscape. On one hand, new technologies bring with them exciting opportunities, both for businesses in terms of their productivity, and for the workforce in terms of replacing unhealthy, dangerous and repetitive tasks with high-skilled work."*
>
> WEF (2020b, p. 4)

The quote above encapsulates the foci of this study and highlights how the future of work will increasingly require a revitalised job and skills focus in this digitalised era. Indeed, preparing people for the required skills for, "*an increasingly digital and globalised world is essential to promote inclusive labour markets"* as this leads to *"innovation, productivity and growth*" for the Organisation for Economic and Cooperation and Development (OECD) (2016, p. 1).

In the UK context, and offering a more current perspective, the lack of technology-based skills continues to affect national productivity and economic growth and as such is having a major impact on both current and future jobs (Nania et al, 2019). Reflecting this, the Industrial Society (2019, p. 4) employ McKinsey data and argue that "*by 2030, 7 million additional workers could be under skilled for their job requirements"* they add this "*would currently constitute about 20% of the labour market."* Additionally, they contend that this will fundamentally change the nature of jobs, with some requiring a digital skill set whilst others will be replaced by new occupations.

Kispeter (2018) concurs and explains how a raft of European Commission and UK Government strategic initiatives addressing this have emerged in response. In summary, the European Commission aligned their focus on 'Shaping the Digital Market' in their 2014-2019 strategy which centred on three pillars of activities (European Commission, 2020a and 2020b). In terms of business, these related to: access (to goods and services); the environment (encouraging innovations) and society (maximising business growth).

Reflecting this, the UK Digital Skills Strategy of 2017 (which feeds into the overarching UK Industrial Strategy, 2017) has seven areas of focus which include driving business productivity through innovations and focusing on developing the required skills. Despite this, Hunt (2019) argues that the strategy has 'lost momentum' and whilst it is clear that national strategic imperatives have centred on recognising the changing nature of work and skills, further work is needed to address the national need for digital skills (Nania et al. 2019).

This confirms the Industrial Society (2019), who concur with Kispeter (2018) and Peccarelli (2020) and contend that alongside changing skills sets, the accelerated use of new technologies including automation and artificial intelligence (AI) present a huge challenge to businesses. Automation and AI could potentially serve to impact the labour market, replacing lower skilled work and generating a need for strategic research and development (R & D) and innovation to support higher skills labour (Hislop et al., 2017; Peccarelli, 2020 and Kispeter, 2018). Indeed, for professional writers, the economy of the future will be 'tech-led' (Mouddene et al. 2019, PwC, 2020a Deloitte, 2020 and Riley et al., 2020).

2.5.1 The Changing Work and Digital Skills Perspective

Despite this, debates about technology and the future of work are nothing new and extend back to Adler in 1992 and even further back to Jones and Baker in 1982 for Bennett, Maton and Kervin (2008) concurring with Roser and Ritchie (2013). Earlier in the literature chapter it was emphasised that Teece (2007) centres his 'sensing, seizing and transforming' debate on the role of technology and in response, many dynamic capability studies focus on AI, Big Data and digital processes including Mendonça and Andrade (2018). More recently, this digital focus has achieved extensive academic, international and professional attention with the OECD Employment Outlook (2019), arguing that the future of work is linked to three megatrends: technological progress and digital transformation, globalisation, and demographic changes reflecting earlier debate from Schwab (2017) and the House of Lords (2017). Shuen and Sieber (2009) concur adding that new technologies enhance dynamic capability. They contend that,

> *"Many of the "strategic inflection points" or "tipping points" disrupting businesses and challenging their competitive leadership are cultural, social, and global, as well as user-generated. Some of the more unexpected items on the boardroom agenda include the knowledge economy, local and open innovation, global warming, social warming and collective capitalism."*

Shuen, Feiler and Teece (2014) extend this perspective to net capability in the oil and gas industry whilst Shuen (2018) provides a contemporary perspective examining how google adopt a supply side and demand side to create a multiple network and extend their dynamic capability. This is aligned with the perspective offered by Wheeler in 2002, who proposed that Net-Enabled Business Innovation Cycle (NEBIC) linked to dynamic capabilities and centred on new IT perspectives and how they created refreshed revenues through an innovation focus. Fundamentally, Sheun (2018) and Wheeler (2002) link net capability to new trends in technology.

In acknowledging that these trends are also all fundamentally interlinked, this section of the literature chapter focuses on how emerging new technologies impact the contemporary workplace and create the need for employee digital skills. These digital skills sets form the foundation on which higher level skills can support jobs in the future (Kispeter, 2018). Concurring, Servoz (2019), writes on behalf of the European Commission and offers a summary depicted overleaf which indicates: the current impact of digitalisation on jobs, how digital skills deficits remain problematic and that 90% of current jobs need these digital skills.

Figure 2.5: Digitalisation Impact on Jobs and Skills

Source: Servoz (2019, p. 23)

The figure above indicates how 61% of people in the EU do not have basic digital skills and also automation has the potential to negate the need for less skilled jobs. Reflecting this insight, Deloitte conducted a European Workforce Survey in August 2018 which involved 15,000 managerial employees across ten European countries (France, Germany, Italy, the Netherlands, Poland, Romania, Spain, Sweden, Switzerland and the United Kingdom) and this offers a professional insight into the future of work and how this links

to digital skills. Their findings concur with Picarelli (2020) although even earlier Manyika et al. (2013) concluded that automation and robotisation are already impacting work and will continue to do so with greater effect.

Bakhshi et al. (2017) also considers automation to be having the greatest impact on work whilst Azhar (2017) and Manyika et al. (2013) add that in the ever-changing global technological environment advancements also include: artificial intelligence (AI), robotisation and cyber security. Servoz (2019, p. 26) contends that in defining artificial intelligence (AI), automation and robotisation, it is evident that they are interlinked and explains how, "*artificial intelligence refers to systems that display intelligent behaviour."* He adds that these AI systems autonomously assess environments, respond and then achieve the explicit goal they focused on. AI systems can be solely software based operating in the virtual context or can be nested in hardware systems and processes. The former includes robotic conversational support and "*image analysis software, search engines, speech and face recognition systems."* Hardware digital features include *"advanced robots, autonomous cars, drones or internet of things applications"* Servoz (2019, p. 26).

He argues that all three technologies are actually nothing new and indeed, as Bakhshi et al. (2017) acknowledge, a wide academic and professional debate has raged concerning how far these threaten to replace humans in jobs (Frey and Osbourne, 2013; Arntz, Gregory and Zierahn, 2016, OECD, 2020a, 2020b, PwC, 2017, 2020b and McKinsey, 2019). Despite this, some writers argue that automation offers employees the opportunity to expand on their digital skill base (Moueddene et al., 2019). Concurring, Hislop et al. (2017) conducted a rapid review of literature and debate the impact of these technologies on health and transport jobs. They conclude that automation serves to complement rather than replace human input and the emphasis is on workers to develop higher level digital skills by building on the requisite skills which their employer needs now.

In determining what these higher level skills will be, McKinsey (2019) argue that as routine tasks are increasingly replaced by machines there will be a need for digital skills to work in tandem with "*socioemotional, creative, and higher cognitive skills*" (p. 35). Additionally, PwC (2017) conducted a global survey and examined how organisations should prepare the workplace for the jobs of tomorrow. They found that whilst 76% of

respondents considered reskilling workers as key in response to the threat of automation, 87% also valued human skills. Expanding on this, Kispeter (2018) provides an extensive review on behalf of the UK Government and examines the current digital competency requirements which provide an indication of which skills might be needed in the future. Citing Levy and Murnane (2004), (cited in Bakhshi et al., 2017) Kispeter (2018, p. 24) explains that alongside the need for higher level skills there is a "g*rowing demand for skills in expert thinking and complex communication*."

In line with the study focus and in defining this notion of 'complex communication,' Kispeter (2018) reinforces the importance of digital communication skills citing research from Deming (2015). He argues that since the 1980s social communication skills in US employment have grown in contrast to a decline in analytical skills. This focus on upskilling in digital communications is further reinforced by PwC (2019) who argue this supports learning, knowledge sharing, collaboration and employee engagement in the professional business context. Jordan (2018) applies this to a small business perspective and argues that both upskilling and reskilling are key to creating effective digital transformation with digital communication skills being key to laying the foundations of this transformational approach. Additionally, Kitenge (2020) includes digital communications as part of the strategy in addressing the digital divide and contends that upskilling creates a specialist 'Internet of Things Workforce.' DeFranco, Kassab and Voas (2018) concur, arguing that employee digital skills training and an organisational learning approach are key to creating this focus. This is a long standing debate with Tavčar et al. (2005) linking technology skills to online communications and with a more current focus, digital skills being seen to support team development (including Balakrishnan and Das, 2020; Singh and Hess, 2017 and earlier, Berman, 2012). Nylén and Holmström (2015) concur with Guinan, Parise and Langowitz (2019) and add that to drive a successful digital innovation strategy this might involve digital skill retraining to support acquisition of higher skills in product development teams.

This might be achieved through learning platforms which underpin the digital workplace (the EU, 2020c) and support skills development in the digital economy (Frietas Junior et al., 2016) although Fainshmidt et al (2016) add that measurement of learning must underpin this. This extends the debate offered by Teece (2014a) who contends evaluating

learning is a key measurement feature in dynamic capability debates. That perspective serves to extend a comprehensive debate linking Kirkpatrick's model of learning evaluation with competitive advantage (for example, Barney, 1995 and Burden and Proctor, 2000). Indeed, for Dai, Duserick and Rummel (2009) this supports a learning culture centred on competitive advantage.

In summary, and in addressing the need for an 'Internet of Things Workforce,' employees need a package of both digital and non-digital skills although the acquisition of and specialisation in digital skills is crucial in underpinning their competencies (Nania et al., 2019 and Hislop et al., 2017). Despite this, the effectiveness of this digital skills acquisition is uncertain given that a plethora of international and UK contributors have debated the 'digital skills gap' for some time.

2.5.2 The Digital Skills Gap: Ever Widening or Closing up?

This contextual debate centres on how digital skills are essential in innovation, productivity and economic global growth and are vital in a contemporary focus (WEF, 2020a and 2020b). Additionally, UNESCO (2018a and 2018b) contend that, digital skills are no longer 'optional but critical.' Despite this, and in the last decade, it has become clear that this skills focus has been hampered by an international digital skills gap which extends to the UK and serves to threaten national competitivity (GOV.UK, 2017a). Certainly, these contributors reflect how the digital skills gap has attracted wide attention during the last decade although this extends right up to the current period as the table overleaf supports. These UK Governmental, organisational, professional and academic perspectives are not intended to create an exhaustive review of this debate but rather offer a snapshot of wide evidence emerging within the last decade reflecting that the digital skills gap continues to attract debate.

Table 2.4: UK Contributors to Debates Relating to the Digital Skills Gap

Governmental	National Organisational	Professional	Academic
In July 2020, The UK Government launch a Research and Development Roadmap which, once again, addresses the national digital skills deficit (GOV., 2020) The Government continue to investigate the digital skills gap issue and how that impacts jobs and work, employing Nania et al. (2019) from Blue Stone Technologies to support that investigation.	The CBI (2020, p. 7) update on UK progress but argue that, "*79% of businesses expect to increase their number of higher-skilled roles, and 95% expect their digital skills needs to increase in the next 3-5 years. Yet 66% fear there will be a lack of sufficiently skilled people to fill these vacancies. The widening skills gap is a problem with no quick fix.* "	IAB UK (a digital marketing leader) and Middlesex University (2020) collaborate to investigate digital skills gap in the advertising industry and provide advice on managing talent. Bradley (2020) also discusses how young people are leaving compulsory education lacking the required digital skills set they need for work and this threatens the UK's competitive potential. Reflecting this, Norton and Sewter (2020) write for Advance HE and argue that digital skills gap is affecting employability.	Kornelakis and Petrakaki (2020) examine employability and the lack of graduate digital skills whilst Taylor-Smith et al. (2019) discuss how computing degree apprenticeships might serve to close the digital skills gap whilst West, Kraut and Ei Chew (2019) argue the skills gap is gender based. Lyons et al. (2019) argue that vulnerable populations are disadvantaged because the digital skills gap limits their potential in the future of work and Bastien et al. (2020) concur, arguing that people with disabilities have more of a digital skills issue and therefore the

			skills gap is more of a problem for them.
In 2018 (p. 25), Dr Erika Kispeter from Warwick Institute for Employment writes on behalf of the UK Government and cites Curtarelli et al. (2017) reporting how, "*Larger digital skills gaps are reported in the high- (managers, technicians) and in medium-skilled (clerical workers, sales workers) occupations. Digital skills gaps are also reported in lower-skilled occupations, except for workers in elementary occupations. Looking at the industrial sectors, the survey has found that workplaces in the manufacturing or construction sectors are more likely to report digital skill gaps."*	Taylor-Smith et al. (2019) examine the issue of the digital skills gap in the Scottish West Highland context and link that to apprenticeship discussion whilst in 2018, the CBI (p. 2) indicated how "*more than three-quarters (79%) of businesses expect to increase the number of higher-skilled roles over the coming years. Yet two-thirds (66%) fear that there will be a lack of sufficiently digitally skilled people to fill vacancies.*" Hamilton (2019) applies the skills gap	Technological skills gaps affect the UK Professional Business Sector's ability to expand' which is having significant impact on sourcing and developing the required digitally skilled talent (Deloitte, 2018).	Brooks et al. (2018) offer a review of the UK Professional Business Sector indicating how it contributes to UK productivity through an innovation focus but that this is being impacted by the need for higher level digital skills. Tryfonas and Crick (2018) extend this and argue that public policy impact cities in the UK.

	debate to the Northern Ireland higher educational context.		
Kispeter (citing Winterbotham et al., 2018, p. 25) also indicates that, "*the UK Employer Skills Survey 2017 also reported gaps in workers' digital skills, with just over a third of all skills gaps (35%) involving a deficiency in digital skills. This includes both basic computer literacy and IT skills (25%) as well as more advanced or specialist IT skills (19%). The proportion of skills gaps that can be at least partly attributed to a lack of proficiency in digital skills is very high among establishments in the Public Administration (50%) and Education (42%) sectors.* "	The Economic and Social Research Council (2018) (on behalf of the Good Things Foundation) report how the digital skills was impacting economic growth and that 6.9 million people will remain digitally excluded by 2028.	Consultancy UK (2018b) report that, "*If G20 countries fail to adapt to meet the needs of the new technological era, they could be in line to miss out on as much as $1.5 trillion in GDP growth over the next 10 years. A growing skills shortage means that much of the potential of digitalisation could go unrealised, with the UK facing forgoing more than £140 billion to that end.* "	Djumalieva and Sleeman (2018) examine which digital skills are needed in future jobs and identified digital skills needs based on occupational groups.

Numerous regional strategies emerge in response to the national strategy and focus on addressing the digital skills gap including: • The Greater Manchester Digital Strategy 2018-2020 (Burnham and Anstee, 2018) • City of London (2018) Digital Skills Strategy, 2018-23 Shaping tomorrow's City today • Digital Glasgow (2018) Glasgow City Digital Strategy	The CIPD (2017) reports how the UK was 'sleepwalking' into a low skilled employee based which serves to severely threaten the economy.	Knights - Ward, writing for LinkedIn in 2016 and indicate that, "*The digital skills gap in the U.K. is an increasing concern for not just the government—but for employers and those hoping to be hired into a new generation of the workplace. In fact, they are calling it a digital skills crisis. With 745,000 digital workers needed by 2017—a billion-dollar shortfall is at stake for both the economy and the tech industry*" https://business.linkedin.com.	Morrison and Rooney (2017) examine the digital skills gap in the UK public sector and conclude that in almost all areas of the sector there is a need for digital and technology, including design, delivery and technical skills.
The Governmental Department for Digital, Culture, Media and Sport (2017), p. 4) launch their 'Digital Strategy for a Digital Economy' which had seven strands with one of these focusing on giving everyone access to the digital skills they need. The	In 2017 the Federation of Small Businesses report that the digital skills gap in small firms was holding back productivity.	In 2017, Barclays reported how although the UK was progressing favourably in digital skills development, international comparisons indicate that change needed to be accelerated to sustain global competition.	Berger and Frey (2015) report how the education system was failing to prepare people for the contemporary world of work with digital skills gaps becoming wider as a result.

corresponding policy document included a focus on 'digital skills for digital jobs' this indicated how '' *an estimated 1.2 million new technical and digitally skilled people are needed by 2022 to satisfy future skills need*."			
In 2016, the House of Commons Science and Technology Committee report how digital skills gaps in industry remained problematic in terms of economic growth. They cite research by O2 which indicates how the UK needs a further 745,000 digitally skilled employees to meet organisational demand and provision is essential to ensure the workforce is prepared for future technological changes.	The Skills and Employment Survey of 2017 indicate that uptake of technology in some businesses is having a positive impact on the digital skills gap (Kispeter, 2018).	Mussadique (2018) writing for The Independent and citing research from professional services analysts argues that the digital skills gap could be detrimental to both jobs and access to talent.	With an IT sector focus, based Moore-Coyler (2015) cite the International Technology Adoption and Workforce Trends Study published by CompTIA which indicated a significant shortfall in IT talent for 45 percent of 1,507 IT executives. A further 46 percent were struggling to source external staff with the requisite skills and experience.
In 2016, Ecorys publish their report on behalf of the UK Government and	Ecorys (2016, p. 27) indicate how "*CITB*	Mussadique (2017) writing for The Independent and citing research	Banks are facing similar challenges in the face of changing business

identified sectoral, occupational and regional skills gap issues.	*(Construction Industry Training Board) in Northern Ireland highlights that whilst skills gaps amongst the existing construction workforce are not extensive, and largely job-specific, IT related skills is one area where skills were frequently reported as lacking*"	from professional services analysts, argues that Post Brexit would worsen the UK digital skills gap	models and IT and digital skills gaps have also been intensively researched in the construction industry Gambin et al. (2016).
Baroness Martha Lane Fox champions the UK need to address the digital skills gap with this snapshot indicating how she made this vast contribution to the debate. • In 2013, she addressed the CBI and indicated that 16 million UK citizens lacked basic digital skills (Cadwallader, 2013).	Ecorys (2016, p. 27) also indicate how, "*The CBI 'Gateway to Growth 2014' report notes that approximately two thirds (61%) of businesses involved in their survey reported that their*	Wood (2015), writing for the Guardian, reports how both workplace training and formal education were failing to address the need for digital skills.	Spitzer et al. (2013) quoted Martha Lane Fox (the Government's digital champion and addressed the digital skills gap with recommendations how that could be bridged.

• In 2015, she offered an overview on societal use of digital technologies in a Richard Dimbleby Lecture (Fox, 2015). • In 2015, she commented on how generational and gender gaps in digital skills were concerning (Chatham House, 2015).	*employees had weaknesses in IT skills competencies*. "		

Sources: Various

The table above indicates how academic, governmental and professional debates focusing on the digital skills gap have been clearly evident for well over five years. Their perspectives suggest that whilst wide attention has been focused on this issue the problem has not been resolved with educational providers falling behind in addressing this. Complicating this, and for Ecorys (2016), Kispeter (2018) and Nania et al. (2019), employer digital skills requirements are ever changing. This is reflected in the featured snapshot above which summarises the debates from over the last half of the decade and only in UK terms. Indeed, there are wider perspectives regarding this issue which stretch back into the last decade for van Laar et al (2017). For example, Van Deursen and colleagues examined unlocking the information society and measuring and improving digital skills in earlier publications (Van Deursen and Van Dijk, 2014, Van Deursen et al, 2014 and Van Deursen and Van Dijk, 2009). Offering a more contemporary perspective, Moolman (2020) adds that the global digital skills crisis is actually getting worse with Shortt, Robson and Sabat (2020) arguing that Canadian employers cannot find workers with the digital skills they need. Additionally, Kispeter (2018) and Nania et al. (2019) argue that the nature of the UK skills gap is changing in that there is now more focus on 'competence' rather than skills.

In the current context and as depicted above, Open Access Government (2019) and Moueddene et al (2019) argue the skills gap continues to widen and serves to be problematic to economic growth. The table above also indicates that this is evident in a long-standing UK Government drive in recent years with (most recently) Nania et al. (2019) from Blue Stone Technologies and Kispeter (2018) and her team at Warwick University being recruited by Government to investigate the persistent skills gap issue. Indeed, and as shown, the 2020 Research and Development Roadmap launched by Government in July of that year also addresses the ongoing digital skills deficit (GOV.UK, 2020). This could reflect how the UK Government Digital Strategy appears to be stalling for Hunt (2019) who argues this is certainly linked to the unstable political and economic landscape in the UK. This further impacts the digital skills issue and reflects the earlier view that this is an ongoing issue for business (Public Accounts Committee, 2018).

In 2018 the CBI argued that the UK was failing to thrive in 'digital connectivity' although more recently the digital sector is making a £149 billion contribution to the UK economy

according to Warrington (2020). In part, this has been attributable to the emergence of the safety technology sector for Dineage (2020), speaking on behalf of Government. Despite this, the 2020 withdrawal of the Huawei deal was viewed as being likely to have an impact on digital connectivity in the next two years for Kelian quoting the Digital Secretary in July 2020. Compounding this, the UK digital skills deficit continues to be a struggle (Klimaki, 2020). Concurring, Milano (2019, p. 1) writing for the WEF, argues that the digital skills gap continues to widen and indicates that as soon as 2022,

> "*at least 133 million new roles generated because of the new division of labour between humans, machines and algorithms may emerge globally. There will also be strong demand for technical skills like programming and app development, along with skills that computers can't easily master such as creative thinking, problem-solving and negotiating*."

The growing impact of digital transformation on employee talent is undeniable with senior and HR executives needing to start planning a strategy aimed at closing the impending digital skills gap for PwC (2017). They discuss the role of HR and contend that priorities include: tapping into analytics to analyse skills gaps and measure learning; emphasis on becoming more tech savvy; employing crowd sourcing approaches to recruiting tech talent and clearly identifying the impact of automation on the workplace. In this way, they contribute and centre their strategic focus on the digital workplace where digital communication competence is essential.

2.5.3 The Digital Workplace in the UK Tech Based Economy: The New Dynamically Capable Environment

Within this section, the contemporary workforce context is explained to emphasise how digital skills are ever more important in the context of new advances in technologies and their impact on work as Jacobs and Pretorius (2020) contend. The sub section will show how digital transformation debates extend the dynamic capability construct given their application within the contemporary workplace (Warner and Wäger, 2019). Importantly, the section ultimately links the debate relating to the emergent role of social media in digital communications and the inherent legal, operational and ethical issues that presents to the organisation in terms of managing online safety.

To highlight the study focus on an aspect of digital competence and in order to prepare the workplace of today for the future, professional organisations and writers have centred their debate on aligning the workforce with the contemporary UK digital focused economy (Deloitte, 2018, PwC, 2018). Herrera et al. (2019) extend this and concur with Moolman (2020) and Jacobs and Pretorius (2020), proposing that a digital mind-set, the use of big data and analytics and Cloud technology are the starting point in creating an innovation focused organisational environment and in this context, digital skills are crucial for Riley et al. (2020).

This perspective aligns the dynamic capability and digital skills themes of the research and extends the constructs applied to the study, with Dervitsiotis (2010) offering detailed depictions of how digital innovation links to business process improvements. Linking the debate to the change feature of dynamic capabilities, McKinsey (2020a) add that digital innovation is key to growth in a turbulent business environment. Whilst this is evident the focus on linking technology development to organisational success is nothing new (e.g. Brynjolfsson and McAfee, 2012) and indeed, is a central feature of the dynamic capability debate for Teece (2007). However, extending this debate into the current context and over time, digital strategy has been predicted to dominate strategic business discussions for Park and Mithas (2020).

More recent perspectives indicate that when organisations are digitally mature, they set objectives which are aligned with a digital strategy and these relate to other organisational strategies (Correani et al., 2020 reflecting Matt, Hess, and Benlian, 2015) with Yeow, Sale and Hansen (2018) linking this focus to dynamic capability debates and Fischer et al. (2020) using business process maturity as a model on which digital transformation can be achieved. Despite this, the move towards the digitalised workplace is beset with challenges for Boes et al. writing in Briken et al. (2017) arguing that this could create further control through watchable data whilst MacLean, Marks and Chillas writing in the same text argue that this could also reinforce gender discrimination due to a lack of social representation. Briken et al. (2017), discuss knowledge work in the IT sector and caution that a focus on freedom in work can lead to a lack of control and for the worker, social isolation could result.

For Kane et al. (2015), companies cannot simply rely on technological aspects to become digitally focused as managers must also be involved in enacting that strategy. Their role must centre on ensuring digital skills are created to contribute to organisational success (Jacobs and Pretorius, 2020 and Edelman Digital, 2019) and HR must also be a key conduit in the drive to develop digital skills in order to underpin the new technology focus of the business (PwC, 2017 and Garavan et al., 2016). In this way, organisations can centre their approach on digital transformation to support the tech-ed economy for Moudenne et al. (2019).

2.5.3.1 Digital Transformation Strategy

Features and organisational examples of digital transformation strategies are well debated and include contributions from Nadeem et al. (2018); Hess et al. (2016) and Chanias, Myers and Hess (2019), amongst others. Despite this, the focus in this section is not to provide an exhaustive review of these investigations but rather to discuss how a digital transformation strategy extends a digital or technology strategy and how that reflects a focus on dynamic capability.

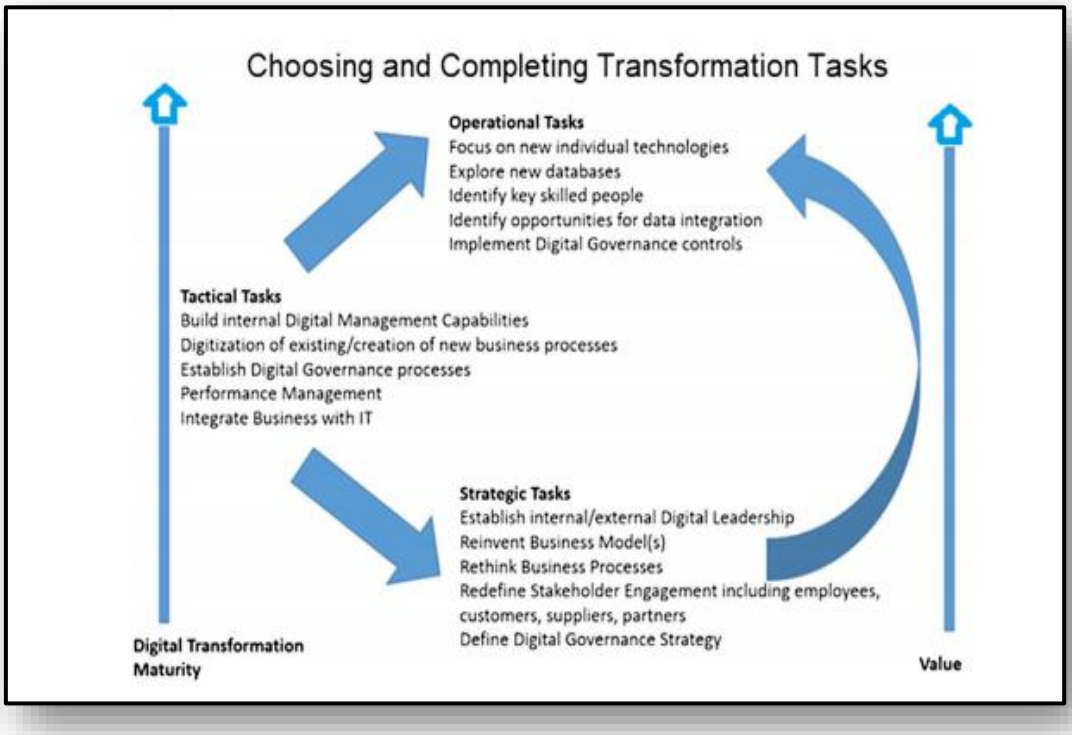
Whilst digital transformation has been key in recent professional debates, there is no explicit definition of what this is although it emphasises how digital technologies serve to transform businesses (Haffe, Kalgovas and Benlian, 2016). Indeed, Heavin and Power (2018) concur with Bloem at al. (2014) and argue that digital transformation has been evident for over 70 years with digital transformation strategy featuring in dynamic capability debates for writers including Warner and Wäger (2019) and Karimi and Walter (2015). Their discussion focus on change, innovation, streamlining operations and new business models. Additionally, Mendonça, and Andrade (2018) concur with Yeow, Sale and Hansen (2018) and link digital transformation with dynamic capabilities, contending that a strategic focus on Big Data contributes to 'sensing' debates. Indicating further alignment with this study, Hobery, Krcmar and Welz (2017) contend that digital skills in general and digital communication competence in focus, are key in underpinning digital transformational strategies. Sousa and Rocha (2019a and 2019b, p. 327) agree, arguing that the main digital skills employees require relate to "*artificial intelligence, nanotechnology, robotization, augmentation and the IoT*." Concurring, although in more

general terms, numerous authors link digital skills to digital transformation strategic debates (Tolstykh et al. 2019 and Schwertener, 2017).

Extending this strategic debate, Matt, Hess and Benlian (2015, p. 339) indicate how digital transformation strategies reflect features of broader IT strategies although they concur with Chanias, Myers and Hess (2019) and argue that they differ in that they have a greater focus on innovation. The dynamic capability 'sensing and seizing' link (Teece, 2007) is reinforced as these strategies centre on modification and adaptation of products and systems using new technologies and their remit is centred on a digital focus in business operating terms for Matt, Hess and Benlian (2015) which is 'transformational' for Teece (2007). Chanias, Myers and Hess (2019) argue that the strategic focus on digital transformation should be ever emergent although Chanias (2017) contends this leads to organisational success when competitive advantage is enabled with several business level benefits also emerging. Ismail, Khater and Zaki (2017) explain how these include streamlined services, new product innovations, better relationships with customers and refreshed business models and again this links to very recent dynamic capability debates offered by Warner and Wäger (2019) and Kodama (2020).

Importantly, Kane et al. (2015) add that in line with dynamic capability characteristics, digital transformation principles help create new markets, understand the associated risks and facilitate change. This again reflects the focus of dynamic capability studies indicated earlier in this chapter offered by Warner and Wäger (2019) and Karimi and Walter (2015). For Matt, Hess and Benlian (2015), a focus on digital transformation strategy serves to both underpin and enable broader organisational strategies which can then be linked to dynamic capability features. For Kahre, Hoffmann and Ahlemann (2017) this has emerged as a 'paradigmatic shift' moving from IT strategic alignment to a digital strategy focus. Extending this, Yeow, Soh and Hansen (2018) argue that whilst this ultimately supports 'sensing, seizing and transformation,' there can be tensions when working towards that digital transformation strategic goal. The tensions they identify reflect the tasks Heavin and Power (2018) identify in their digital transformation decision guide which indicates the choices organisations are faced with when working towards digital transformation as depicted overleaf.

Figure 2.5: Decision Making Processes for Choosing and Completing Transformation Tasks: The Skills Link



Source: Heavin and Power (2018, p. 42)

As depicted in the figure above, Heavin and Power (2018) indicate how it is evident that skilled workers are key to the transformational approach. Moreover, their model reinforces a digital focus on strategy, governance and modification and adaptation of processes, again reflecting dynamic capability debates offered by Teece, Pisano and Shuen (1997) and Teece (2012). Hess et al. (2016) argue that leaders and managers are key in this transition to digital transformation and several authors link this to the strategic role of the Chief Digital Officer (CDO) (Singh and Hess, 2017 and Rickards et al., 2017). They argue this senior role works alongside other leadership functions including the Chief Information Officer (CIO) or the Chief Technological Officer (CTO) to manage and lead the IT function in order to execute the IT strategy. Haffe, Kalgovas and Benlian (2016), citing Hess et al. (2016) argue the role has an external remit centred on identifying how digital technologies can enhance products and services to meet stakeholder needs reflecting the 'path' creation role of leadership for Teece, Pisano and Shuen (1997). Despite this,

Gibson (2018) concurs with McKinsey (2020) and argues that the CDO role can be subsumed into other C-suite leadership functions. Thomas (2020) adds that HR must be part of the strategic body which supports the CDO and drives the digital strategy although he concurs with Minova and Ivanova (2020) and argues that there is a mismatch between the digital drive and HR's own skill set. Additionally and for Kane et al. (2015), this skills set focus must extend down the line to employees with digital specialities being key to achieve a digital business focus.

Reflecting that perspective, Nania (2019, p. 7) concurs with Deloitte (2017) and argues that digital specialists with skills in "*programming, data analysis, digital marketing and customer relationship software*" support the transformational business. Timonen (2018) adds that digital expertise already extends to sales departments in effective Business to Business (B-2-B operating environments) and these create a value focus through business model adaptation (Rachinger et al., 2019 and Setia et al., 2013). Jacobs and Pretorius (2020) extend an earlier debate offered by Christensen et al. (2000) and propose that business model redesign is key to achieving digital alignment in the dynamic capability context with the impact of digitalisation in B-2-B organisations extending to other businesses' more traditional value chains. In the B-2-B setting, for Holliman and Rowley (2014) digital content marketing is linked to digital communication features defined by Ferrari (2013) including: content creation and sharing to ensure, "*digital content that has value for customers, clients, partners, and the firm and its brands*" (Holliman and Rowley, 2014, p. 26).

The B-2-B context links to the UK Professional Business Sector and reflects Nania et al. (2019) who indicate how digital communication links to the context in which the business operates in, to internal and external stakeholders and to the workplace processes it applies to. With this section indicating how digital transformation strategy is linked to dynamic capability debates and extends to digital skills, digital communications underpin those workplace features for Bloomburg (2018).

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2.5.4 Supporting the Dynamically Capable Digital Workplace through Digital Communications

The study uniquely focusses on the importance of digital communication competence in the dynamically capable environment. Indeed, Klewes, Popp and Rost-Hein (2017) argue that contemporary modes of communication are a key enabler of digital transformation with Andal-Ancion, Cartwright and Yip (2003) recognising this much earlier. Reflecting this, section 2.6.2 in this chapter indicates how digital communication competence has become an important skill set in contemporary digital competency debates and as such is a focus within this study. Senn (2000) discusses the emergence of mobile commerce (m-commerce) and advances in 'wireless technologies' and indeed these have been linked to 'online communications' and dominated workplace debates for well over twenty-five years as indicated in what follows. At the outset and in seeking to define digital communication, this sub section only lightly skims technical debates related to the emergence of 'wireless communication' in the 1980s and 1990s (Vse and Wiswanath, 2005) and instead, centres on a more contemporary digital workplace focus.

The use of technology to support organisational communications has emerged over the last three decades with mixed reviews (Edosomwan et al. 2011). In 2000, Kayworth and Leidner cited several studies from the 1990s and argued that: communication using technologies was less effective than traditional face to face approaches; innovation was needed to implement technological communications and employing these systems required a level of competence from employees who may not have those skills. Van Dijck (2013) explains how earlier studies examined the use of traditional technological communication methods in various sectors. Reflecting this, May and Carter (2001) examined virtual team working in the European automotive market and found that video conferencing enabled greater efficiencies across dispersed teams and similarly, Gressgård (2011) linked virtual team collaboration with technological communications and argued it generated innovation creation.

Indeed, debates centring on the use of technological communications in the virtual team environment have been taking place since the start of the 21st century. For example, Jarvenpaa and Leidner (1999) and later Sarker et al. (2011) argued this impacted

employee trust. With a more contemporary focus, Orta-Castañon et al. (2018) examine collaboration and trust in virtual teams and linked that to digital communications and as such, discussion moved towards processes and systems being rebadged as 'digital communications.' Conversely, Chinowsky and Rojas (2003) used this terminology much earlier although with a more current focus, Deloitte (2015) argue that organisational digital communication now centres on technological and digital tools which enable employees to be connected and create collaboration. This reflects how many writers define digital communications simply by explaining the tools with which it is achieved (for example, Armstrong and Taylor, 2020) although for the purposes of this investigation it can be explained as, "*two-way communication established in digital environment* "(Domazet, 2019, p. 23).

With UK business operating within the digital environment **(**Vecciolini, 2019), the importance of digital communications has been reflected in a strategic focus evident in UK Government and academic debates alongside commentary from professional organisations and writers. As shown earlier in the chapter and in 2010, Martha Lane Fox, the UK Digital Champion, challenged Government to radicalise services by employing digital communications (Cabinet Office, 2012, Cadwallader, 2013 and Du Preez, 2012) and in response, the Government Digital Service was established in 2011 to lead Government on digital transformation (GOV.UK, 2017b). Activity then centred on digitizing Government services with a focus on digital communications. Social media platforms are seen to offer cost efficiency, support digital transformation and create engagement and this, "*is now a critical priority for UK central and local government organisations"* for Hooper (2016, p. 1). As such, this is explicit in the 2018/19 Communications Strategy which is underpinned by digital communication channels (GDS, 2018). The UK Government contend that this competence area is vital to business operations and needs to be addressed to support organisational growth (Government Communication Service, 2019). Despite this, the UK continues to fall behind other countries in digital advancement and their focus on using online platforms to enhance social communications is now vital (Vecciolini, 2019).

Vecciolini (2019) argues this lack of 'adoption of these new technologies' is opening up UK sectoral gaps and affecting national productivity which reflects the earlier view of

Martha Lane Fox (Cabinet Office, 2012) and also debate from Fitzgerald et al. (2001). These authors recognised how, at organisational level, digital technologies support internal and external communications and underpin efficiency in business processes and functions. As such, the organisational focus on digital transformation encompasses communication channels which provide unique ways to externally interact and engage with customers in order to promote the digitization of a firm's offerings (products and services) (Colbert, Yee and George, 2016 and Darics, 2016 and Vecciolini, 2019). The CIPD (2013) highlight the internal business focus and indicate how digital communications can enable employee voice and employee engagement whilst Gonring (2008) adds that internal digital communications are key to building loyalty. Indeed, Evseeva, Evseeva and Kalinina (2020) argue that virtual communications support many of the HRM functions and processes.

Reflecting how digital communications offer not only internal but external benefits, the importance of digital communications in marketing is well debated (Fill, 2009 and Chaffrey and Smith, 2013) and this corresponds with a debate relating to digital marketing competencies (Royle and Laing, 2014). These competencies are vital when marketing professionals support businesses who are under pressure to employ social media platforms (Tiago, and Veríssimo, 2014). Assaad and Gómez (2011) discuss the online marketing role and emphasise how this focus on social media serves to support interactions between internal and external stakeholders, engenders relationships and helps understand customer needs. This then links digital communications to the role of sales functions in the organisation with marketing and sales functions being interlinked (Karjaluoto, Ulkuniemi and Mustonen, 2015). Ultimately, Herrera et al. (2019) concur that digital communications support sales and marketing and enables organisational product development to be successful.

This cohesive approach is achieved through digital communications and as such digital collaboration is linked to digital competency frameworks and highlighted in digital communication debates (Ferrari, 2013). Thus, employees require competence in,

> "*using virtual collaboration tools, such as Google Drive for collaborative writing, Trello for collaborative project management, and Yammer or Slack for*

communication and enterprise-level social networking" for Colbert, Yee and George (2016, p. 735).

As the quotation above indicates, social media and digital communication are viewed as interlinked concepts for Verhoeven (2012) and Vecciolini (2019) and their organisational usage is a key part of this debate and a focus within this study.

2.5.4.1 Organisational Use of Social Media for Digital Communications

Reinforcing the study focus, Linke and Zerfass (2012) explain how social media has become a key feature of digital communication platforms in organisations with,

> "*the emergence of user-generated content (UGC) via social media channels from the Web 2.0 era (*having*) had a dramatic impact on the current commercial environment.*"
>
> O'Brien (2011, p. 32).

As reinforced earlier in this chapter Shuen and Seiber (2009) discuss how Web 2.0 is having a dramatic impact on network capability with this being linked the debate on social media. Trainor (2012) concurs linking Web 2.0 and net capabilities to social media whilst the CIPD (2013), explain how workplace use of social media serves to support both internal and external communications whilst Evseeva, Evseeva and Kalinina (2020) emphasise how the use of emergent technologies including virtual communications focusses the attention of HR on changing employee skill sets. HRM are key in driving the digital strategy for Thomas (2020) with Bigham and Conner (2012) arguing that digital communications generate employee interest in business issues, enabling speedy generation of strategic messages and engendering positive relationships. Bradley and McDonald (2011) concur and add that digital communication then enables collaboration in organisations by helping employees access solutions to speedily address issues. Dromey (2016) agrees that workplace social media empowers employee collaboration and communication and concurs with Barber (2016) who adds that these support innovation and involvement of staff in future decision making. Cao et al. (2012) expand on this and argues it promotes creation of 'collective intelligence' with online debates supporting virtual team communications although Kunte, Bhattacharya and Neelam

(2020) acknowledge that this does require development of digital skills sets. When this is achieved Carlson et al. (2016) argue that social platforms generate higher task performance through employee relationship creation.

Conversely and concurring with Kick, Contacos-Sawyer and Thomas (2015), they also indicate that use of these platforms can negatively impact productivity and influence employees' ability to manage and cope with their own work overload. Kizza (2007) adds that age/generational, educational and socio-economic background can impact motivation and ability when using social media in the workplace. This is reinforced by Age Concern and Help the Aged UK (2010) who collaborated to investigate how digital inclusion in work impacted older workers given their ongoing participation is creating and issue of an ageing workforce (ONS, 2019; CIPD, 2015 and the Government Office for Science, 2016). They found that older workers lacked confidence in using technologies and their motivations to use technologies differed greatly. Some are open to digital working but a minority of what they called 'refuseniks' were resistant. Conversely, younger people can become too reliant on and distracted by social media for Kick, Contacos-Sawyer and Thomas (2015) although for some employees, workplace social media can be invasive (Bucher, Fieseler and Suphan, 2013) and intrusive (Lam, 2016). As such, Bowen (2013) questions the ethics in workplace use of social media and argues that businesses must act responsibly to ensure appropriate usage is adopted.

Organisational use of digital communications including social media can also present a number of legal and social challenges which include: "*time theft, defamation, cyber bullying, freedom of speech and the invasion of privacy*" (ACAS, 2020, p. 1). D'Cruz and Noronha writing in Briken et al. (2017) concur how the growth of communications has set the scene for a significant growth in cyber bullying. Indeed, Xu, David and Kim (2018) argue that whilst the fourth industrial revolution offers accelerated speed of technologies this is impacted by obstacles including cybersecurity. In Ultimately, workplace use of digital communication methods is subject to legal and organisational safety protocols and in some sectors, such as the defence industry, national standards extend to central services which support a professional function within that context (GOV.UK, 2019). As such, the EU (2019) acknowledge the benefits of workplace social media platforms although they advise that from a legal perspective, organisations should place limits on

usage and thus privacy, data quality, confidentiality and rights to information enter into the debate.

For the CIPD (2018), this links to the legislative framework of GDPR which denotes, "*how organisations handle data*.'' In view of this, workplaces need to clearly adhere to this legislation although they should also create balance between compliance and surveillance (CIPD, 2018b). Mainiero and Jones (2013, p. 187) add policy formulation should extend to boundary setting as social media technologies can lead to misuse and ultimately, to sexual harassment. The CIPD (2014) concur, arguing that 'netiquette' must be considered. Netiquette is a portmanteau of 'net' (from internet) and 'etiquette' which means respecting other users' views and displaying common courtesy when posting your views to online discussion groups (BBC, 2019a). The CIPD (2014) caution that if this is not considered, misuse can result in the need for either disciplinaries or grievances when systems and policies are not followed or when employees feel upset or aggrieved because of online interactions.

Husin and Hanisch (2011) contend policy must be applied to its use and content has to be carefully designed to be accurate, relevant and appropriate whilst Bossio et al. (2020) indicate how managers must act as 'intermediaries' negotiating the personal and professional use of organisational digital communications. For Qualman (2012) social media training is key not only in determining in what way digital communications are used but in identifying digital risks business face. In the current business environment Kirton (2017) argues that this training should extend to an understanding of cybersecurity which is legally defined within GDPR (2018). This is crucial given that organisations face several threats when they use digital communication channels (He, 2013).

Cybersecurity poses a significant threat to business with the Cyber Security Breaches Report (2019) identifying how about a third of organisations have encountered cyber security breaches and attacks in the last year. This also indicates that phishing and online viruses affecting emails and digital communication platforms presents a greater issue to medium and large businesses. Compliance with cyber security standards is detailed within GDPR legislation (2018) with large fines being applied when these are not followed and as such, for Kirton (2017) HR play a key role. Churchill (2019) and He (2013) concur, arguing that online safety must be reinforced through explicit workplace policies with

Kirton (2017) and Middleton (2019) adding that training should extend to managing online safety to close the cyber security digital skills gap.

It is evident that the digital skills gap not only extends to online safety but to other features of digital skills sets which are defined within digital competency frameworks including Ferrari (2013). This section has indicated how digital communications are a contemporary workplace feature although the debate now explains how digital communication competence is defined. This sits within a broader discussion of how competence understanding has emerged from skills debates.

2.6 Understanding Contemporary Definitions: From Digital Skills to Digital Competence

The last section indicated how new technologies are continually emerging and thus,

> "*Current definitions of digital skills and competencies are related closely to recent ongoing trends in ICTs. New devices, applications and genres of technology will often involve altered, sometimes additional, skills and competencies*."
>
> (UNESCO Broadband Commission Working Group on Education, 2017, p. 23)

In reaching an understanding of which specific digital competency framework was employed to support the investigation within this study, it is useful to summarise how general contemporary debates emerged linking skills with competencies, how those linked to technological definitions and how writers created an understanding of digital competence.

2.6.1 The Link Between Skills and Competencies

In order to move forward to ultimately understand digital competence, in the simplest form a skill is what one possesses in order to be effective at their job (Robinson and Hirsch, 2008). However, simply defining skill in such a way remains contentious and challenging (Lloyd and Payne, 2008), whilst being steeped in both historical, social and gender connotations (Grugulis, 2007). The notion of hard and soft skills has entered the conceptual debate in recent years with earlier definitions being associated with 'harder' elements of technical, craft and product knowledge (Lloyd and Payne, 2008). The debate

has now been extended to consider 'softer' skills aspects (Cappelli, 1995 and Cappelli and Ianozzi, 1995). This discussion has served to rebadge skills with what might have been previously seen as being "*attributes, attitudes, dispositions or behaviours*" (Keep, Lloyd and Payne, 2008, p. 1 citing Keep and Mayhew 1999).

As such, academic interest has moved from understanding skills and moved forward to understanding how knowledge and attributes also contribute to worker competence and performance. Whilst McClelland (1973, p. 15) has contributed to the competency debate for well over half a century, Binkley et al. (2012) contend that the discussion has been superseded by an understanding of twenty-first century skills. Despite this and initially, McLelland (1973) linked competence to psychological or behaviour related attributes with this definition being extended to incorporate how "*knowledge, skills, abilities, or other characteristics (KSAOs)"* which served to differentiate high and moderate performance (Mirable, 1997, p. 75).

In the current context, it is no longer appropriate to consider manual and routine skills as appropriate for work, with online communication, content creation and sharing of digital information being key (Binkley et al. 2012). This contemporary perspective extends a historically emergent debate relating to how competencies include behavioural and technical elements. Behavioural elements emerged from personality theorists for Boyatzis (2008), although for Woodruffe (1993) these include technical competence. For him, employees need work-related technical skills, knowledge and abilities, all of which create competence in the worker. In the contemporary workplace, employees need a combination of both behavioural and digital competence to offer a high level skills ability to their employees (Kispeter, 2018). Reflecting this contemporary viewpoint, debates offered by Nania et al. (2019) on behalf of the UK Government and van Laar et al. (2017) contend that digital competence debates have overtaken definitions of digital skills. With the research aim centring on how digital communication competence is important within the competitive UK Professional Business Sector, contemporary perspectives reflecting the debate on digital skills and competencies are now depicted.

2.6.2 From Digital Skills to Digital Competence

Thus and within this section, the discussion moves from a debate concerning digital skills to an understanding of digital competence as the focus of the study. As such, the section will ultimately explain features and levels of digital communication competence with the extent to which these are relevant to the Professional Business Sector employee roles, groups and employees being investigated in the research study.

To explain the broader context of digital competence, understanding has developed from wide debate relating to digital skills (Nania et al., 2019; Kispeter, 2018; Ecorys, 2016 and van Laar et al., 2015 amongst others). Indeed, and as summarised, debate relating to hard skills sets includes significant contributions focusing on technology skills and 'information literacy' (for example, Castells, 1998; Prak, and Van Zande, 2013 and Spitzer, Eisenberg and Lowe, 1998). Definitions have clearly been emergent and developed to focus on digital skills rather than the broad - brush concept of technology skills which featured in these earlier debates (Binkley et al. 2012).

Within the context of this debate digital skills, digital competencies, 21st century skills, digital capabilities and digital literacies have emerged in terminology as associated but rather dissimilar concepts which have caught the attention of policy and research writers (van Laar et al., 2015 and Binkley et al. 2012). Digital skills have been linked to debates about how these form features in a digital competency framework. 21st Century skills extend beyond digital skills to include a wider subset of cognitive, inter-personal and social competencies and together with digital skills these create digital capabilities for Binkley et al. (2012). Digital literacy is a wider construct which encompasses digital skills, competencies, 21st Century Skills and digital capabilities but relates then to how far people can work and live in an increasingly digitalised society (Kispeter, 2018 and van Laar et al., 2015).

Extending this to the study focus on digital skills and in the last decade, definitions have been offered by Ilomäki, Kantosalo & Lakkala (2011), Ferrari (2013) and Development Economics (2013) amongst many. In 2015, Ipsos Mori (2015) writing for Go ON UK defined a basic Digital Skills Framework outlining seven levels of capabilities indicating

linkage with digital communication competence as Table 1 in Appendix 1 indicates. Clearly though, the debate is very embryonic and emergent given that White writing in a UK House of Lords Library Briefing (2017) again attempted to redefine levels of digital skills. Added to this, Barclays in 2017 defined the UK Digital Development Index and extended the debate concerning definitions. In 2016, Ecorys were commissioned by the UK Government to bring the digital skills definition debate up to date with this being depicted in a summative overview outlined overleaf.

Table 2.5: UK Definitions of Digital Skills

Author (s)	Definitions
WDM Consultants (2011) in Ecorys (2016, p. 18-22)	*"The Canadian study "Defining Essential Digital Skills in the Canadian Workplace" defines digital skills as a multifaceted concept, which encapsulates four skill clusters: (1) Digital Technical Skills; (2) Digital Information Processing Skills; (3) Foundational Skills and (4) Transversal Skill"*
Chinien and Boutin (2011) in Khan et al. (2017, p. 574)	*'the ability to use digital tools and work in computerized environments'*
Trepanier (2012) in Khan et al. (2017, p. 574)	*Defines digital skills as having the ability to use 'digital information systems including computer hardware and software to apply appropriate security measures and protect digital information'.*
Development Economics (2013) in in Ecorys (2016, p. 18-22)	*In Development Economics 'The Future Digital Skills needs of the UK Economy' report, digital skills are defined 'as the attributes that allow individuals and businesses both to use digital equipment and to access, create or share digital information via the internet and thereby benefit from opportunities in the modern economy'. The report sets out what it calls 'a functional hierarchy of these digital skills' as:* ● *"Advanced digital skills: skills linked to 'the creation and/or strategic exploitation of new digital applications, including more advanced programming and coding involved in the creation of new software, etc., but they also cover the strategic business skills needed to convert ideas into successful commercial projects and ventures'*

	● *Intermediate-level digital skills: these involve 'skills needed to implement and manage on a day to-day basis the applications developed by those with advanced skills, but they may also provide contributions to the development of digital content, provision of system support and maintenance, etc.'* ● *Entry-level digital skills: skills related to 'the use of digital applications designed, developed and promoted by others: involving for example searches for and/or the capturing and recording of digital data across a wide variety of business and public services, the administration of databases, the monitoring of data, contributing to the management of digital content, etc.'*
Ferrari (2013) in Ecorys (2016, p. 18-22)	*Ferrari (2013) refers to digital skills as "the ability to critically analyse and assess digital information, problem solving through the use of digital tools, creation and recreation of content and so forth".*
Digital Skills Taskforce (2014)	*The UK Digital Skills Workforce describes digital skills 'as the skills needed to interact with digital technologies and stresses these skills as 'necessary life skills.'.*
The UK forum for Computing Education (UKforCE) (2014) in Ecorys (2016, p. 18-22)	They extended definitions to show differing levels of digital skills by defining labels which are: • *Digital Muggle: Low or no digital skills.* • *Digital Citizen: Someone who has a good range of digital skills.* • *Digital Worker; More advanced levels of digital skills* *Digital Maker: An ability to actually build technology.*

White (2017) based on a basic digital skills framework devised by the Tech Partnership (2015) in Ecorys (2016, p. 18-22)	*Defined activities including:* *Managing information, transacting, communication, problem solving and creations and specified actions of individuals and organisations*

(adapted from in Ecorys, 2016, p. 18-22)

Whilst this tabulated summary offers a summarised, contemporary perspective, the debate continues to emerge and is reflected in the work of Kispeter (2018) and later Nania et al. (2019). Working on behalf of the Warwick Institute for Employment Research (IER), Kispeter and her team were appointed by the Department for Digital, Culture, Media and Sport (DCMS) (2017b) to investigate current and future workplace skills needs in order to inform the Digital Skills and Inclusion Research Working Group (a body of experts employing professionals in academia and business to create an evidence based approach to support the UK Digital Inclusion Policy (2017)). Kispeter and her colleagues (2018) established basic digital skills definitions but argued that most examples of digital skill components now featured in competency frameworks. Nania and her team (2019) concurred in their later study whereby they were similarly commissioned to deliver on behalf of UK Government.

Reflecting this, the notion of digital competence has appeared in recent years (Ilomäki, Kantosalo, & Lakkala, 2011) with these differing levels of skills providing organisational digital competence in the knowledge society (Gallardo-Echenique et al., 2015). As such, the UK Professional Business Sector view digital competence of their knowledge workers as key to their competitive success (Brooks et al., 2018 and Riley et al., 2020). Defining digital competence is contentious, but this extends to information management, collaboration, communication and sharing, creation of content and knowledge, ethics and responsibility, evaluation and problem solving and technical operations (Ferrari, 2013 and Carretero, Vuorikari and Punie, 2017). This reflects how the UKforCE (2016 cited by White, 2017) categorise features of digital competence and indicates how the digital skills debate extends to wider features of competence in terms of technology skills. This emerging discourse overlaps with the understanding of digital skills and has become evident in the last two decades as the table overleaf indicates.

Table 2.6: Definitions of Digital Competencies

Author (s)	Definition
OECD (2004)	The definition used by the OECD focuses on three categories of ICT competencies linked to three different types of users: ICT, Advanced and Basic users.
DigEuLit project (Martin 2005)	Defines digital literacy through competence, the methods of usage and digital innovation.
The European Parliament (2006, p. 8 cited by Ferrari, 2012)	The European Parliament defines digital competence as "*the confident and critical use of information society technology for work, leisure, learning and communication. It is underpinned by basic skills in ICT, i.e. the use of computers to retrieve, access, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the internet.*"
Ala- Mukhtar (2011)	Taken from an IPTS report 'Mapping Digital Competence: Towards a Conceptual Understanding' uses the following five concepts: 1. 'Computer literacy' or 'technology literacy': the ability to use computers and related software; 2. Internet (or network) literacy: skills needed to locate, select and evaluate information on the internet; 3. Information literacy: skills needed to locate and evaluate information, store and retrieve information, make effective and ethical use of information and apply information to create and communicate knowledge; 4. Media literacy: skills that enable people to analyse, evaluate, and create messages in a wide variety of media modes, genres, and formats; and 5. Digital literacy: the most overarching concept, which includes many of the skills discussed in the concepts mentioned above. These concepts informed the development of the DIGICOMP framework

Ilomaki, Kantasalo and Lakkala (2011, p. 2)	Ilomaki et al. (2011) link digital competence to basic skills and describes it as the ability to "*retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the internet*"
DIGCOMP's Framework for Developing and Understanding Digital Competence in Europe (Ferrari, 2013)	DIGICOMP's digital framework is based on five dimensions (information, communication, content creation, safety and problem solving) which are sub-dived into a set of competences. These competencies are linked to three proficiency levels: foundation, intermediary and advanced level. The framework sets out a range of skills and knowledge needed for each of these proficiency levels.

(adapted from The European Parliament (2006, p. 8 cited by Ferrari, 2012); Ala- Mukhtar (2011); Ilomaki, Kantasalo and Lakkala (2011, p. 2); Ferrari (2013) and Others)

Digital communication competence is reflected in the competency definitions offered by the European Parliament (2006, p. 8 cited by Ferrari, 2012); Ala - Mukhtar (2011) and Ilomaki, Kantasalo and Lakkala (2011, p. 2) indicated above. Building on this, Ecroys (2016) indicate how digital communication emerged as a key category in overall digital competence in their mapping exercise. Go On UK's Basic Digital Skills framework (2015) defines five areas of digital capability which include digital communication as Table 1 in Appendix 1 indicates whilst Kispeter (2018, p. 13) explains this involves being able to, "*communicate, interact, collaborate, share and connect with others*. "In 2018, the UK Government employed Essential Digital Skills Framework (HM Government, 2018) which built on the Basic Digital Skills Framework (Go On UK, 2015, cited in Ecorys UK, 2016). This reinforced the importance of digital communications which are now considered key in work operations (Kispeter, 2018). This is further reiterated in the national minimum standards for digital skills published by the UK Government in April 2019 (Department for Education, 2019).

For Kispeter (2018), the emergence of DIGCOMPs framework for the European Union is 'very influential' and it supports the basic understanding of digital competence offered by the Department for Education (2019). Academic debate from Ilomaki, Kantosalo & Lakkala (2011) also supports the application of DIGCOMP's detailed Competency Framework (Ferrari, 2013). As such, it was deemed appropriate to adopt this framework to investigate how far the Professional Business Sector sample within this study reflected these features and levels in their workplace operations. Defending this, the DIGCOMP framework has more recently been applied to the European Computer Driving Licence (ECDL) standard (Kispeter, 2018) and additionally, the EU Digital Science Hub (2017) competency framework applies the levels provided by DIGCOMP to add to its rigour. As shown in Table 2 in Appendix 1, DIGCOMP's digital framework is based on five comprehensive dimensions (information, communication, content creation, safety and problem solving) which are sub-dived into a set of competences. These competencies are linked to three proficiency levels: foundation, intermediate and advanced level with the levels and descriptors being shown in the table overleaf.

Table 2.7: Levels of Digital Communication Competence

Basic: If employees have a basic level of digital communication competence this means they can use traditional technologies to communicate inside and outside the organisation. They broadly understand the organisational standards and the risks involved in using these basic technologies. They can share files and contents online and access some digital online services.
Intermediate: Employees with an intermediate level of digital communication competence can use more advanced features of communication tools. This goes beyond mobile phones, skype, chat, or emails and extends to online intranet use. They understand organisational IT. policies in relation to their job role and how that relates to online security when they pass on and share information. They can activity use, manipulate, interpret and share data within online digital systems.
Advanced digital communication competence: This extends to use of a wide range of tools for online communication. Employees are digitally conversant and deeply reliable in terms of applying online safety and risk policies to their work. They can build content to tailor their use of advanced online communication tools to various audiences within and outside the organisation. They support other employees who might only have basic or intermediate digital communication skills.

(adapted from Ferrari, 2013, p. 14)

The framework sets out a range of skills and knowledge needed for each of these proficiency levels. This focus on a European standard for digital competency frameworks is also reflected in earlier research by Ala-Mutka (2011), Ferarri (2012 and 2013), Ferrari, Punie and Redecker (2012) and relate to Vuorikari et al. (2016). Alongside this and reinforcing why it has been used as a conceptual framework in this study, the EU Digital Science Hub (2017) have extended the contemporary digital competency framework based on DIGCOMPs framework (2013). In 2015, JRC (the independent science hub of the EU) updated some of the framework's terminology and created version 2.0 of the framework whilst in 2017, version 2.1 of the framework enlarged on proficiency levels defined in the 2013 and 2015 versions (Carretero, Vuorikari and Punie, 2017).

Focusing on the basic, intermediate and advanced levels defined by Ferrari (2013) enabled an organisational analysis to be achievable. Furthermore, definitions for digital

communication competency areas remained largely the same in all three versions of the framework.

2.6.3 Defining Digital Communication Competence

Defending the focus on this area of digital competence and how it supports the competitive business environment, Ala-Mutka (2011), Ferarri (2012 and 2013), Ferrari, Punie and Redecker (2012) and Vuorikari et al. (2016) alongside Ferrari (2013) all consider digital communication to be an important component of their frameworks. Digital communication competency extends to key skills and knowledge areas including: interacting through digital technologies; sharing content through digital technologies; engaging in citizenship; collaborating; netiquette and managing digital identity. These are explained in more detail in Table 2 in Appendix 1 with the skills and knowledge being identified at basic, intermediate and advanced levels as shown above. More recently, Kispeter (2018) identified the key features of digital skills and competences frequently prominent in digital competency frameworks including the Tech Partnership/HM Government Essential digital skills framework (2018) which denotes five areas including: 1) communicating, 2) handling information and content, 3) transacting, 4) problem solving and 5) being safe and legal online. These relate to the digital communication competence areas defined by Ferrari (2012, 2013) and Carretero, Vuorikari and Punie, (2017) and are featured in the table overleaf.

Table 2.8: Common Features of Digital Competency Frameworks Mapped onto Digital Communication Areas

Digital Communication Competence Areas	
Ferrari (2013) and Carretero, Vuorikari and Punie (2017)	Kispeter (2018, p. 17) (Areas of digital skills and competencies that commonly recur in reviewed frameworks)
Interacting through digital technologies	*'Information' or 'data literacy'. Skills are based on the ability to find, assess and manage digital information. This also links some roles to 'Digital content creation': skills focused on writing and editing online content, as well as using a range of online tool.*
Sharing content through digital technologies Is supported by Kim and Lee (2006), who argue that this sharing positively supports knowledge sharing in organisations. Ma and Yuen (2011) add that leads to interaction and engenders personal relationships.	
Engaging in citizenship can be reredefined as employee engagement reflecting how the latter has become more of a professional contemporary perspective and has replaced more established concepts including 'organisational citizenship' (Kular et al., 2008).	*Digital 'communication' and 'collaboration': skills in using online communication and collaboration tools, such as email, telephone and video conferencing, shared online. This is linked to 'digital identity': skills to manage online profiles on different social media sites and vacancy boards*
Collaborating	*Digital 'communication' and 'collaboration': skills in using online communication and collaboration tools, such as email, telephone and video conferencing, shared online. .*

Netiquette	*'Digital safety': skills in understanding different virus software and firewalls, encrypting and storing data.*
Managing digital identity	*Digital identity: skills to manage online profiles on different social media sites and vacancy boards.*

Source: Ferrari (2013, p. 27), Carretero, Vuorikari and Punie, (2017) and Kispeter (2018, p. 17)

Given that the key areas of digital communication competence are reflected in commonly recurring digital competence frameworks, the investigation focused on how far the UK Professional Business Sector considered these aspects of digital communication competence to be important in supporting their businesses.

To assess employee skills ability, participants were asked to assess at each of the three levels defined by Ferrari (2013) which included basic, intermediate and advanced. The later version offered by Carretero, Vuorikari and Punie (2017) included the same competence features but extended the proficiency levels to include eight descriptors, Incorporating this in the online survey would have resulted in the survey being over complicated and extremely lengthy. To explain this, Table 3 in Appendix 1 depicts the first of five-sub competency level (interacting with technologies) with level descriptors. Had the complete digital communication proficiency levels and descriptors been employed, this might have served to demotivate or frustrate respondents, impact survey completion and this might have resulted in the survey taking well over 30 minutes to complete.

In the fast paced UK Professional Business Sector this would overburden participants although given that Riley et al., (2020) propose that digital skills gaps remain problematic for that sector, the study provides an academic focus on digital communication competence as an important aspect of that skill set need.

2.7 Spotlighting the UK Professional Business Sector: Explaining the Dynamic Capabilities & Digital Skills Link

Bringing the debate into the contextual focus of the study, the UK Professional Business Sector this section indicates how it appears to be somewhat aligned with both Dynamic Capability Theory and digital competency debates reflecting the core themes within this study. In understanding the rationale for the focus on the Professional Business Services Sector this includes different knowledge concentrated organisations which provide particular business to business support.

These include,

> *"legal services, audit, accountancy, advertising and market research, management consultancy, architectural and engineering activities and employment activities.'*
>
> Department for Business, Energy and Industrial Strategy (2020, p. 7).

They add that these businesses, "*accounted for almost 12% (£224.8 billion) of the UK economy's gross value added (GVA)"*and that the sector employees, "*13% of the workforce (4.6 million jobs), and 23% of all registered businesses in 2019.*" Whilst most industries are dependent on knowledge outputs, some are more than others and these include what are defined as *"knowledge-based industries"* which generally includes sub sectors which centralise their service or product offering on "*technology and/or human capital*" for the OECD (2014, p. 18). The Department of Business Information and Skills (BIS) (2012) highlight how that these knowledge intensive trading services are thought to make the greater contribution to future economic growth and employment in the UK. More recently and given that the UK has now left the EU, the UK Government are recognising the need for part of this sector to extend trade negotiations and have created a think tank group dedicated to professional business advisory services (GOV.UK, 2020). This is crucial given that Deloitte (2018, p. 2) explain how, the Professional Business Sector,

> *''employs around 3.3 million people across the UK and is a major contributor of UK employment growth with 12 out of the 50 fastest growing occupations falling within the business services sector. The existence, and growth, of this industry allows other organisations to focus resources on their core competencies and therefore bring about efficiencies in the broader economy*."

Certainly, the sector has contributed greatly to the UK economy since the recession of 2008 (Rhodes, 2018) with the last century seeing a significant change "*from a manufacturing led economy to a service led economy*" and as such, the UK economy is more dependent on the broader service sector than any other G7 country (ONS Digital, 2015, p. 1). Indeed, 80% of the total UK economic output came from the service sector in 2019 (House of Commons Library, 2020) although more recently, political and

economic uncertainty impacts the Professional Business Sector and has caused a slight dip in growth (Elliot, 2018, Riley et al. 2020). At the time of submission of the thesis this dip has been significantly exacerbated by the COVID-19 pandemic (House of Commons Library, 2020).

Compounding this, the UK Professional Business Services Group (2019) indicate how ongoing Post Brexit changes in the political and economic environment of the UK impact raised tariffs and devaluation of the pound which continue to challenge the UK Professional Business Sector. At the end of 2019, Reuters reported how the sector profits were down by the biggest margin in eight years as a result of political change alongside pressure from high competition, productivity gains and growing demands from customers for Riley et al. (2020). Sub sectoral challenges within the sector are also evident with Whitehouse (2020) arguing that UK consultancy services are encountering skills deficits and increased competition whilst Riley et al. (2020) propose that whole sector needs to be responsive to change. Responding, Consultancy UK (2019) propose that the industry is one of the biggest adopters of new technologies reflecting their focus on adaptation and modification to maintain competitive advantage during environmental and market change.

Barreto (2010) contends that it is important to extend dynamic capability understanding by defining features and assumptions connected to the theory. Focusing on the UK Professional Business Sector in the UK examines explicit measures in specific types of what Riley et al. (2020) argue are knowledge based organisations. Boes et al. writing in Briken et al. (2017) explain how rapid technological change is impacting industries centred on knowledge work and particularly those linked to high skilled work including finance and IT services. Indeed, for Deloitte (2018), the ability of the UK Professional Business Sector to utilise technology to create innovation and enable their productivity focus through this UK change period reflects Jacobsson (2020) who appears to link the sector to the characteristics of dynamic capabilities defined earlier including change, a focus on innovation and significant contribution to economic growth in the UK. Focusing on the sector serves as a response to the contention by Barreto (2010) in that more research is needed to examine the different environments which might apply to the theory. In the UK Professional Business Sector context, organisations appear to be

exhibiting a capability to be able to react to external environments through adaptation and redesign of internal competencies although how they are achieving this is relevant to this investigation as this view has been challenged in very recent times (Reuters, 2019). Despite this, Barnes (2018, p. 21) reporting on behalf of a Government and University consortium in the Birmingham region reported that whilst the Post Brexit period was viewed as an unclear change feature impacting "*economic instability.*" It was not seen to be a significant issue for them but rather could present "*growth opportunity*" as they learn how to react to this.

Conversely, Deloitte (2018, 2016a) argue that some of the issues in the sector relate to digitalisation impact and connecting the worker with technology although Barnes (2018) offers a West Midlands regional focus perspective and contends this is not the case within the Birmingham. He proposes that a higher percentage of technological skilled professionals are employed in that region although Riley et al. (2020) concur with Deloitte (2018) and argue this lack of digitally abled professionals is a problem in other parts of the UK. As such the picture of how the digital skills deficit impacts the whole sector is complicated for Barnes (2018) who concurs with Deloitte (2018) and Riley et. al (2020) arguing that the challenge is modification of the organisational resource base. For these authors, the sector should centre on changing technology, focusing on operations and ensuring there is digital talent in the current economic environment. PwC UK (2020b, p. 1) add that through the use of communication technologies they, "*must develop the correct mix of on-shore, near-shore and off-shore capabilities"* to help them transform opportunities into results. In response, Barnes (2018) considers the sector to be geographically mobile and therefore, how far they are reflecting a strategic context where communication technologies, globalisation and dynamic innovation happen for Schreyögg and Sydow (2010) links to the focus of this investigation.

Extending the interest in the UK Professional Business Sector, Deloitte (2018) alongside the UK Professional Business Services Group (2019) argue these organisations face the challenge of changing their business models to be aligned with Big Data, digital transformation and the challenges and opportunities presented by cybersecurity. Concurring and in October 2020, McKinsey report on a global survey and argue that the debate on digital transformation has accelerated and this requires an acute focus on

these new technology features and on elevated digital skills. Ernst Young LLP (2017) explain how this link with change and new business models, alongside the growth of service automation, has improved processes removing 'repetitive and predictable tasks.' Reflecting this, SAP (a German multinational software organisation) (2018) also highlight how 'collaboration apps' are used to manage and share information amongst employees support the UK Professional Business Sector's focus on the rise of automated services (the UK Professional Business Services Group, 2019). Reflecting this, the impact of Artificial Intelligence on the sector has become even more evident with, at the end of December in 2019, Consultancy UK reporting how over 200 Chief Financial Officers in professional services indicating their investment focus on this.

As such, the UK Professional Business Sector reflects many of the macro debates presented within this latter part of the chapter with their technological focus being linked to the 'sensing, seizing and transforming' debate advocated by Teece (2007). Despite this, the sector needs to address issues which relate to addressing digital skills sets (Riley et al., 2020) and to how jobs will be impacted by automation and AI (BDO, 2019, a global, legal, financial and quality advisory service). Ultimately, ever changing digital skills are creating talent gaps with a new class of digital worker being needed in these organisations (Deloitte, 2018) and with many large professional service businesses competing internationally, globalisation is creating a new type of worker focused on innovation and dynamism (SAP, 2018).

Despite the focus on offshore trading, it is worth noting that the sector also comprises of much smaller organisations and indeed represented 23% of all sizes of business in 2019 (House of Lords, 2020). In all sizes of these organisations, highly skilled and competent digital workers are needed to ensure competition can be maintained as,

> "*the ability of Business Professional Sector firms to think entrepreneurially, redeploy their resources and better align their skills and capabilities with new revenue models is an imperative*."
>
> (Brooks et al., 2018, p. 17).

Alongside this, the importance of introducing and adopting new technologies means that the role of digital communication comes into focus once more although a key issue is how

technological platforms can be developed to create effective digital communication (Brooks et al., 2017). Key to this investigation is how far these organisations are focusing on workplace digital communications to then recognise the importance and relevance of digital communication competence in their competitive contextual settings.

2.8 Chapter Summary

In order to address the key research problem, the chapter has focused on examining the two key research themes summarised in the roadmap figure 2.1 at the start of the chapter and indicated in the theoretical framework shown below. The theoretical framework shown in table below expands on the roadmap shown at the start of the chapter with the right hand column in the table below summarising key measures and the contextual focus which have been extracted from the debate and how they are linked. These measures featured in debates in the literature chapter and are summarised in figure 2.7 thereafter.

Table 2.9: The Research Theoretical Framework The Research Aim: To 'Critically evaluate the importance of digital communication competencies in the competitive advantage context of the UK Professional Business Sector.' Addressing Research Objective 1: To critically evaluate the literature on contemporary digital skills to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy.		
Sub Theme Heading	Key Contributory Author (s) and Debate Highlights	Constructs/ Measures Extracted from the Literature
✓ Theme 1: Dynamic Capability Theory as the Framework for Data Collection and Analysis		
• The Broader Conceptual Debate Linking Competitive Advantage with Strategic Management and the Study Employee Skills Focus	Ultimately focusing on Barney (1991) (Resource Based View) and linking his work to Teece, Pisano and Shuen (1997) (Dynamic Capabilities)	Defending the application of Dynamic Capability Theory as a framework for analysis within the investigation.
• Defining & Understanding Dynamic Capabilities	Teece, Pisano and Shuen (1997), Eisenhardt & Martin (2000); Teece (2000); Zollo & Winter (2002); Winter (2003); and Helfat et al. (2007, 2009). Critiques from: Arend and Bromily (2009); Barreto (2010) and Williamson (2000, 2003)	The study is aligned with the emergent definition provided by Helfat et al. (2007)
• Defining Dynamic Capability Frameworks for Analysis: The Dynamism, Capability & Skills Link	Teece, Pisano and Shuen (1997) (assets, processes and paths) and Teece (2007) (sensing, seizing & transforming/responding to threats	The asset, process & paths (Teece, Pisano and Shuen, 1997) construct employed as a framework for

		analysis alongside the 'sensing, seizing & transforming' concept (Teece, 2007).
• The Relationship between Volatile Change Periods and Dynamic Capabilities: The Employee Skills and Digital Communications Contribution	Teece, Pisano and Shuen (1997) and Easterby-Smith and Prieto (2007). Restructure and expansion as features of change debates: Ambrosini, Bowman and Collier (2008) amongst others	A focus on change is linked to restructure with both being employed as construct measures.
• Extending Homogeneity, Heterogeneity and Equifinality in Dynamic Capability & Digital Skills Debates	Heterogeneity as key dynamic capability debates (Teece, Pisano and Shuen, 1997); equifinality extended this debate for Gelhard, von Delft and Gudergan (2016) & Eisenhardt and Martin (2000)	Supports analysis in Chapters 5 & 6
• Organisational Size, Business Process Maturity: The Dynamic Capabilities & Skills Link	The Object Management Group (2008) (Business Process Maturity Model)	Employed as a framework for analysis based on organisational size.
• Underpinning Profitability through a Dynamic Innovation, Product/Service and Market Expansion & Digital Skills Focus	Deeds, DeCarolis, and Coombs (1999); Heflat and Winter (1997); McLaughlin (2017); Lawson and Samson (2001) and Teece (2007)	Profitability focused on innovation links to product/ service and market expansion which are employed as construct measures.

• Linking Innovation Capability, Organisational Learning, Knowledge Transfer and the Skills Focus to Dynamic Capabilities	Augier and Teece (2009) and numerous others (leaders and managers); Eisenhardt, Furr and Bingham (2010) (teams).	Innovation capability links to digital skills & that supports profitability. Learning supports skill development and knowledge transfer links to learning through digital skills ability.
• Enabling Dynamic Capabilities: The Role of Leaders, Managers and Teams	Teece (2012); Teece, Pisano and Shuen (1997); Martin (2011); O'Reilly III and Tushman (2008) and Lawson and Samson (2001)	Leaders and managers were engaged in the investigation as expert contributors given that their contribution to dynamic capability is clear in this section.
• The Importance of Digital Communication Competence in the Context of the UK Professional Business Sector	Khalil, and Belitski (2020) and Rashid and Ratten (2020) (digital skills must be focused on in dynamic capability debates)	The unique focus of the study addressing the research aim.
✓ Theme 2: The Contextual Focus: Understanding the Role of Digital Communication Competence in the Contemporary UK Workplace		Constructs/ Measures Extracted from the Literature

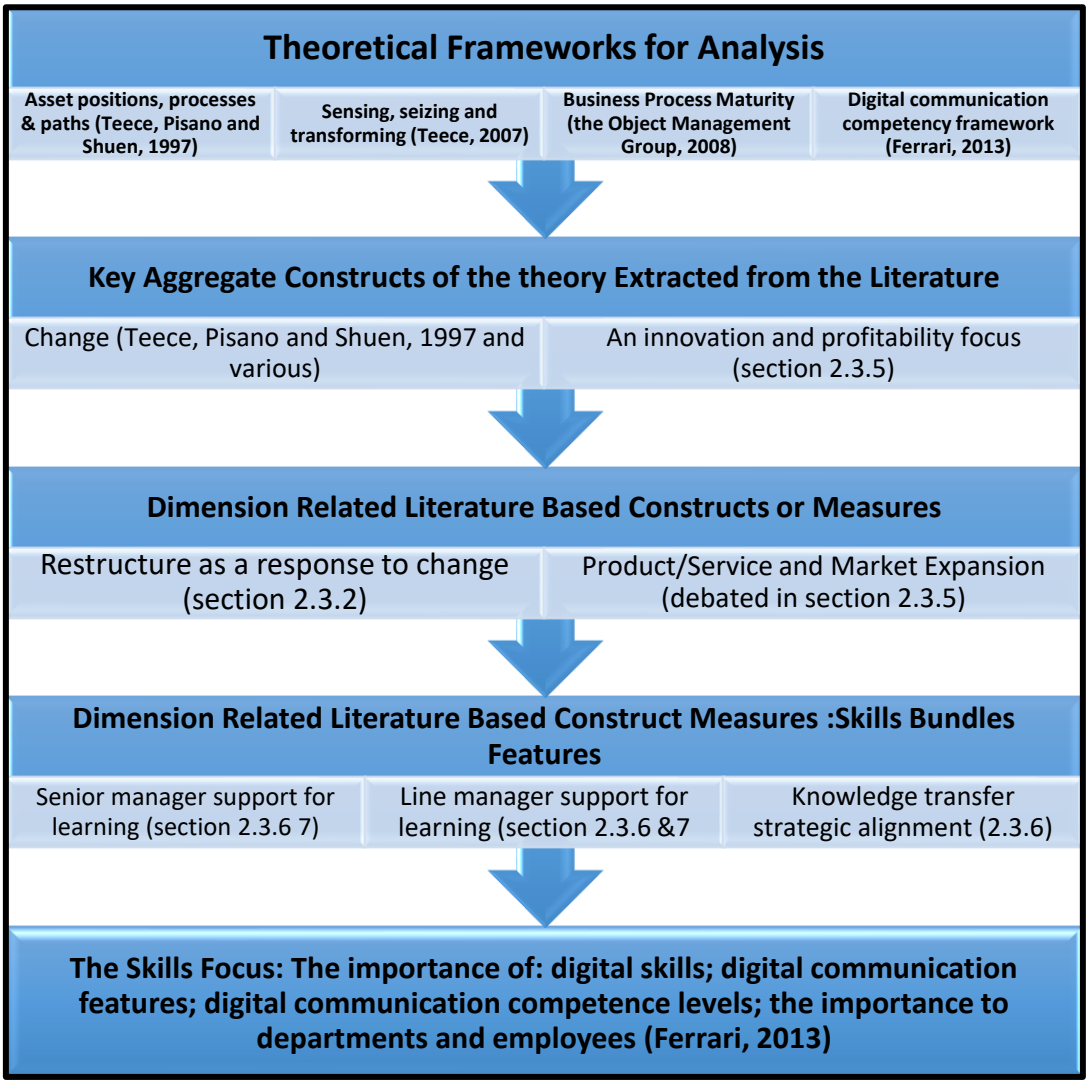
• The Changing Work and Digital Skills Perspective	Schwab (2016) (Macro Context: Fourth Industrial Revolution); WEF (2020a, 2020b) (Rapid pace of digital change); OECD (2016) & Industrial Society (2019) (need for skills to boost economy); PwC (2020a) Deloitte (2020) and Riley et al. (20200 (a tech-led future of work); Kispeter (2018) & Nania et al. (2019) (digital skills to support the future of work)	The digital skills focus debate extended these debates in the semi structured interview feature of the investigation.
• The Digital Skills Gap: Ever Widening or Closing up?	Ecroys (2016); Kispeter (2018); Nania et al. (2019) and many other Governmental, national bodies, professional and academic contributors (skills gap debate over the last 5) with GOV (2020); Open Access Government (2019) and Moueddene et al (2019) (gap persists)	
• The Digital Workplace in the UK Tech Based Economy	Deloitte (2018); PwC (2018) (aligning the workforce with the UK economy); Matt, Hess & Benlian (2015); Kane et al. (2015) (digital Transformation & strategy); Several authors (link dynamic capabilities with digital transformation)	
• Supporting the Dynamically Capable Digital Workplace through Digital Communications	Various Governmental, academic and professional commentators (The macro perspective); Various (organisational benefits); ACAS (2020); CIPD (2018, 2014) and the EU (2019) (safety & legal implications) and	Ultimately linking to the digital communication features and levels as the digital skills focus and key measures in the investigation.

	Department for Digital Culture, Media and Sport (2019) & others (cybersecurity	
Understanding Contemporary Definitions: From Digital Skills to Digital Competence • The Link Between Skills and Competencies • From Digital Skills to Digital Competence • Focusing on Digital Communication Competence	Ecorys (2016); Kispeter (2018) & Nania et al. (2019) (worked on behalf of the UK Government to review contemporary emerging definitions of digital skills) DIGCOMP's detailed Competency Framework (Ferrari, 2013); Carretero, Vuorikari and Punie, (2017) (updated the framework) and Van Laar et al. (2017)	
A Unique Contribution to Theory & Knowledge: Spotlighting the UK Professional Business Sector: Explaining the Dynamic Capabilities & Digital Skills Link	Deloitte (2018), Ernst Young LLP (2017); Brooks et al. (2018); Riley et al. (2020)	This section reinforces the unique focus on the UK Professional Business Sector.

Sources: Various

In focusing on the conceptual review depicted above, the chapter has addressed the first research objective within the introduction and literature chapters. This was '*to critically evaluate the literature on contemporary digital skills to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy'*. This relates to the research question depicted below which has also been fully addressed within the literature chapter but which have also been initially designed and iteratively revisited throughout the whole research focus as Creswell (2014) advises. The explanation below also reinforces the key dynamic capability and digital competence measures summarised in the table above which have been extracted from the literature review as a focus in the investigation. These measures are summarised initially within the figure overleaf.

Figure 2.7: A Summary of the 'Key Aggregate Constructs and Dimension Related Measures' (Barreto, 2010) Extracted from the Review of the Literature



Sources: Various

What is summarised in figure 2.7 above identifies which features of the literature debate have been extracted as 'aggregate constructs' and 'dimension related measures' which are linked to dynamic capability debates. Barreto (2010) contends it is vital that these are clearly identified in dynamic capability studies. The study focuses on strategic learning and knowledge transfer as key dynamic capability constructs discussed in section 2.3.6 as these contribute to a skills bundle which includes the study focus on the importance of digital communication competence and its' features and levels. In order to examine these

the methodology was designed to create a rigorous approach aimed at underpinning the study aims.

Chapter 3: Methodology Chapter

3 Methodology

3.1 Introduction

Adopting a pragmatist, abductive, mixed method design and methodology within a cross sectional study, this research study critically analysed the importance of employee digital communication competency as a key contemporary digital skills element in the Professional Business Sector by employing a national UK sample of participants.

The chapter begins by explaining how the researcher's relationship with the study which is underpinned by a pragmatist world view. The mixed method research design, methodology and the elected methods of a quantitative online survey and qualitative semi structured interviews are explained. The data analysis approach is outlined and finally, ethical considerations are considered. The nature of this study is business management research which is, ""*an organised, systematic, data-based, critical, objective, inquiry or investigation"* addressing a specific issue and is, *"undertaken with the purpose of finding answers or solutions*" (Sekaran and Bougie 2013, p. 3). When undertaking business research of this type, the researcher is central in deciding, explaining and justifying the approach taken to collating and comprehending data (Creswell, 2003).

3.2 The Researcher's Relationship with the Study

To explain how the research design was formulated it is important to indicate the relationship the researcher had with the study (Denzin and Lincoln, 2010). The researcher must consider how they arrived at the focus of the study, who they are, how they understand themselves to be and how they see others. Applying this to this study, the research problem and personal experience (including who the researcher sees themselves to be) have been considered in order to decide the best methodological approach for the study.

3.2.1 The Research Problem

The researcher focused on a relevant contemporary business issue which is the importance of digital skills to support competitive advantage in the fast paced UK

Professional Business Sector. A focus on digital communication competence in the contemporary competitive context is driven through the researcher's interest in skills development and how that links to strategic digital transformation. Driving that during a complicated national change period connected her to a Dynamic Capability Theory understanding which required further investigation (Pisano, 2017). Given her previous experience, the researcher thought that using both quantitative and qualitative data and employing crossover analysis would support the aims of the research to be achieved.

3.2.2 Personal Experiences

The previous experience which contributed to a mixed method focus began when at the end of the nineties, the researcher used a qualitative focus group approach to support a retention investigation for Runshaw College in Leyland. She later employed focus groups and semi structured interviews to contribute to a national UCAS study in 2002 called '*Paving the Way*'. UCAS is an abbreviation for the UK Universities and Colleges Admissions Service which is based in Cheltenham (UCAS, 2019a). Between 2002 and 2007 the researcher also undertook empirical field based research on behalf of ContinYou (a community learning charity which disbanded in 2013) and used SPSS statistical analyses several times on various research projects. Within that period, the researcher employed qualitative investigations to build on that statistical analysis, reflecting a mixed method approach. This mixed method experience helped the researcher to be open minded, real world orientated and problem centred in determining the research design to be employed as Denzin and Lincoln (2011) advocate and this is reflected in her paradigmatic stance.

3.3 Research Paradigms and the Underpinning Philosophy of the Research

The researcher was clear her philosophical orientation was clearly aligned with pragmatism and this helped her determine their approach to research design and enable her to, "*recognise which designs will work and which will not"* Easterby-Smith, Thorpe and Jackson, (2012, p. 12). In the organisational arena pragmatism supported the researcher to understand how businesses responded to the social phenomena which was the importance of digital skills in the current competitive UK business environment as Creswell (2000) supports. Thus, pragmatism underpinned the research study and

reflected the researcher's "*assumptions, concepts, and propositions that orientate* (their) *thinking and research*" for Bogdan & Biklan (1982, p. 30). In line with many authors (including: Petersen and Gencel (2013); Morgan (2007) citing Rallis and Rossman (2003); Lincoln (1998) and Creswell (1998), the philosophical underpinnings of this investigation are defined as 'worldviews' as these relate to the ontological and epistemological choices the researcher made which are highlighted later in this section. Indeed, Creswell (2012) and Creswell and Plano-Clark (2011) contend that pragmatism is one of four traditional research paradigms or worldviews as the table below depicts.

Table 3.1: Creswell's four worldviews

Positivism (Post Positivism)	Constructivism
- Determination - Reductionism - Empirical observation and measurement - Theory verification	- Understanding - Multiple participant meanings - Social and historical construction - Theory generation
Advocacy / Participatory	**Pragmatism**
- Political - Empowerment Issue Oriented - Collaborative - Change orientated	- Consequences of actions - Problem-centred - Pluralistic - Real-world practice oriented

(Adapted from Creswell and Plano-Clark, 2011, p. 40)

This understanding of pragmatism reflects features of the discussion in section 3.2.2 in that the researcher had previous real world experience which shaped her views. She focused on the problem of digital skills, did not subscribe to the idea there is 'one best way' and believed a contemporary viewpoint could be offered. Ultimately, this could support understanding of how organisational dynamism might be enhanced through a focus on skills development.

Conversely, whilst Creswell (2012) and Creswell and Plano-Clark (2011) defend the worldview of pragmatism, the dominant paradigms of positivism and constructionism aim to define 'one best way.' Despite this, shifting perspectives in the 1980s (termed 'the paradigm wars' for Gage, 1989 and Shepherd and Challenger, 2013) meant that different worldview interpretations emerged and these included pragmatism (Avenier and Thomas, 2015). This provides, "*an alternative worldview to those of positivism/post positivism and constructivism"* and in line with the researcher's experience centres on, *"the problem to be researched and the consequences of the research*" (Fielzer, 2010, p. 29-30). With many contemporary theorists including Creswell, (2003, 2009, 2011, 2012, 2014) alongside many others (Greene, 2007, 2008, Brewer & Hunter, 1989, p. 74; Creswell & Plano-Clark, 2007; Miller, 2006 and Fielzer, 2010) supporting the worldview, the paradigm is also reinforced by earlier US scholars' perspectives including,

> "*Charles Sanders Peirce (1839-1914), William James (1842-1910), and later John Dewey (1859-1952) and George Herbert Mead (1863-1931*)"
>
> (Dalsgaard, 2014, p. 145)

This reflects how a wide philosophical debate supports pragmatism, although in line with Morgan (2007) the researcher did not seek to focus on historical philosophical variations of pragmatism. Instead the researcher's stance is problem focused in the belief that neither a qualitative nor quantitative approach will fully address the research problem which is reinforced in debate offered by Creswell (2003, p. 11) depicted in the table overleaf.

Table 3.2: Philosophical Defence for Pragmatism

Creswell	Applied to this study
The pragmatist researcher looks at the 'what' and 'how' of research, based on the intended consequences – where they want to go with it. Mixed methods researchers need to establish a purpose for their mixing, a rationale for the reasons why quantitative and qualitative data need to be mixed in the first place	Aligned with pragmatist thinkers, the researcher believed that both subjective and objective meanings could help to answer the research question and as Ihuah and Eaton (2013, p. 937) recommend. This involved mixing qualitative and quantitative methods as this serves to, "*resolve a real-life world challenge.*" This reflects the purpose of the study and for Johnson and Onwuegbuzie (2004, p. 17), provides a "*logic of inquiry.*" This includes using induction to define patterns alongside deduction to test out the theory debated earlier. Ultimately, this leads to abduction whereby the study achieves the "*best of a set of explanations for understanding results."* The researcher adopted this abductive stance to uncover and rely on the participants' explanations to understand the results in the context of building on and extending existing theory. The methods required mixing because the quantitative survey examined the key literature themes and the semi structured interviews augmented the quantitative outcomes.
Pragmatists agree that research always occurs in social, historical, political and other contexts. In this way, mixed methods studies may include a postmodern turn, a theoretical lens that is reflective of social justice and political aims.	The contextual setting within this study was the Professional Business Sector which, as a key contributor to the UK economy, sits within the volatile political and economic UK business environment. The political context this is situated in reflects the complex Post Brexit economic environment which has been further complicated by the social context COVID-19 which emerged at the end of the study period.

Pragmatists have believed in an external world independent of the mind as well as that lodged in the mind. They believe that we need to stop asking questions about reality and the laws of nature	The researcher believed that work-based beliefs are formed through the natural lens which is created by experience of working within business settings. Whilst Hvide (2000) contends this pragmatic assumption is overconfident it lodges beliefs in the mind and external forces create the contingent understanding. The researcher contends knowledge is created through practical experiences and as Morgan (2014) argues, this serves to unsettle assumptions of traditional worldviews by debating the philosophy of knowledge. As such, pragmatism offers promising new directions for understanding the nature of work.
Thus, for the mixed methods researcher, pragmatism opens the door to multiple methods, varying worldviews and different assumptions, as well as different forms of data collection and analysis	The researcher contends that pragmatism frees the mind into defining what works from a practical, real world, business perspective and moves away from absolute or subjective 'truth' as Frey (2018) contends. Weber (2004) explains how for positivist, quantitative researchers absolute truth is defined by measurable hypothesis scientifically depicting how measures do and do not concur with a measurable theory or theories. Subjective truth for interpretivist, qualitative researchers emerges from rich, depth of accounts (Given, 2008). For Greene (2005), the pragmatist, mixed method methodology allows choices to be made that frees the researcher from these truth perspectives and allows the researcher to make choices in terms of methods employed and the analysis applied to the data which emerges.

(adapted from Creswell, 2003, p. 11).

Extending the philosophical defence of pragmatism using Guba (1990), ontologically the researcher believes that knowledge is defined through multiple realities which 'open the door' to reflect reality for Maxcy (2003) cited by Kaushik and Walsh (2019). These multiple realities emerged by using multiple research strands which provided deeper insight (Creswell, 2003). Epistemologically, the principles of what is known are real world orientated and practically focused on problem solving (Creswell and Clark 2011; Maxcy 2003 and Rorty 2000 cited by Kaushik and Walsh, 2019).

3.3.1 Linking the Axiological Stance to Overcome and Mitigate Bias

The researcher's axiological decisions centred on their values and ethics and are, "*shaped by perspectives, values, and theories*" (Biddle and Schafft, 2015, p. 325). Bias might have been created from the researcher's previous experience for Creswell and Plano-Clark (2011) although acknowledging and mitigating potential bias in the study served to overcome threats to validity. This centred on achieving objectivity as Teddlie and Tashakkori (2009) contend with the qualitative methodology of bracketing supported bias to be minimised throughout the whole research process in line with Tufford and Newman (2009). This was crucial to respond to the contention that,

> ""*Mixing methods is wrong, not because methods should be kept separate but because they should not have been divided at the outset" (Gorard, 2007, p. 1). Far from freeing researchers from the restrictions of paradigms and the strife of paradigmatic struggle, mixed methods can actually reinforce categorical differences."*
>
> Symonds and Gorad (2010, p. 123)

Addressing this, and for Teddlie and Tashakkori (2009), in this mixed methods study bias was also applied to:

- The research focus of the study and the research design: The focus for the study was driven from a clear understanding that digital skills are needed to support competitive advantage for Kispeter (2018), Nania et al. (2019) and many others. The research question was evidence based, emerging through the complete review of the literature featured in Chapter 2. These were iteratively revisited to

ensure they were aligned with the aims of the study as Creswell (2014) advises, are linked to mixed method validity for Newman, Lim and Pineda (2013) (depicted in section 3.4.4) and supported bracketing for Tufford and Newman (2009). This was also achieved as the researcher was cognitively aware of why they chose their research design at the start of the research as depicted in section 3.2.1. This does not depict overconfidence as Hvide (2000) contends but is based on experience gained in an empirical research career resulting in the belief that mixed methods approaches offered deeper data insight as depicted in section 3.2.2.

- The sampling approach: With the researcher utilising her own professional network to achieve a sample, this involved a homogenous and expert purposive sampling approach which can inevitably be biased (Etikan, Musa and Alkassim, 2016). Defending this, and as discussed in section 3.5.1 and 3.6.1, the legal impact of GDPR (2018) meant that professionals could not be generally directly canvassed to participate in interviews and the researcher mitigated bias by adopting a professional approach to encourage participation (outlined later in section 3.5).
- The semi structured interviews: These are inherently biased (Bariball and While, 1994) and indeed, Fielden (2003, p. 1) cites Janesick (2000) who '*suggests that bias in qualitative research is inevitable*.' Bracketing was achieved as data collection was objective, structured and achieved through careful design and delivery of the research methods as shown in section 3.5.2. The researcher also employed the advice given by many authors featured in section 3.5.2 which relating to interview conduct (Zorn, 2008, Whiting, 2008, Leech 2002, Barriball and While, 1994 and others.)

In overcoming bias in the study and employing bracketing methods explained by Tuffman and Newman (2009), this reinforced the mixed method research design of the study for Teddlie and Tashakkori (2009) which is explained in the following section.

3.4 A Mixed Methods Approach to Research Design and Methodology

In line with Van Griensven,, Moore and Hall (2014, p. 357), the researcher contends that a mixed methods research design offers "t*he best of both worlds* "as it can overcome the

shortfalls of employing a single strand approach (Creswell and Tashakkori, 2007). Mixing different types of methods can strengthen the design of a study (Tashakkori, & Teddlie, 2010, 2003b; Greene, 2008), can generate a complete picture for Green and Caracelli (1997) and supports understanding of social phenomena, dissemination of practical knowledge and reinforces rigour (Sale, Lohfeld and Brazil, 2015). Fundamentally, mixed methods is widely linked to the researcher's pragmatic world view as Creswell and Plano-Clark (2011) confirm. Whilst heated discussion centres on how 'mixing or fusing' of data can be achieved (Denzin, 2010), the table overleaf also reinforces how mixed methods are frequently linked to pragmatic knowledge claims for Creswell (2009).

Table 3.3: Approaches to Research Design

Focus on	Qualitative Approaches	Quantitative Approaches	Mixed Method Approaches
Using these philosophical assumptions	Constructivist/advocacy/ Participating knowledge claims	Post-positivist knowledge claims	Pragmatic knowledge claims
Employing these strategies of inquiry	Phenomenology, grounded theory, ethnography, case study and narrative	Surveys and experiments	Sequential, concurrent and transformative
Employing these methods	Open ended questions, emerging approaches, text or image data	Close ended questions, predetermined approaches, numeric data	Both open and closed ended questions, both emerging and predetermined approaches and both quantitative and qualitative data and analysis

Using these practices of research as the researcher	Positions him or herself, collects participant meanings, focuses on a single concept or phenomenon, brings personal values to the study, studies the context or setting of participants, Validates the accuracies of findings, makes interpretations of the data, creates an agenda for change or reform and collaborates with the participants.	Tests of verified theories or explanations, Identifies variables to study, relates variables in questions or hypotheses, uses standards of validity and reliability, observes and measures information numerically, uses unbiased approaches and employs statistical procedures.	Collects both quantitative and qualitative data. Develops a rationale for mixing. Integrates the data at different stage of inquiry, presents visual pictures of the procedures in the study. Employs practices of both qualitative and quantitative research

(adapted from Creswell, 2009, p. 17)

The table above highlights how mixing methods supported the researcher's pragmatist worldview although it is accepted that contentious debate surrounds sequencing and mixing of data (Denzin, 2010 and Foss and Ellefson, 2002) with some arguing that contrasting data sets are incompatible (Dootson, 1995). Indeed, Reichardt and Rallis (1994) extend this, arguing that qualitative and quantitative paradigms are incompatible and cannot be merged. The researcher refutes this as section 3.8 shows how a mixed methods crossover analysis has been successfully employed as Frels and Onwuegbuzie (2012) support.

Whilst some question whether the mixed approach measures what it sets out to (Symonds and Gorard, 2010), the researcher ensured that the research aims were continually revisited and supported that through iterative design and review of the research question. Furthermore, although it can be difficult to analyse and code qualitative data which might be unstructured (Salehi and Golfashani, 2010 and Driscoll et. al, 2007), rigorous thematic review explained in section 3.9.2 overcame that issue. Despite, Giddings and Grant (2007, p. 52) contending that mixed methods is simply a '*trojan horse for positivism*" the concurrent sequencing design highlighted in section 3.4.2 afforded no precedence to either method. Indeed, whilst Tashakkori and Teddlie (2003) initially defined 'paradigm incompatibility' they later (2006) recounted this perspective to concur with Greene (2008).

Using mixed methods within the investigation offered *"multiple ways of seeing and hearing, multiple ways of making sense of the social world*" and provided *"multiple standpoints on what is important and to be valued and cherished"* (Greene, 2008, p. 20). This was achieved through a logic and purpose which for Greene (2005) links to abduction. This includes,

> "*the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results)".*
>
> Johnson and Onwuegbuzie (2004, p. 17).

Morgan (2007, p. 71) concurs with Haig (2005) and concludes that abduction is a "*kind of reasoning that moves back and forth between induction and deduction.*" In line with the

study, abductive logic is widely linked to pragmatism in mixed methods research and the practical option of choosing quantitative and qualitative methods (Wheeldon, 2010 and Creswell and Tashakkori, 2007). Importantly, for Thagard and Shelley (1997), abduction supports knowledge creation and contribution which was key in this PhD study as section 1.4.3 indicates. Furthermore, abductive logic reinforces the rigour of the current study as shown in section 3.4.4 and defended by Newman, Lim and Penida (2013). It also underpins the choice of quantitative online survey and qualitative semi- structured interview methods discussed in section 3.5 with the former offering deductive logic and the latter representing an inductive reasoning approach. Ultimately, the researcher's abductive logic helped them to uncover explanations emerging from both sets of data supporting interpretation of results depicted in Chapters Five and Six.

Having defined the research logic, the researcher then contemplated what Bryman (2006, p. 98) citing Morgan (1998) and Morse (1991) and concurring with Creswell (2003) define as the "*simultaneous or sequential"* order in which the qualitative and quantitative data was collected. The adopted concurrent sequencing triangulation design is linked to debates for Bryman (2006) citing Greene, Caracelli and Graham (1989) on how methods 'interact' (Olsen, 2014).

3.4.1 The Study Focus on Triangulation

These debates emerge from Denzin (1978, p. 291) who defines triangulation as "*the combination of methodologies in the study of the same phenomenon"* although Flick (1992), Jick (1979), Farquhar and Michels (2016) and Miles and Huberman (1994) indicate that different kinds of triangulation exist within research. Farquhar and Michels (2016) explain how triangulation by data source includes data collected from different persons, or at different times, or from different places and within this study that involved two sets of participants. Triangulation by method for Miles and Huberman (1994) involves observation, interviews, documents, etc. and this also links to the choice of mixed methods employed within the investigation. Triangulation by the researcher (comparable to inter-rater reliability in quantitative methods) usually involves more than one rater or researcher for Bryman (2006). This applies to the table of sequencing approach achieved within the pilot study as discussed in section 3.7.2. Triangulation by theory (using

different theories, for example, to explain results) applies to the study in that dynamic capabilities for Teece, Pisano and Shuen (1997); features and levels of digital communication competence (Ferrari, 2013) and Business Process Maturity (the Object Management Group, 2008) were all applied to the analysis and subsequent results within Chapters Five and Six. Triangulation by data type for Greene (2005) (e.g., combining quantitative and qualitative data) is in focus within this section as this links to the research design aspect of triangulation.

Bringing this into the current focus of the design of this business management study, Creswell and Plano-Clark (2011), define four major types of mixed methods designs:

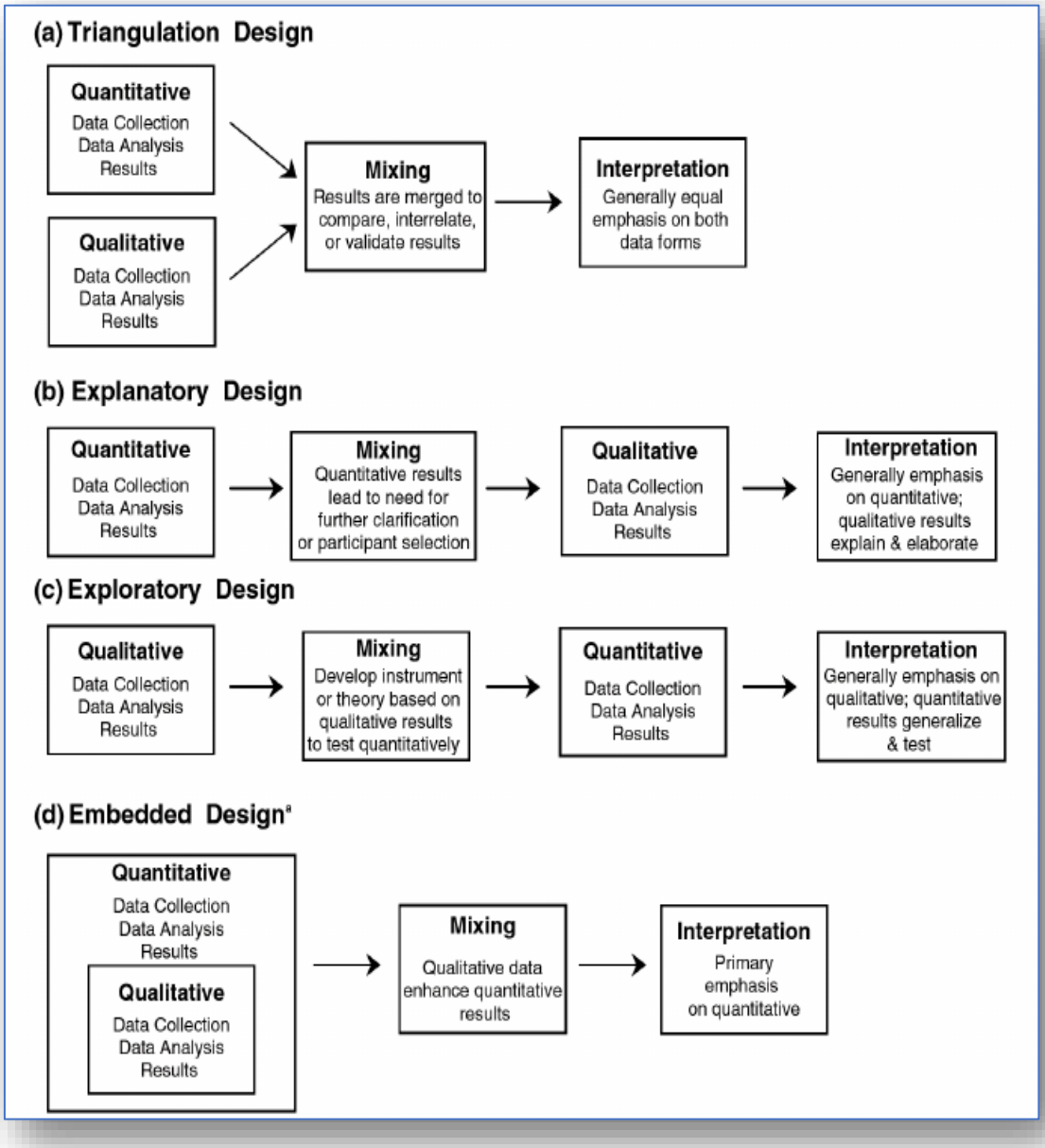
- Triangulation design
- Embedded design
- Explanatory design
- Exploratory design

Acknowledging there are differing variants of these major designs, the study employed the concurrent sequential triangulation design discussed by Morse (1991) in Creswell et al. (2003).

3.4.2 Explaining the Adopted Triangulation Design

The four main types of mixed methods design are depicted in figure 3.1 overleaf although it should be acknowledged that Palinkas et al. 2011, p. 44) argue these can be extended to seven different structural designs. These are dependent on how complex the design is based on the "*number of aims or objectives, study context, and phase of implementation examined"* Reflecting this, the researcher considered sequence, priority and level of integration in line with Creswell (2002) and conducted a cross sectional study with four research objectives. The quantitative and qualitative data was gathered at the same time and afforded equal priority. Integration of data/mixing took place at analysis and discussion stage when for Kroll, Neri and Miller (2005, p. 107), "*the extent of and reasons for convergence, divergence, and complementarity*" were focused on design a) in the figure below reflects the design principles the researcher chose to employ.

Figure 3.1: Types of Mixed Methods Design



(adapted from Creswell and Plano-Clark, 2011, p. 543)

Within this study, the triangulation approach depicted in Fig. 3.1 (a) is defined as a concurrent triangulation design for Creswell, et al., (2003) whereby data is gathered separately but in a single phase and at the same time. This involved no precedence being afforded to either method as Creswell et al. (2003) explain. Thus, the approach centred on how best to interpret the data to transform it, "*to facilitate integrating the two data types during the analysis*." (Creswell and Plano-Clark, 2007, p. 64). This concurrent

triangulation approach is referred to as 'between or across methodologic triangulation' for Thrumond (2001) in that an online survey and semi structured interviews were conducted at the same time within the same study reflecting the approach taken by Jenkins (2001) who used this single-phase approach in her triangulation design and awarded equal status to quantitative and qualitative data. Ultimately, the mixed methods triangulation design supported 'confirmation and completeness' of data as the researcher completely understood why they used this approach in line with Begley (1996), Zohrabi (2013) and Johnson and Turner (2003).

Bryman and Bell (2015) explain that in a sequential explanatory design (b, in the figure above) the focus is on quantitative research while in a sequential exploratory design (c, in the figure above) qualitative research is in focus. For Creswell (2014), a) leans to 'post-positivism' and c) to 'interpretive or participatory/ advocacy oriented.' In (d in the figure above) the embedded design also focuses on one data set playing a role in supporting the other for Green (2005). The focus here is on 'nesting' one method within the other and this gives some priority to one method over the other (Creswell, 2014). The focus within this study was to afford equal status resulting in these designs being rejected. This supported immediacy in terms of planning and conducting the interviews with urgency being valued in the UK Professional Business Sector (Ernst and Young LLP, 2017) and offered the researcher more time to focus on their subsequent data analysis as Creswell (2009) advocates.

The research design centred on triangulation and linked to the concurrent mixed method sequencing approach which was reinforced through the adopted mixed methods methodology.

3.4.3 The Mixed Methods Methodology

Mixed methods applies to the study research design, the methodology and to the methods employed within this study as Greene (2005, 2008) and Creswell (2011) support. Biesta (2010) and Fielzer (2010) define mixed methods as a methodological approach and confirm how this underpins the philosophical contention of the researcher, their choice of data collection and their analyses techniques. This represents a strategy, a plan and

process which links to the design and is underpinned by the elected methods (Crotty, 1998).

The research strategy in this study links to the mixed methods concurrent sequencing research design which ultimately reflects the worldview stance of the researcher. The multi strand nature of the study links to the abductive nature of the research. Whilst many have made the distinction between methods and methodology (e.g. Hartas, 2010, Cohen, Manion and Morrison, 2011 and Greene, 2005), in line with Cohen, Manion and Morrison (2011) and Greene (2005, 2008), the methodology and methods are reinforcing principles within this study. This methodological approach served, "*as a rationale for rigorous research*" Mitchell (2018, p. 103) which reflects the pragmatist logic of enquiry for Kothari (2004) and was reinforced through a mixed methods focus being evident throughout the whole research design process.

Despite this, initially, grounded theory seemed to be a methodological option as it is linked to mixed methods for Lingard, Albert and Levison (2008). For Castro et al. (2011), a grounded research methodology usually involves stages of data collection being conducted to develop an integrated theoretical approach with data being compared throughout these stages. Rather than arguing this methodological approach was inappropriate it is more accurate to state that the researcher was committed to her theoretical choice of methodology as this reinforced her worldview, the chosen research design, the methods employed and the crossover, integrated analysis depicted throughout this chapter.

The researcher was clear that action research was inappropriate as that would involve seeking to be an active participant in strategic discussions which could compromise confidentiality for Löfman, Pelkonen and Pietilä (2004). Additionally, experimentation was not applicable as the purpose of the study was not to test hypotheses using participants in a controlled environment as is the case in the design of scientific studies for Cobb et al. (2003) and this is more suited to a positivist paradigm for Bryman and Bell (2015). Ethnography also did not apply as this was not a study focused on lived experiences as Brewer (2000) defines and phenomenology was rejected given that the study was not investigating experiences of human life. That is connected with narrative enquiry which focusses on individual story telling of experiences as Earle (2010) explains

and instead, organisational perceptions were gathered. Both ethnography and phenomenology are also linked to qualitative paradigms for Given (2008). Finally, case study methodology was rejected as the researcher wanted to gain a wider snapshot of the sector and this concurs with Gibbert and Ruigrok (2010) who argue that even multi cases are not generalizable. In making these strategic design choices the researcher also considered the reliability, validity, transferability, generalisability and consistency aspects of research to support creation of a reliable, systematic, well designed mixed methods approach (Johnson and Turner, 2003).

3.4.4 Ensuring Rigour in the Mixed Method Study

Validity, reliability and the impact on generalisability and transferability of research are 'fundamental concepts' in research debates (Leung, 2015). To reinforce this, these are considered in other parts of the methodology chapter although this section captures the debates and applies them to the research design, implementation and analysis stages of this mixed methods study as Halcomb and Hickman (2015) advise. This was vital as rigour is central to effective fusing or mixing of data in mixed methods studies and this serves to respond to critics who argue this is impossible (Denzin, 2010 and Foss and Ellefson, 2002). As such, and in a mixed method study, rigour should apply to both the qualitative or quantitative approached for Sale, Lohfield and Brazil (2002), with Ihantola and Kihn (2011, p. 5) suggesting that it is important to focus on:

- *"internal and external validity and reliability of quantitative work*
- *contextual validity, generalizability and transferability, and procedural reliability of qualitative work"* (p. 5)

In response, these validity and reliability features are considered separately given the multi strand nature of the study and in line with Ryan, Scapens and Theobald (2002). Reflecting this, section 3.5.1 discusses how the study supported quantitative rigour to be achieved. Section 3.5.2 extends the qualitative reliability and validity focus which is also indicated in this section although at this point, the rigour discussion is applied to the mixed method debate concurring with Sale, Lohfield and Brazil (2002).

The research instrument should truly measure what it was intended to measure and how truthful the research results are to support internal validity. Thus, the researcher considered how their methods could address "*the bull's eye*" of the research aim (Golfashani, 2003, p. 598). Table 3.4 overleaf indicates how validity is measured differently in quantitative and qualitative debates.

Table 3.4: Quantitative and Qualitative Validity Debates

Quantitative Validity	Qualitative Debates
For Brown et al. (2017, p. 153- 154) quantitative research, initially validity includes three measures: content validity ("*does measurement reflect the domain of interest?"*), criterion validity (is the measurement related to, or predict an outcome?), and construct validity ("*does measurement reflect the intended construct?"*). They cite Campbell and Stanley (1963) who developed the debate about validity to define internal ("*the control of threats that provide alternative explanations"*), and external ("*the degree of generalization to other places or*	Reliability and validity in qualitative research terms, "*are more ambiguous and contentious, a result of the diversity of philosophical perspectives about whether there is a reality external to human perception.*" Brown et al. (2017, p. 154).
	There is no consensual understanding of reliability and validity in qualitative research with numerous items being defined in the literature (Dellinger & Leech, 2007). Thus, Guba and Lincoln (2005) measure this using: credibility, transferability, dependability, and confirmability as a replacement for statistical based testing.
	Credibility refers to, *"How can one establish confidence in the "truth" of the findings of a particular inquiry for the subjects (respondents) with which and the context in which the inquiry was carried out?"* Guba (1981, p. 79)
	Dependability is linked to,

persons"). Linked to this reliability relates to, Validity links to the "truthfulness of findings" whilst reliability is linked to 'stability' (for Mohajan, (2017).	*"How can one determine whether the findings of an inquiry would be consistently repeated if the inquiry were replicated with the same (or similar) subjects (respondents) in the same (or similar) context?"* Guba (1981, p. 80).
	Confirmability questions, "*How can one establish the degree to which the findings of an inquiry are a function solely of the subjects (respondents) and conditions of the inquiry and not of the biases, motivations, interests, perspectives and so on of the inquirer?"* Guba (1981, p. 80).

Sources: Guba (1981, p. 79-80); Guba and Lincoln (2005) Brown et al. (2017) and others

Whilst qualitative validity is less focused on statistical measurement, Whittemore, Chase and Mandle (2001) identify various techniques which address this and are applicable in this mixed methods study. The whole study approach they advocate is appropriate as mixed methods validity extends to the whole study and not to just one part of the process as is sometimes the case in quantitative research (Winter, 2000). Johnson and Turner (2003) support this, arguing that validity in mixed methods links to "*different phases of the research from data collection, data analysis and interpretation* "(Zohrabi, 2013, p. 258). This is reflected in table 3.5 overleaf which also indicates how the researcher considered validity at all stages in the PhD process.

Table 3.5: Techniques for Demonstrating Reliability and Validity

Type of Technique	*Techniques*	Applied to the study
Design Consideration	1. *Developing a self-conscious research design* 2. *Sampling decisions (i.e., sampling adequacy)* 3. *Employing triangulation* 4. *Giving voice*	1. Depicted in section 3.2 – the researcher's relationship with the study. 2. Justified in section 3.6.1 – homogeneous and expert purposive sampling. 3. Reviewed in section 3.4.2 – concurrent triangulated sequencing. Careful design supports dependability and conformability.
Data Generating	1. *Articulating data collection decisions* 2. *Providing verbatim transcription* 3. *Demonstrating saturation*	1. Indicated in section 3.5 – online quantitative survey supported by qualitative semi structured interviews. 2. Examples featured in Appendix 2, Figures 4 – 6. 3. Reviewed in section 3.6.1 – occurred after 24 interviews were conducted. This again reinforces confirmability, dependability and conformability.

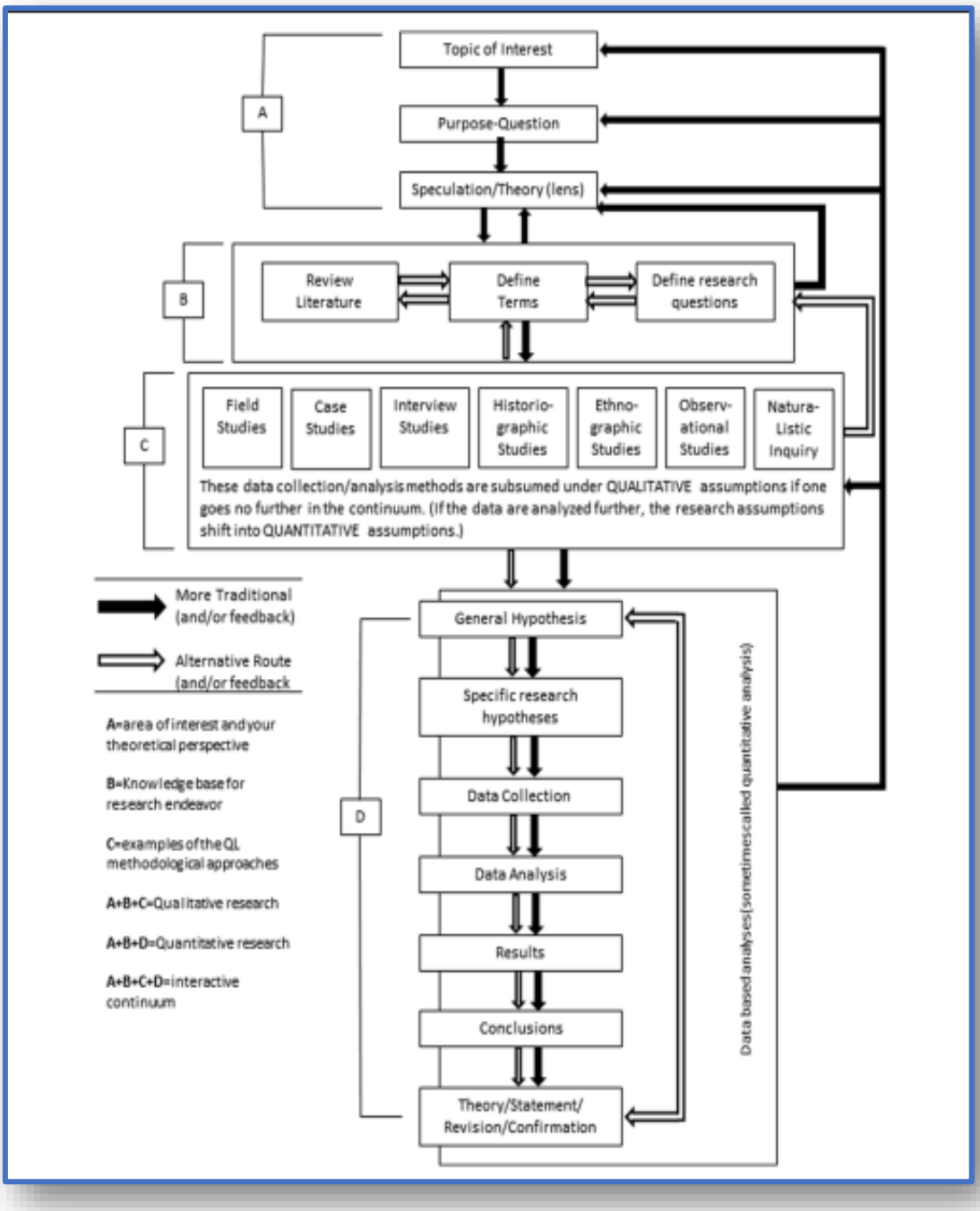
Analytic	1. *Articulating data analysis decisions* 2. *Expert checking* 3. *Testing hypotheses in data analysis* 4. *Using computer programs* 5. *Performing a literature review* 6. *Writing an interim report*	1. Explained in section 3.8. 2. Explained in this section using the table of specification approach during piloting featured in section 3.7.2. 3. The research questions is addressed in Chapter five. 4. SPSS was employed to create cross tabulated data and a Cronbach Alpha calculation to support reliability as shown in section 3.5.1. 5. Chapter two offers a conceptual review of the themes. 6. Interim reporting supporting previous assessment stages in the PhD process. Again, this reinforces dependability of the study.
Presentation	1. *Providing an audit trail* 2. *Providing evidence that support interpretations.* 3. *Acknowledging the researcher perspective* 4. *Providing thick descriptions*	1. The appendices offer evidence of interviews, an example of a completed survey, the participant information pack and the ethical approval which supports research credibility. 2. Quotations support interpretations in sections 4.5 and 4.6. Data supports interpretations in section 4.3 and 4.4 support conformability. 3. Researcher bias is identified in section 3.4 with strategies aimed at mitigating that bias being suggested thus supporting conformability.

		4. Chapter Four depicts 'thick' descriptions of findings. 'Thick' in this sense refers to extensive reinforcing of credibility.

Source: Whittemore, Chase and Mandle (2001, p. 533)

In the context of this mixed methods investigation, to focus on either statistical or qualitative validity measures alone conflicts with the epistemological orientation of the researcher as Sale, Lohfield and Brazil (2002) support. Indeed, the whole study approach reinforces the multi strand nature of the research for Ongwuegbuzie (2003) and is reflected in the abductive framework provided by Newman, Lim and Penida (2013) which explains how validity and reliability has been ensured. The abductive mixed method research design reflected in figure 3.2 overleaf is applied to reliability and validity debates thereafter.

Figure 3.2: Mixed Methods Interactive Continuum



Source: Newman, Lim and Penida (2013, p. 248, adapted from Ridenour and Newman, 2008)

A, B, and C above are the inductive stages in qualitative research which generate theory (Denzin and Lincoln, 1994 cited by Newman, Lim and Penida, 2013) and are supported by bracketing for Tufford and Newman (2010). This reinforces validity, reliability and

neutrality of the researcher. A, B, and D represent deductive stages which tested out the themes defined in the literature and these represent the positivist, 'scientific approach' which is reinforced through statistical based validity and reliability testing for Newman, Lim and Penida (2013). In mixed methods, stages A, B, C, and D are involved, and this then created an 'interactive continuum,' where the qualitative and quantitative methods informed each other.

The researcher employed this framework and in stage A content and construct validity were achieved by:

- The researcher defining and emphasising the topic of interest by explaining the rationale and clarifying what was being investigated using a participant information pack (featured in Figure 2, Appendix 3)
- The researcher offering podcasts, recordings and LinkedIn posts which defined the focus and rationale and informed participants of the aims of the study.

Stage B linked to careful, iterative design and continuous modification and adaption of the research question which was aligned with the two core literature themes. Rigorous secondary research supported analytical validity for Whittemore, Chase and Mandle (2001). The researcher further reinforced both the abductive nature and rigour within the study by moving through the stages C and D depicted above. Careful design and piloting of the survey and interview supported face, content and construct validity checks by employing a rigorous table of specification exercise explained in section 3.7 and this enabled successful fieldwork (Stage C depicted above).

Rigorous mixed method crossover data analysis was conducted (reviewed in section 3.8) and this overcame threats to contextual validity and avoided the descriptive validity issue which relates to the accuracy of the data (Thomson, 2011). Ultimately, this linked to stage D and as such, the full process supported construct and content validity with 'feedback loops' allowing the researcher to enable qualitative and quantitative data to inform each other as Newman, Lim and Pineda (2013) concur. This underpinned the mixed methods research design which was reinforced by the researcher's response to external validity threats.

External validity threats also link to the issue of sample size for Ihantola and Kihn (2011) although this is considered within section 3.6 later in this chapter. In terms of generalisability and transferability though, social policy academics contend that it is not vital for conclusions to be generalised within a total population to ensure research quality as Bryman, Becker and Sempik (2008) found. Krefting (1991) and Ryan and Bernard (2003) also note that studies are transferable when the contextual findings match the wider context and evidence presented in section 2.7 of the literature review indicates that the study builds on published professional perspectives from Riley et al. (2020) amongst others. Additionally, Lincoln and Guba (1985) note that transferability is more the responsibility of the person wanting to transfer the findings to another situation or population than that of the researcher of the original study. Promoting the research this through successful publication in peer led journals and conference papers will help to achieve this. Furthermore, transferability is enhanced when there is alignment of the study findings with the theoretical framework (Ihantola and Kihn, 2011), and this is evident in Chapter Five where new evidence enhances understanding of the research question.

In summary, a rigorous research focus has been reflected in the overall research design and is also applied to subsequent debates within the chapter which review the choice of research methods and the approach taken when employing these research methods in the investigation focus.

3.5 Choosing the Research Methods

Having established the researcher's methodological decisions and how rigour was reinforced in this mixed methods investigation, the key methods which supported the investigation are defined as Saunders, Lewis and Thornhill (2016) explain. Ignoring a plethora of debate surrounding 'best' research methods the researcher defined methods aligned with the research design as Sackett and Wennberg (1997) advocate. These were chosen to gather the best set of explanations and included both qualitative and quantitative methods, thus reinforcing the abductive logic of the study as Creswell and Henrose (2019) advise. Methods employed within the study included an online survey and semi structured interviews reflecting a well cited approach employed by Bryman,

Bryman, Becker and Sempik (2008) whereby they investigated research perspectives of social policy researchers using a concurrent triangulated sequencing approach. As such, this also reinforced consistency in the concurrent triangulated design as Hansen et al. (2005) explain.

Additionally, the ease of using an online survey achieved a reasonable sample size of UK online survey participants which enhanced the quantitative transferability and generalisability of the study as Bryman (2008) contends. Again, reflecting Bryman, Becker and Sempik (2008), the researcher chose to use qualitative semi structured interviews with each data source being part of the 'jigsaw.' The online survey findings served to complement data emerging from the UK wide semi structured interviewee contributors. The intent of the quantitative online survey was to establish the degree to which managerial views relating to dynamic capability and digital communication competence measures were held. The semi-structured interviews were designed using the same thematic measures but allowed for wider expansion on what was identified in the online survey.

The researcher also considered and rejected other methods used in studies which did not reflect her research design, or which were deemed unsuitable as they did not seem relevant to the chosen participant sample. Moore and Savage (2002) define participant observation which would have related to participation in strategic meetings as an observer although this was considered invasive and could compromise confidentiality. Documentation could have been useful but was discounted as managers taking part in the pilot study advised that professionals would not want to share confidential documentation detailing company finances or organisational strategies whilst some might not have strategic documentation. This is an ethical consideration when considering using secondary data for Cowden (1998).

Additionally, focus groups were discounted as pilot participants advised that senior managers would consider these to be inappropriate as they would impact privacy. Drew and Murtagh (2005) contend that focus groups can sometimes result in reluctance to discuss sensitive workplace issues. Structured interviews were also rejected as they limit responses although Whiting (2008) argues they can reinforce consistency when followed up with a further interview although Given (2008) explains this is more suited to a

narrative enquiry. Joint interviews were inappropriate as participants could be reluctant to discuss themes with another colleague present as they might fear reprisal (Sim, 1998). Finally, case studies would not offer the broad sectoral snapshot of UK Professional Business Sector sample views and would only focus on specific organisational perspectives. Indeed, even a multiple case study can impact transferability and generalisability for Yin (2003b).

With a focus on spotlighting UK Professional Business Sector perspectives, a quantitative online survey enabled the views of 99 managerial respondents to be captured to complement the qualitative findings emerging from 24 semi structured interviews.

3.5.1 Quantitative Online Surveying

Using an online survey within the investigation positively supported the mixed methods research methodology as it, "*can be considered a systematic data collection tool used in large scale investigations"* for Groves et al. (2004, p. 4). Kelley et al. (2003) explain how surveying can take many forms although within this study a cross sectional online survey approach was employed given that this offered a unique snapshot in time. The cross sectional online survey was completed by a single respondent at a single moment in time although longitudinal studies can be conducted and revisited over time for Saunders, Lewis and Thornhill (2016). Whilst cross sectional online surveying limits how far organisational change can be investigated, Erikkson (2013) argues that it can be used to explore features relating to dynamic capabilities. Furthermore, digital communication competence was investigated at a point in time as part of an ever-emerging work and skills debate and as such, a cross sectional online surveying approach was deemed appropriate as Kelley et al. (2003) advocate. Cross sectional surveys of this type tend to be quantitative and positivist in approach (Easterby-Smith, Thorpe and Jackson, 2012) although in line with this survey, Kelley et al. (2003) contend they can add value by contributing descriptive findings.

Despite this, these authors highlight that the analytical nature of the survey means that is best achieved within a longitudinal study and indeed, Easterby-Smith, Lyles and Peteraf (2009) argue that dynamic capability studies examining how change impacts competitive advantage are best suited to longitudinal studies. Sedgewick (2014) confirms that cross

sectional studies examine a point in time and cannot be used as predictors of what happens after. Despite this, the online design means that data can be gathered within different contexts during that defined time period as Wright (2005) suggests. Levin (2006) acknowledges that the online cross-sectional survey is limited by time and data due to the quantitative focus and it is suited to a survey approach aimed at generating data. Furthermore, the online survey was useful for the respondents within the sample to contribute as a "*population at a given timepoint*" (Levin, 2006, p. 24). Very practically, a longitudinal survey was deemed inappropriate within the timeframe of the PhD study as it would be impossible to deliver this within the anticipated timeframe for the study.

The online survey offered access to unique populations in cyberspace in the digital age as Wright (2005) citing Horrigan (2001) and Wellman (1997) explains. Indeed, increasing reliance on social networks resulted in the online survey being promoted through the professional and social networks of the researcher. These included: social network forums and football forums to recruit managers on a national basis, digital network forums in the North West and Manchester; CIPD networks throughout England and academic connections at Salford and Leeds University with HRM and managerial professionals responding by direct message or email and being given the link to the survey. Using the online survey helped to speed up the fieldwork process and save time for the researcher as Sedgewick (2014) and Garton, Haythornthwaite and Wellman (1999) explain, thus allowing her to begin data analysis whilst the research itself was still ongoing as Llieva, Baron & Healey (2002) advocate. This also enabled the researcher to focus on other aspects of their study for Andrews, Nonnecke and Preece (2003) and supported the triangulated concurrent sequencing approach defined by Creswell et al. (2003). As such, once the online survey was designed, piloted and launched, semi structured interviews were planned and conducted in the same time phase. Using the online survey also saved on costs and the time-consuming task of emailing or posting a word-based document to participants as Wright (2005) and Kelley et al (2003) indicate.

Conversely, online surveys can generate sampling, privacy and other issues (Andrews, Nonnecke and Preece, 2003; Howard, Rainie, & Jones, 2001). Indeed, the issue of attracting a sample based within an organisation is problematic for Wright (2005) and this has been further exacerbated by changes to Data Protection legislation impacting on

the investigation. The main UK legislation governing data protection is the Data Protection Act 2018 (DPA), with the General Data Protection Regulation (GDPR) extending that in 2018 (CIPD, 2018b). This meant the researcher could not directly canvas the participation of professionals using their work emails and a broader promotional approach was employed mainly using social media channels as indicated earlier. Wright (2005) suggests offering a lottery prize or reward to enhance participation although this was not possible within this investigation due to University ethical constraints.

Whilst response rates can be more difficult to track with online surveys (Andrews, Nonnecke and Preece, 2003), using the Salford University hosted JISC online survey overcame this issue and as Van Selm and Jankowski (2006) explain, ensured confidentiality and GDPR compliance. Nulty (2008) concurs with Jin (2011) and argues that response rates are less successful when using online surveys and advocates using repeat emails to support higher sample sizes. This could have irritated participants and indeed, the implications of GDPR meant this was impossible when participants were not in the personal network of the researcher. When using online surveys some professionals are more likely to participate than others as Wright (2005) explains. Whilst little could be taken done to overcome this, when a lead senior manager participated in interviews they promoted the survey to professionals in the same organisation and within their networks. This snowballing sampling approach supported purposive expert sampling which is discussed later in this chapter in section 3.6 and enabled more professionals to be recruited to complete the survey.

3.5.1.1 Technical Design of the Survey

The researcher reacted to the advice offered by Kaye and Johnson (1999, p. 331) when designing the online survey which included: adapting the recommended length of the survey following a successful pilot as section 3.8 explains; using drop-down boxes to save time; offering clear instructions and piloting and checking the survey for errors. Alongside this, given that Manfreda, Batagelj and Vehover (2002, p. 4) propose that using online surveys present issues relating to, "*visual design: graphic layout, presentation of questions and the number of questions per page*," the researcher took care to consider these design aspects.

Some of these issues were overcome through the use of the established Online Surveys platform for which Salford University have a licence although the researcher also considered this in terms of design, format and question design. Reflecting this, and in line with advice offered by Riggle, Rostosky and Reedy (2005), it was important to carefully design and word the questions given that the online survey was self-administered, with respondents being unable to ask questions.

Online surveys offer choices of, "*dichotomous questions, multiple-choice questions, scales, questions"* which are "*in a multimedia format, different response questions, and even open-ended questions*'' (Evans and Mathur, (2005, p. 1999). Reflecting this, the online survey largely involved the use of rating scales which can improve the validity and reliability of the measuring device (Gill and Johnson, 2002, 1991) and these enabled Cronbach Alpha to be conducted on measures to support reliability checks as depicted later in this section. Brown (2000) argues that when designing the rating scale, the researcher must specify the number of points on the scale and whilst the ideal number of scales was proposed by Likert (1932) in Bogdan and Biklen (1997), Cooper, Schindler and Sun (2006) and Krosnick and Presser (2010) explain that different authors have used varying approaches. Thus, the researcher designed their own survey using both 5 and 3-point rating scales where they are deemed to be appropriate in their approach to 'what works' as Howe (1998) cited by Sale, Lohfield and Brazil (2002) supports. Creswell and Hirose (2019) argue this might be considered to be less reliable although they advocate that careful piloting should support be undertaken to overcome this issue. This was acknowledged and applied to the investigation and is discussed in section 3.5 with the also process being explained in that section.

The online design required completion and 'go-to' elements of the survey as Birnbaum (2000) advises. These related to the survey being developed to prevent participants moving unless they enter a response and/or the participant being offered the opportunity to miss a section if that did not apply. In line with Creswell and Hirose (2019) and Bryman, Becker and Sempik (2008), the researcher also decided to include some open questions (permitting respondents to answer in their own words) alongside the main focus of closed (requiring respondents to select an answer from a set of choices). Reja et al. (2003) argue that this allows for subjective, personalised responses although explains that closed

questions reduce bias. Whilst Brown (2000) contends this moves away from a true quantitative survey instrument design, this serves to reinforce the abductive nature of the research which supported the validity and reliability of the study as section 3.5.1. discussed. Defending this further and as Krosnick and Presser (2010) indicate, the vast majority of survey questions included tick boxes, but incorporated some open questions reflecting key decisions which were made regarding data analysis detailed later in section 3.8 The main survey questions were designed to be compulsory and thus when respondents answered 'other' they were requested to explain what 'other' meant in terms of that survey measure reflecting advice offered by Reja et al. (2003). Measures in the survey were based on themes emerging from the review of literature.

3.5.1.2 Themes within the online survey

In addressing the research aims, the survey themes and content were designed to investigate the research objectives and the research question as Kelley et al. (2003) explain. This determined both the analysis and presentation of results strategy in the mixed methods methodology as Creswell (2014) explains. In line with Creswell (2008), the first stage involved the identification of a 'central' question which denotes the purpose of the research or the overall aim which centred on the link between digital communication competency and competitive advantage. A bracketing approach involving an initial literature trawl helped the researcher overcome personal bias and put aside any assumptions (Fischer, 2009 and as shown in section 3.3). This initially helped the researcher to define the questions they should focus on reflecting Kelley et al. (2003).

As a result, the researcher defined specific questions which addressed the research aim and devised research objectives with a deeper understanding of the literature helping her to analyse if these research objectives were relevant and interesting (Collis and Hussey, 2003). The literature review provided an understanding of the initial gaps in the literature which informed the themes and measures to be addressed as featured throughout the literature chapter and summarised in section 2.8 and figure 2.7. These online survey themes are indicated again in the table overleaf.

Table 3.6: A Summary of the 'Key Aggregate Constructs' and 'Dimension Related Measures' (Barreto, 2010) Extracted from the Review of the Literature as Measures

THEME 1 - Dynamic Capabilities	
Key aggregate measures extracted from the literature. For Barreto (2010) these are key features of the debate on dynamic capabilities whilst dimension related measures are those drawn from wide dynamic capability debates	
Measures	*Discussed In*
Change	Section 2.3.2
A focus on innovation	Section 2.3.5
A focus on profitability	
Dimension related dynamic capability measures extracted from the literature.	
Restructure as a response to change	Section 2.3.2
Product/Service and Market Expansion	Section 2.3.5
Senior manager support for learning Line manager support for learning	Sections 2.3.6 & 7
Knowledge transfer strategic alignment	Section 2.3.6
THEME 2 - The Importance of Digital Communication Competence in the Workplace	
Dimension related digital communication capability measures extracted from the literature.	
Measures	*Discussed In*
The Importance of digital skills and digital communication competence	Throughout section 2.5
Digital communication features	Section 2.6.3
Digital communication competence levels	
The importance of digital communication competence to departments, in jobs and for individuals	Sections 2.5.2 to 2.5.4

These are also depicted in the template for the online survey, which is featured in Appendix 2, Table 1 and relates to the screenshot of a completed survey featured as Figure 2 in Appendix 2. As Creswell and Hirose (2019) advise, a briefing page on the online survey explained the aim and purpose of the research, reassured participants about confidentiality. The next page asked for some initial biographical and organisational

information relating to: nature of the managerial role; length of service; organisational type (nature of business), number of employees within that organisation and the length of time the business had been operating. Table 1 and Figure 2 in Appendix 2 show how the key themes addressed in the survey reflected the literature themes. Careful design of the survey served to support reliability and validity measures which in quantitative terms link to statistical measurement.

3.5.1.3 Ensuring Quantitative Rigour

For Ihantola and Kihn (2011, p. 5) it is important to focus on the "*internal and external validity and reliability of quantitative work*." To being to explain how this was achieved within the study, within the online survey ten measures (scales) were drawn from dynamic capability debates with a Likert scale being defined with measures 'totally disagree' to 'totally agree' using a five point scale (depicted in Table 1 and Figure 2 in Appendix 2). Ferrari's (2013) definition of the features of digital communication competence related to five features (or scales). These were measured using a three point rating scale defining 'very important' to 'not important at all' rating measures (again depicted in Figure 2 in Appendix 2).

Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy was employed as that indicates the proportion of variance in variables that might be caused by underlying factors for Williams, Onsman and Brown (2010). They explain how values nearer to 1.0 indicate the researcher could use factor analysis to support their internal validity analysis. Additionally, Bartlett's test of sphericity tests the hypothesis that your correlation matrix is an identity matrix, which could indicate that your variables are unrelated and therefore unsuitable for structure detection (George and Mallery, 2019) They explain how small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with your data.

Internal validity of the online survey indicated it measured what it intended to measure. As such, this analysis indicated the questionnaire design was consistent with the purpose of research. As depicted in the table below and within this investigation, in terms of the Likert measures based on features of dynamic capabilities, the KMO value was 0.68, which indicates that there was a relationship between the measures defined in the survey

and as a result, the survey was valid. Bartlett's test of Sphericity significant was 0.000 which indicates the online survey was suitable for statistical factor analysis to reinforce reliability. As indicated in the table below and in terms of the Likert measures based on features of digital communication features, the KMO value is 0.84 and additionally, Bartlett's test of Sphericity significance is 0.000 which also indicated the online survey was suitable for factor analysis to support reliability.

Table 3.7: Internal Validity Checks on the Survey Likert Measures

KMO and Bartlett's Test: Dynamic Capability Measures		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.84
Bartlett's Test of Sphericity	Approx. Chi-Square	. 617217
	Df	92
	Sig.	.000
KMO and Bartlett's Test: Digital Communication Features		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.680
Bartlett's Test of Sphericity	Approx. Chi-Square	. 253.104
	Df	104
	Sig.	.000

Source: author generated from SPSS

Bonett and Wright (2015) explain how Cronbach Alpha (1951) is an appropriate statistical test aimed at assessing internal reliability of rating scale questionnaires whilst Williams, Onsman and Brown (2010) concur with Shelby (2010) and contend this also supports validity and internal consistency scores (Shelby, 2011). The test provides,

> "*a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test.*"
>
> Tavakol and Dennick, (2011, p. 2).

Cronbach Alpha supports exploratory factor analysis as,

> "*it allows the researcher to explore the main dimensions to generate a theory, or model from a relatively large set of latent constructs often represented by a set of items.*"
>
> (Williams, Onsman and Brown (2010, p. 3).

In this investigation dynamic capability measures were the constructs represented by the items indicated in table 2.9 and figure 2.7 in section 2.8 and in table 3.6 above. In terms of the digital communication features defined by Ferrari (2013) these are main dimensions serving to generate a theory or in this case, to underpin the research aim. The researcher employed SPSS to calculate Cronbach Alpha based on dynamic capability and digital communication Likert scale features in the online survey defined by Teece, Pisano and Shuen (1997) and Ferrari (2013). As depicted in the table overleaf, SPSS was employed to employ Cronbach Alpha to test the Likert measures employed within the online survey. Dynamic capability measures indicated an acceptable result of $\alpha \geq .747$ although digital communication feature measures indicated slightly better reliability of $\alpha \geq .874$. In line with Santos (1999) it might be concluded that the online survey Likert scales can be considered reliable.

Table 3.8: Exploratory Factor Analysis

Survey Question Number	Dynamic Capability Measures	Result
	Cronbach Alpha	α ≥. .747
6	My organisation has key strategies aimed at increasing profitability.	.702
7	My organisation is focused on innovation.	.815
8	My organisation is focusing on expanding business lines and services.	.692
9	My organisation is aiming to expand within the UK.	.790
10	My organisation is aiming to expand into an international market.	.712
11	My organisation is constantly facing change	.814
12	My organisational is currently restructuring	.763
13	Senior managers are committed to learning in the organisation	.707
14	Middle managers fully support learning in the organisation.	.779
15	Knowledge is transferred clearly among employees to help employees align their role with the strategy of the business.	.696
Survey Question Number	Digital Communication Features	Result
NA	Cronbach's Alpha	α ≥.874
20	How important to the organisation is it for employees to interact through technologies? This involves being able to use various digital devices and applications to support the organisational internal and external communication.	.866
21	How important to the organisation is sharing digital information and content? That is, being able to understand the importance of sharing digital and online content to contribute to organisational knowledge.	.869
22	How important to the organisation is engaging in online organisational citizenship: This involves the employee becoming part of an engaged workforce through their use of digital communications.	.887

23	How important to the organisation is employee online behaviour? This includes conforming to organisational policies and standards of IT usage, avoiding any discriminatory practices through online use at work and understanding online dangers.	.869
24	How important to the organisation is managing their own digital identity? This involves being able to protect the organisational reputation and to deal with the data that one produces through several accounts and applications.	.867

Source: author generated from SPSS

Whilst other quantitative factor analyses could have been calculated, the researcher contended that the above validity and reliability checks were reinforced by the reliable table of specification exercise defined by Newman, Lim and Peneda (2013) (featured in section 3.7) and piloting of the online survey with the whole study validity focus centring on, "*accurately capturing/representing the phenomenon or attribute under investigation* "(Tashakkori and Teddlie, 2003, p. 694). This linked to all stages of the research process and to conformity, credibility and dependability aspects in qualitative debates for Lincoln and Guba (1985).

With other questions in the survey being more qualitative in nature, an 'internal consistency' check was also employed to check the consistency of the measures in the final analysis stage. For example, if respondents strongly agreed that intermediate digital communication competence applied to their organisation as a whole but then they stated that workers only needed basic digital communication competence, this was considered an internal consistency issue and the online survey would be invalid. Alongside 'internal consistency' checks this section indicates how a careful choice of research methods ensured these were aligned with the aims of the study could be met.

The rigorous, well designed and structured approach to data capture was also reflected in the interview design which represented the qualitative strand of the study reviewed next.

3.5.2 Qualitative Semi Structured Interviews

The qualitative strand involved interviews which can take many forms including structured, unstructured, semi - structured and narrative accounts (Saunders, Lewis and Thornhill, 2012). Within this study, semi structured interviews took place whilst survey data was being gathered reflecting the concurrent triangulated concurrent sequencing design of the mixed methods approach described in section 3.4.2. Semi structured interviews informed deeper exploration of the research question using the perceptions of managerial and senior HR professionals (some with a talent focus and skills focused elements in their roles) and senior/ middle managers who were invited to participate in the research. The semi structured interviews included, "*open ended questions that define the area to be explored, at least initially*" from which the researcher or the interviewee, "*diverged in order to pursue an idea in more detail"* (Britten, 1995, p. 251).

Semi structured interviewing of this type lies somewhere along the spectrum of, "*closed-ended surveys of individuals and free form, open-ended focus groups*" for Adams (2005) in Newcomer, Hatry and Wholey (2015, p. 241). This intermediate spectrum method pulled elements from both but put them into a distinctive package (Blee and Taylor, 2002). The focus of the semi structured approach was to allow for flow of conversation, and this centred on engaging the participants to feel relaxed and able to share their views. Knox and Bukhard (2009, p. 570) argue that if this is not achieved then they can offer limited responses or provide *"vague or unclear information or change the focus of the interview. "*The focus was not on *"truth seeking" but instead on reporting what reality was"* for the interviewees (O'Neil, 1998, p. 210) although it was accepted that the researcher was reliant on the participant being truthful in their response as Dearnley (2005) explains.

These issues were overcome as the relationship between the researcher and participant was strong reinforcing Adler and Adler (2002) who argue this supports research validity. For Watts (2008) cited by Given (2008), this relationship links to the integrity of the researcher which applies to them adhering to ethical practice. The researcher supported this by reassuring participants about confidentiality and anonymity as Wiles et al. (2008) advise and accepting their decision about withholding their name from subsequent

publications (aside from what is depicted in Table 5 in Appendix 4). The researcher also respected that the interview participants were strategically conversant given their senior management position of control defined by Maramwidze-Merrison (2016). This involved the researcher relying on the honesty of participants and avoiding making assumptions about the cause and effect of what the participants were saying as Kendall (2014) advocates. The researcher assumed authenticity in what they offered as truth although as this can be an issue in the qualitative interviews (Randall and Phoenix, 2009).

In achieving this professional approach, 24 semi structured interviews were conducted. Whilst Silverman (2013) and Bradley (1993) argue that small sample sizes lead to questions about reliability and transferability in qualitative research, Black (2006, p. 206) claims that using this subjective, interpretivist approach allows the researcher to '*address the complexity and meaning of situations.*' Saturation was fully considered as Mason (2010) recommends with this being debated later in section 3.6.1. Ultimately, it is contested that in terms of painting a picture, bringing to light perceptions and emerging with a rich depiction of views, the qualitative, subjectivist, interpretative nature of the interviews was defensible.

3.5.2.1 Interview Themes, Design and Delivery

Semi structured interview themes reflected the online survey themes depicted in the previous section which related to:

- Digital Communication features
- The importance of digital communication competence in the contemporary workplace.

Questions related to these themes are shown in the table overleaf, also within Table 3 in Appendix 2 and are derived from the literature review as section 2.8 outlines.

Table 3.9: A Summary of the 'Key Aggregate Constructs' and 'Dimension Related Measures' (Barreto, 2010) Extracted from the Review of the Literature as Measures: Semi Structured Interviews

THEME 1 - Dynamic Capabilities		
Key aggregate measures extracted from the literature. For Barreto (2010) these are key features of the debate on dynamic capabilities whilst dimension related measures are those drawn from wide dynamic capability debates		
Measures	*Discussed In*	*Question Asked*
Change	Section 2.3.2	What key strategic changes are you facing in the organisation?
A focus on innovation	Section 2.3.5	In what way are you addressing innovation? In what ways does digitalisation impact your organisation currently?
A focus on profitability		Can you tell me how you focus on profitability please?
Dimension related dynamic capability measures extracted from the literature.		
Restructure as a response to change	Section 2.3.2	How far does restructure feature in your current plans and activities?
Product/Service and Market Expansion	Section 2.3.5	In what ways are you focusing on expanding business lines and services? Are you expanding into markets within the UK or Internationally?
Senior manager support for learning Line manager support for learning	Sections 2.3.6 & 7	How do you support learning throughout your organisation? How do managers support employee learning?
Knowledge transfer strategic alignment	Section 2.3.6	What strategies and processes do you have in place to support knowledge transfer in your company?
THEME 2 - The Importance of Digital Communication Competence in the Workplace		
Dimension related digital communication capability measures extracted from the literature.		
Measures	*Discussed In*	*Questions Asked*

The Importance of digital skills and digital communication competence	Throughout section 2.5	How important are digital skills in your workplace? How important is digital communication competence as part of that digital skills set?
Digital communication features	Section 2.6.3	How far are the following in terms of importance to your business? ❖ Sharing of Online Content/Information ❖ Digital Communication Interaction and Online Citizenship ❖ Online Safety and Managing Online Identity?
Digital communication competence levels		Generalising this to the whole organisation, at what level would you say your employees are when communicating digitally?
The importance of digital communication competence to departments, in jobs and for individuals	Sections 2.5.2 to 2.5.4	Are any job families/departments/job roles/employees in your organisation have only basic digital skills when communicating digitally? Does that pose any problems to your organisation? Which job families/departments/job roles/employees in your organisation need advanced level digital communication competencies?

Rigorous and structured approach piloting supported this and is discussed later in this chapter in section 3.8. The questions were mainly open-ended but link to what has been discussed in section 2.8 of the literature review. Similar biographical detail was gathered from interviewees in line with the online survey sample as this supported understanding of perceptions in Chapter Five as Fillis (2006) advises. Despite this, and wide debate on the advantages and disadvantages of gathering personal data (Leech, 2002), no personal biographical data was gathered from neither online survey nor interviewee participants as this was not relevant to the study and was not the focus of the analysis. The researcher also consider the plethora of debate offering advice on structuring and conducting semi structured interviews as depicted below:

Planning the interview: is crucial in supporting rigour as section 3.5 and Whiteley et al, (1998) advise. This links to considering question sequencing with general business profile questions serving as a 'warm-up' for the interviewee as Warren (2002) contends. Following this, themes were explained and questions relating to those themes were asked in a logical sequential order linking the dynamic capability focus to digital skills and

then to the digital competence focus as Leech (2002) advises. This sequential order is indicated in Table 3 in Appendix Two.

Gaining consent: is an important requirement of the University of Salford Ethics Board approval which is depicted in Appendix 3 in Image 1. Email consent was gained before interviews were conducted and participants were advised that they could withdraw as Figure 2 in Appendix 3 indicates and as Britten (2006) and Potter and Hepburn (2005) advise.

Recording the interview: Fielding and Thomas (2001) explain how researchers can chose different ways to record interviews although Clark (2017) cautions that writing notes during the interview can be distracting and can result from details being missed. Semi structured interviews were conducted through Teams and Facetime as these technologies can enhance communications and support collaboration (Hubbard and Bailey, 2018). Maramwidze-Merrison (2016) adds that senior managerial professionals can be difficult to access and employing technologies supports successful research outcomes. The interviews were recorded using smart phone technology and a Phillips recording tool reflecting Fernandez and Griffiths (2007) who agree that these new technologies can support research interviews. Care was taken to ensure the technology was successfully employed as Britten (2006) advises.

Conducting the interview: involved encouraging flexibility in the process Segal and Coolidge (2007) contend this could impact reliability with the researcher taking care to ensure all measures were covered even when interviewees debates strayed from the defined interview schedule. Whilst open ended interview questions can lead to bias, distortion and misrepresentation at the analysis stage (Bryman and Bell, 2015), a careful design stage (indicated in section 3.8) overcame that. The researcher did not present herself as a knowledge expert as Whiting (2008) recommends but employed a 'middle ground' by being knowledgeable about their research but treating the interviewee as an expert contributor.

Despite the researcher being confident as an interviewer they are aiming to be recognised as an academic writer as Åkerlind (2008) explains. Their professional experience meant that they avoided novice interview mistakes discussed by Leech (2002)

and which Åkerlind (2008) argues show a lack of research sophistication. Reflecting this and as an experienced interviewer, the researcher used probing to address any emerging factors in an approach advocated by Barriball and While (1994) who argue this supports: clarification of emerging debates; helps explore sensitive issues; extends useful information and helps participants to recall information. The researcher also used silence at times which serves as the best probe for Zorn (2008). Reflecting this, the researcher indicated the *"capacity to listen, to understand and to tolerate pregnant pauses without discomfort"* in order to allow the interviewee time to consider the question and think about their answer (Ahrens and Dent, 1998, p. 26 cited by Qu and Dumay, 2011, p. 265).

Transcribing the interviews: involved new technologies being employed to accurately depict discussions although these impacted transcription which is significantly time consuming and expensive with one hour of transcription taking a full day as Clark et al. (2017) explains. The researcher overcame this by recruiting a family member as an experienced transcriber, who also respected confidentiality. Transcripts were checked and verified for accuracy with the researcher listening to the audio recording to support this as advocated by Britten (1995).

Thus, the researcher considered how to structure and conduct the interviews to complement the successful design of a professional online survey. This helped support the reliability and validity of the qualitative strand of the research which is emphasised below.

3.5.2.2 Ensuring Qualitative Rigour

Section 3.4.4 indicated how qualitative rigour extends to credibility, dependability and conformity debates for Brown et al. (2017) with table 3.5 indicating how this has been achieved within the study. Conformability links to the notion of consistency in the qualitative research approach which for Noble and Smith (2015, p. 6) is connected with, "*trustworthiness"* whereby the researcher provides evidence of a "*'decision-trail'* reinforcing clarity and transparency. "*Ultimately an independent researcher should be able arrive at similar or comparable findings."* Guba (1981) argues that trustworthiness is achieved when the study indicates credibility, dependability and conformity although Curtin and Fossey (2007) argue that reflexivity and member checking must also be

considered. Reflecting this, the researcher followed a credibility, confirmability and dependability strategy advocated by Noble and Smith (2015) and ensured reflexivity and member checking whereby:

- In terms of reflexivity, care taken to try and mitigate bias as section 3.3.1 explains and Curtin and Fossey (2007) advise. Careful design of the online survey and interview schedule (indicated in Tables 1 and 3 of Appendix 2) also reinforced the dependability of the study.
- Meticulous record keeping supported presentation of detailed results also supports validity for Whittemore, Chase and Mandle (2001) as an audit trail has been created.
- Chapter four also indicates how the researcher demonstrated clarity in terms of thought processes during data analysis with chapter five indicating the subsequent interpretations. Member checking was achieved when both the supervisor and second supervisor research supervisor reviewed the analysis and discussion chapters supporting advice offered by Curtin and Fossey, 2007).

With rigour being reinforced in both qualitative and quantitative terms, the researcher then considered how she could engage the professional managerial sample to participate within the investigation as Woods and Measmer (2004) advocate.

3.6 The UK Professional Business Sector Sample

Within this section the profile of the UK Professional Business Sector sample will be explained shortly. As section 2.4 discusses, employees included in the study included all in full, part time and fixed term roles including temporary (but not short term (less than 3 months) agency work), zero hour and internship contracts but excluding sub-contractors and agency workers temporarily supplied on behalf of an agency (that is, less than 12 weeks). The latter is justified in line with the Agency Workers Regulations (2010) (CIPD, 2020b).

Managerial participants contributing to both the quantitative and qualitative strands of the investigation were drawn from a national sample of UK Professional Business Sector organisations thus extending the focus of Riley et al. (2020) who employed a more

regional focus centred on Birmingham and Darlington. Organisations within this sector were defined using the Standard Industrial Classifications (SIC) shown below.

Table 3.10: The Professional Business Sector in the UK (defined using Standard Industrial Classifications)

The Professional Business Sector in the UK (defined using Standard Industrial Classifications)
a. 69-Legal activities/accounting, book-keeping and audit
b. 70-Activities of head offices, management consultancy.
c. 71-Architectural and engineering activities, technical testing and analysis.
d. 72-Scientific research and development.
e. 73-Advertising and market research.
f. 74-Other professional, scientific and technical activities.
g. 77-Rental and leasing activities.
h. 78-Employment activities.
i. 82-Office administration and other business support activities.

Source: Professional and Business Services Sector Report (2017, p. 2)

Rhodes writing for the House of Commons (2018) explains how there are approximately 8,000 businesses which fall into the large category of business: they typically have more than 250 employees; with 10,743 000 employees nationally and generating £186 Billion in turnover. Similarly, the National Office for Statistics (2018) report how that they generally employ 250 or more staff, in 2018 employed 16,470,729 employees and generated £3,038,250,033 in turnover. Despite this, defining what constitutes a medium sized business in the UK is debated and for brevity the discussion is summarised in the table overleaf. Whilst there is not an obvious definition it is apparent that existing definitions relate to turnover and number of employees.

Table 3.11: Medium Sized Business Definitions

	Author	Definition
Legislative	Dept. BIS (2012b) The Mid-Sized Businesses Growth Review	A definition based on turnover, £25m-£500m per year. £25m is the upper bound of the SME turnover definition, whilst £500m was chosen as a cut-off point for these 'smaller' large firms
	Companies Act (2006)	Requires that two out of three characteristics are met – turnover (less than £25m), employees (less than 250), and gross assets (less than £12.5m).
National official provides of statistics	National Office for Statistics (2018)	Medium Sized Businesses have 50-249 employees
Academic but with a commercial focus partnership	Roper (2018)	Medium Sized Businesses are defined as firms with turnover between £5m and £250m.
	Rhodes (2018)	Medium Sized Businesses were defined as businesses with a turnover of between £25m and £500m.

(adapted from: Dept. BIS (2012b) The Mid-Sized Businesses Growth Review, Companies Act (2006), National Office for Statistics (2018), Roper (2018) and Rhodes (2018)

Small and medium sized businesses are usually defined interchangeably although the standard definition of small/medium sized organisations (SMEs) relates to businesses with less than 250 employees. "*There were 5.9 million SMEs in the UK in 2019, which was over 99% of all businesses*" according to Ward and Rhodes (2020, p. 3). Within this study, small businesses have been classified as employing 10 - 249 employees, although very small (micro) businesses were not eligible for participation if they did not have employees on which to base their perspectives on the need for workforce digital skills. Thus, in order to cross tabulate size of business with thematic measures in the analysis the number of

employees was used to examine responses working in small/ medium (as defined above) and large sized organisations.

3.6.1 A Mixed Method Sample Size and Design

Sampling is a means of selecting a subset of units from a target population to create a sampling frame and for the purpose of collecting information (Bryman and Bell, 2015). This information is used to draw inferences about the population as a whole with the subset of units that are selected are called a sample (Bryman, 2008b). In mixed methods, non-random samples are the most common combination of sampling schemes, regardless of mixed methods research goals (Onwuegbuzie and Collins, 2007). In the case of this study, the focus was to extend the,

> "*knowledge base; have a personal, and organizational impact; measure change; understand complex phenomena; test new ideas and generate new ideas.*"
>
> Onwuegbuzie and Collins (2007, p. 284) citing Newman, Ridenour, Newman, & DeMarco (2003).

This linked to investigation of the research objectives and was aligned with the triangulated research purpose which sought to examine "*different overlapping aspects of the chosen phenomenon*" for Onwuegbuzie and Collins (2007, p. 284). In line with Onwuegbuzie and Collins (2007) and to recruit a national sample of participants from the businesses defined in section 3.7, a purposive sample approach was adopted with snowball or convenience approaches emerging as a supportive feature of this sampling approach. Teddlie and Yu (2007) argue that when employing a purposive sampling frame in mixed methods research the researcher takes the role of the expert and determines the resources which are available within the context of that study. They argue that within a mixed method investigation the sampling frame is ''*a resource from which you can select your smaller sample''* (Mason, 2002, p. 140) although how you define that 'smaller sample' is a 'thorny' issue (Dewaele, 2017).

3.6.1.1 Addressing the 'Thorny' Sample Size Debate

The contentious issue of sample size initially presented itself within the validity debate featured in section 3.5.2 of this chapter. Despite this, it persistently requires a revisit given that in determining the appropriate sample sizes for this study, the researcher needed to consider the size of the multiple strands within the study. These determine the "*types of data collection methods used; the budget and resources available*" (Ritchie, Spencer and O'Connor, 2003, p. 84).

Mason (2010) agrees that PhD researchers are compounded by budget and resourcing implications. Hill (1998, p. 3) adds that resources include "*time, energy and space"* and argues the focus is on "*being explicit what you want to study and why."* In the case of this study the focus was on gathering mixed methods data to support a clear outcome of the study aims. Citing Alreck and Settle (1995), Hill (1998) argues that when using web based surveys researchers who have several data measures employ a smaller sample and this was the case within this investigation. He cites Roscoe (1975) who applies a rule of thumb debate which also links to this study. With the online survey including a number of measures based on the two research themes but having a focus on measuring different size of organisations the rule of thumb advocated 20 participants from each online survey group. In terms of this UK national sample, 42 participants were drawn from SMEs and 57 from larger businesses and as such, the overall sub sample size was acceptable in Roscoe's (1975) and Hill's (1998) perspective.

Onwuegbuzie and Collins (2007) extend this arguing that research method textbooks add to this debate by defining minimum participant numbers of 30 for quantitative correlational research designs. They argue that even then, these might not be representative concurring with Devanne, Begley and Clarke (2004). Responding to this and to Roscoe's (1975) sub sample rule of thumb debate, the researcher opted to use cross tabulations to create contingency tables rather than employ statistical correlational analysis to address a hypothesis as White and Korotayev (2004) explain. Despite this, Onwuegbuzie and Collins (2007) maintain that even when descriptive analysis is conducted, a sample of between 50 and 60 respondents is required to fully address the research aim, objectives and questions. As such, the online survey population was

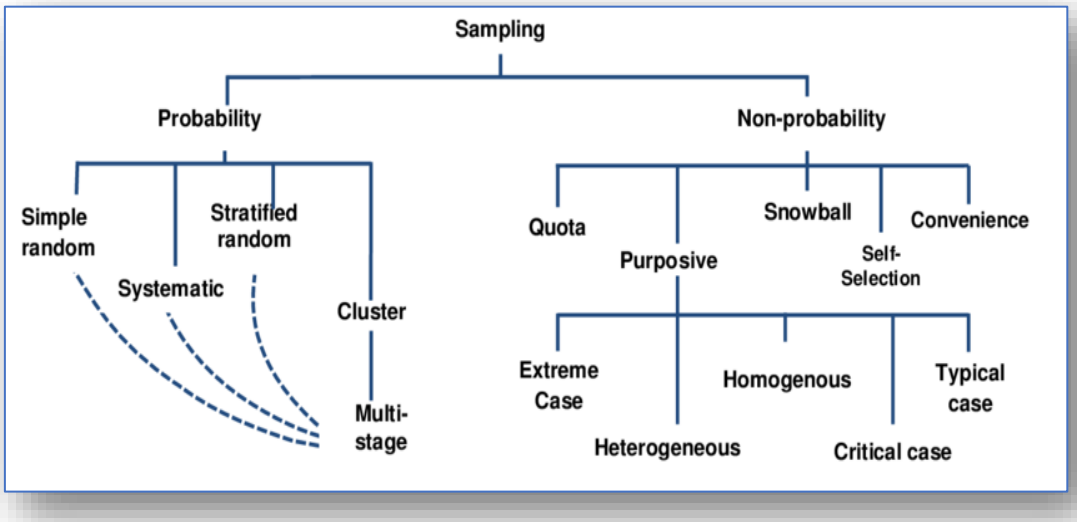
recruited from a larger national sample of participants (n = 99) and was appropriate in achieving this.

Palinkas et al. (2015) argue that quantitative samples seek to recruit larger numbers of respondents whilst qualitative interview samples usually employ around 20-30 participants. Indeed, Onwuegbuzie and Collins (2007) citing (Guest, Bunce, & Johnson, 2006), define minimum sample sizes in mixed methods research and indicate that when using interviews at least 12 participants should be recruited although this is dependent on the sampling design. Concurring with Bowen (2009), the researcher focused on 'sampling adequacy' whereby the nature of the research in some ways defined the sample size (Morse, 2000). In this mixed methods research, sampling methods were aimed at ensuring 'efficiency and validity' are linked to the principles employed within each method for Palinkas et al. (2016). In terms of the qualitative sample this centred on achieving, "*breadth of understanding (Patton, 2002)"* as Palinkas et al. (2016, p. 534) explain. Furthermore, the qualitative strand of this study focused on examining perspectives representing different sizes of business with 24 interviews taking place with participants based throughout the UK. Acknowledging this smaller qualitative sample size, the researcher contends the nature of this research is mixed methods employing both quantitative and qualitative strands and the overall sample is greater and more transferable and generalisable.

3.6.1.2 A Homogenous and Expert Purposive Sampling Design

With this study being mixed methods in design the researcher was not constrained by the dichotomy of quantitative nor qualitative sampling design debates as Onwuegbuzie and Collins (2007) defend. Thus, the researcher rejected probability or representative sampling and opted to use non-probability sampling as defined by Saunders, Lewis and Thornhill (2016) and depicted in the figure overleaf.

Figure 3.3: Probability and Non-Probability Sampling Options



Source: Saunders et al. (2009, p. 213)

Probability sampling approaches depicted above were rejected as these approaches are principally based on ease of access to a defined population and most focus on achieving a large sample size for Babbie (2013). To achieve this, the researcher would need data identifying UK managers working within the Professional Business Sector in order to select participants. This information is gathered at organisational level and not at national level and access to organisational employee pool data is restricted by GDPR (2018) in the UK. Stratton (2019) supports that it is appropriate in that case to employ nonprobability sampling given that the researcher did not have access to the total target population. Thus, the researcher could not adopt the full rigour associated with a probability-based approach defined by Devanne, Bagley and Clark (2004) and subsequently some sampling bias might have been evident for Miller (1991). Random sampling helps to calculate the sampling error and supports "*inferences to a general study population*" (Stratton, 2019, p. 228) although Leberg (2002) asserts that even large scale random samples can be biased. Non probability sampling can impact generalisation and transferability for Ihantola and Kihn (2011), although section 3.5.2 has offered evidence refuting that.

Indeed, with statistical inferences not being needed from the overall research sample but rather a consensual identification of themes as Brannen (2009) advocates and as

discussed earlier in sub sections 3.6.1 and 3.6.2. As such, a non-probability-based approach involving purposive sampling aimed at investigating the research question was deemed appropriate as Sharma (2017) supports. Concurring with Palinkas et al. (2016), purposeful sampling offered a systematic rationale for selecting UK based managerial participants. A homogeneous purposive sampling technique was employed within the online survey as this focuses on participants sharing similar job characteristics and job roles as Etikan, Musa and Alkassim, (2016, 2015, p. 3) advise. This approach centres on their *"similarity and how it relates to the topic being researched*." In this study the focus was on managers in similar levels of roles within small to large UK Professional Business Sector organisations who for Maramwidze-Merrison (2016) can be considered professionally reliable. Some were talent and workforce management specialists and this links to their senior role to governance for Teece (2012). These managers were deemed qualified to be able to offer strategic perspectives on the organisation's competitive positioning and how important digital skills are in that context given their contributor role in strategy formulation as Ikävalko and Aaltonen (2001) advocate.

In terms of the qualitative semi-structured interviews, participants were recruited from across the UK and using an expert purposive sampling approach. Patton (2002) concurs that purposeful sampling is appropriate in this case although expert sampling was deemed appropriate for this study. Palinkas et al. (2015) argue this supports validity and as Etikan, Musa and Alkassim (2016 et al, p. 3) explain, this "c*alls for experts in a particular field to be the subjects of the purposive sampling*." As such, senior or talent focused HRM professionals and senior managers offered their expert perspectives to complement, compare, contrast and extend on the homogeneous online survey sample quantitative findings.

'Snowballing' or what might be called 'convenience sampling' supported recruitment in both strands of the research with the researcher using their professional network to promote the survey and interview participation to a potential national sample pool. When managerial experts were recruited to participate, some then nominated secondary experts to contribute to the study. As such, the manager gave the researcher, "*the name of another subject, who in turn provides the name of a third, and so on*" (Vogt, 1999 cited

by Atkinson and Flint, 2001: p. 1). Despite this and whilst snowball sampling is easy to adopt, methodological issues are presented (Van Meter, 1990 and more recently, Kline, 2017). Whilst convenience sampling of this nature is affordable, easy and the subjects are readily available although it is not 'strategic' and is 'likely to be biased' (Etikan, Musa and Alkassim, 2016). To mitigate this issue, care was taken to ensure that participants recruited through the snowball sampling approach are not 'outliers' as for Etikan, Musa and Alkassim (2016), these are participants who do not conform with a sample population. Indeed and in line with Charlwood et al. (2014), the researcher contends that when snowballing was conducted, senior managers nominated appropriate managerial colleagues who were employed in roles linked to the research aims and thus, the chain of expert and homogeneous purposive sampling was perpetuated.

The researcher interviewed participants working in these talent focused and/or managerial roles within organisations across the UK and in terms of this qualitative aspect of the mixed methods research, the sample was large enough to accurately reflect opinions of professionals in differing organisations. This judgement was made following the principles of saturation which occurs when additional data *"does not shed any further light on the issue under investigation*" for Mason (2010, p. 1). When the researcher had completed 24 semi structured interviews they considered saturation to have occurred as depth of understanding had been reached as Palinkas et al. (2016) discusses. The transcription process identified by Sarantakos (1998, p. 78) and mentioned earlier in section 3.6.2 and later in section 3.9.2 began and was ongoing throughout the data retrieval process. This enabled the researcher to identify if data depicted adequate representation of debate based on size of business as an iterative process. Initial transcription helped determine when results indicated how far the data was contrasting or concurring with the theoretical constructs (Dey, 1999). Theoretical saturation became clear when "*the complete range of constructs that make up the theory (was) fully represented by the data*" (Starks and Trinidad, 2007, p. 1375). 'Data saturation' occurred whereby 'informational redundancy' occurred when no new data emerged to contribute to further findings (Saunders et al., 2017).

The focus of the study was on investigating the research themes and gathering the views of a reasonable sample to be able to adequately depict data related to the research

themes with the pilot study also helping to promote the research within and across their respective networks. The pilot process itself is explained in the next section.

3.7 Piloting the Study

3.7.1 Participant Profile

Eight UK based professional participants employed within the UK Professional Business Sector participated in the pilot study, with PhD supervisors also supporting aspects of the piloting process. The professional roles of the pilot participants are depicted in table 3.12 below.

Table 3.12: Pilot Study Participant Profile

Role	Type of Organisation	Contribution
Chief Operating Officer	Medium sized Recruitment Specialists	Interview Pilot Table of Specification Exercise
Head of Internal Talent		
Owner	Small Consultancy	
HR Consultant	Small Consultancy	
Quality Manager	Small Scientific Research	Online Survey Pilot
HR Manager	Medium Sized Head Office Administration Services	
Internal Recruitment Specialist		
Internal Recruitment Specialist		

Source: Author generated

Pilot participants were sent the full participant information pack indicated in Figure 2 in Appendix 3 and a further emailed letter sought their participation (shown in Figure 7 in Appendix 2). Four pilot participants took part in a pre-test and re-test of the online survey and another four took part in a review of the aims, rationale and focus of the research (the table of specification exercise defined below) and in the pilot for the semi structured interviews. This contribution supported the content and construct validity of the investigation discussed in section 3.5.1 and enabled successful, quality checks of

quantitative and qualitative methods to be employed to support the subsequent fieldwork activity.

3.7.2 Pilot Process Outline & Results

The quality checking process underpins the rationale for undertaking the pilot study and in terms of both the online survey and semi structured interviews, the pilot phase allowed the researcher to make informed changes and adjustments to the survey and interview schedule before main data collection as advocated by Barriball and While (1994). As Chenail (2011) and Pritchard and Whiting (2012) suggest, piloting the methods also allowed the researcher to reflect on their own integrity and ethics alongside practising their skills in data collection. This also allowed her to revise the online survey and interview schedule and to ensure she could avoid bias when working with participants within her professional network. Finally, for Newman, Lim and Peneda (2013) this supported the construct and content validity and the reliability of the study with the researcher following strict research protocols when conducting the pilot study.

Using guidance offered by Saunders, Lewis and Thornhill (2016), the researcher employed test and re-test analysis although this has limitations for Drost (2011). Participants might remember their responses if the interval time was limited and professionals might not have been recruited to complete the survey more than once. Conversely, three pilot participants completed the survey re-test to check how long it took to complete it after the first test period and subsequent amendments were made. This was achieved within a week to avoid what Drost (2011) terms 'maturation' (change of opinion) which might impact if the interval time was too long. The shorter time allocated to the pilot study, resulted in alternate form testing being inappropriate which involves participants being given the same test at different times for Joppe (2000). Pilot testing in this research employed three techniques advocated by Pietila, Johnson and Kangasniemi (2016). These included: internal testing (reviewing the planned interview question schedule); expert assessment (accessing PhD supervisor feedback on the research instrument design and employing an 'expert' group to support the table of specification exercise) with field testing (or pre-testing) taking place in February 2019.

The approach taken reflects what is presented by Peat et al. (2002, p. 123) and Newman, Lim and Penada (2013) defined below.

The survey was administered to four pilot subjects in early February 2019 and in exactly the same way as it was administered in the main study, adhering to guidance offered by Pritchard and Whiting (2012). Some participants also supported the table of specification activity reviewed below to ensure their views contributed to the validity and reliability of the survey as Newman, Lim and Penada (2013) support. In line with guidance offered by Peat et al (2002, p. 123): the researcher administered the questionnaire to pilot subjects the JISC online survey platform at Salford University: the researcher asked four of the subjects for feedback to identify ambiguities and difficult questions and the subjects recorded the time taken to complete the questionnaire. The aim was to make this no longer than 10 minutes to avoid putting pressure on professionals taking part and the researcher amended and/ or discarded difficult or ambiguous questions relating to how digital communication competence is defined by Ferrari (2013). Pilot participants also assessed whether each question offered an adequate range of responses and queried if the 'other' category should be added and established that replies can be interpreted in terms of the information that is required. The researcher was able to check that all questions are answered by making the settings 'required' for each question in line with guidance featured in section 3.6.1.

Alongside, practically piloting the methods, a senior manager and his internal recruitment specialist who were both based within a medium sized recruitment consultancy contributed to the table of specification process with a small business owner and a HR consultant who is a part time academic also supporting this activity. The researcher explained to these pilot participants how the table of specification approach supported a validity and reliability focused process which was adapted from Newman, Lim and Penada (2013) as depicted in Table 8 Appendix 2. The pilot participants offered professional expertise and contributed to effective face validity, reliability, trustworthiness and consistency by employing the table of specification approach designed by the researcher. The researcher ensured they were adequately prepared to contribute to by asking them to read the research abstract, rationale and a research aims, objectives and the research

question. They then completed the table of specification document and emailed their feedback to the researcher. The researcher collated their comments with the outcomes of the table of specification exercise being summarised again using Table 8 in Appendix 2. The ratings reflect those devised by Newman, Lim and Penada (2013) and related to the following measures:

1 = Weakly conveys study aims/ content and the theory applied

2 = Adequately conveys study aims / content measures and the theory applied to an extent

3 = Conveys research aim /content although some confusion persists in relation to the theory which applies

4 = Research aims, and content are justified

They depicted the value which represented their view and the collated information is indicated in Table 8 in Appendix 2. An example of the pilot participant table of specification feedback from the research aims and rationale exercise is shown in Table 9 in Appendix 2 to add to the audit trail which Whittemore, Chase and Mandle (2001) argues supports research validity as indicated in table 3.5 in the methodology. From the summary shown in Table 8 in Appendix 2, the average rating calculation was 3 to 4 which lies on a scale between 75% and 100% when using the analysis adapted from Newman, Newman and Newman (2011). This was reassuring as it indicated that construct and content validity estimates were successful when the aims, research rationale and online survey detail was reviewed and practically, the pilot study helped the researcher refine online survey measures and clarify how levels of digital communication could be measured.

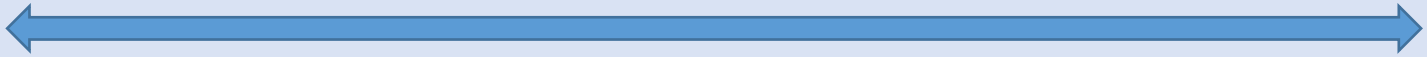
To build on content and construct based expert feedback, the researcher undertook pilot interviews with four UK Professional Business Sector managers which helped clarify themes, modify terminology, check the sequence of questions and review the interview design protocol as Janghorban et al. (2014) explain. These were not aimed at data gathering and were not recorded give that as Majid et al. (2017) discuss, the process centred on the pilot participants and the researcher discussing the nature, style and order

of the questions throughout the process. Additionally, the professional contributors in the pilot phase interviews advised on the inappropriateness of requesting documentation and accessing confidential organisational information which helped overcome some of the ethical issues within the study as Thabane et al. (2010) advise. For example, given the senior manager pilot participant was a member of a national professional recruitment body, he was able to offer advice on professional protocols when working with the Professional Business Sector. Following this successful piloting activity, data collection was undertaken in the first seven months of 2019 and subsequently the researcher focused on data analysis approaches in line with their mixed methods approach.

3.8 The Data Analysis Approach: An Integrative Mixed Method Framework

Within this mixed method research study, addressing the research question was a key outcome of data analysis as Creswell (2014) contends and the analysis strategy was considered well before the actual collection of data took place as Sue and Ritter (2012) advise. This linked to focus on the key aims of the study. Thus, whilst the investigation aimed to recruit a national sample it did not aim to offer sub regional analyses. The rationale for this linked to firstly, whilst recruiting a nationally valid and reliable sample was achieved, widening that sample to support sub regional analysis would be too ambitious within the scope of this study. Secondly, had sub regional analyses been a key aim of the study then participant recruitment would have been targeted to dedicated regions as in the approach of Riley et al. (2020) and this would have detracted from what is a successful, reliable and valid sample offering a national perspective within this investigation.

This strategy followed guidance offered by Creswell et al. (2003), data collection generated results which were then linked to analysis, with data interpretation being the final stage in the analysis process. Reflecting Gillham (2000), and the multi strand nature of the study, analysed data is initially presented using charts, graphs and quotes in Chapter Four and then secondly, results are discussed, analysed and interpreted in Chapter Five. To build on this summarised approach, the researcher designed an integrative analysis framework linked to Creswell et al. (2013) but also reflecting that offered by Castro et al. (2011, p. 346) which is shown in table 3.13 overleaf.

3.13: An Integrated Framework for Mixed Method Research Analysis						
Qualitative Textual Data links to inductive reasoning (Newman, Lim and Pineda, 2013) as discussed in section 3.3. 						
	Bracketing was focused on throughout the qualitaitve phase to support validity and relaibility (Tufford and Newman, 2010) and conformability and dependability for Lincoln and Guba (1985). Overall, research credibility was nthe aim.					
	1	2	3	4	5	6
Stages	Design	Collection	Conversion	Analysis	Interpretation	Integration/ Mixing
RESEARCH AIM To critically evaluate the importance of digital communication competencies in the	Open ended semi structured interview questions	Recording, written transcript notes support data generating validity for Whittemore, Chase and Mandle (2001).	Transcription supports thematic categories (coding), "*Thematic Analysis is considered the most appropriate for any study that seeks to discover using interpretations"* (Alhojailan, 2011, p, 40).	Thematic analysis as shown above and advocated by Rubin and Rubin (2011). CROSS OVER ANALYSIS Frels and Onwuegbuzie (2012)	Analysis of Quotations: Story Telling supports analytic validity checks (Whittemore, Chase and Mandle (2001)	Interpretative analysis to draw conclusions (the final stage for Rubin and Rubin (2011) and ensuring 'consistency of the process' and clear
	Qualitative reliability links to design, collection, analysis, interpretation and mixing stages and extends across the entire research process as indicated in section 3.5.1. Quantitative reliability achieved through statistical assessment (section 3.5.3)					

competitive advantage context of the UK Professional Business Sector. (Construct Validity measured through the table of specification (ToS) pilot study process featured in section 3.8)	Content validity measured by table of sequencing approach at pilot stage as advocated by Newman, Lim and Pineda (2013)	These data collection techniques support internal validity for Whittemore, Chase and Randle (2001) and as shown in section 3.5.1.	In the conversion stage, the thematic categories were identified (or coded) and the researcher began to compare them with the item analysis results emerging from Excel and SPSS.	DATA REDUCTION STAGE *"A form of analysis that sharpens, sorts, focuses, discards, and organizes data in such a way that "final" conclusion can be drawn and verified."* (Miles & Huberman 1994, p. 11) Castro et al. (2011) label this stage as being 're-contextualisation' of the theoretical debate		explanation of how this analysis was conducted (Braun and Clarke, 2006) Integration & mixing as the final stage of concurrent triangulated sequencing for Creswell (2014).
	Items and scales in the survey	Online survey completion, with unique IDs offered and stored in the JISC Online Survey tool reflecting guidance by Wright (2005).	Item Analysis through Excel and SPSS to develop cross tabulation of themes with and size of business. This is data mining whereby data is extracted from a database with a specific purpose in mind for Hong, Kuo and Chi (1999). Cronbach Alpha used to support reliability as discussed in section 3.5.1.	Nominal descriptive analysis supported by ordinal SPSS analysis employing cross tabulations. Creates thematic values. CROSS OVER ANALYSIS (Frels and Onwuegbuzie, 2012)	Thematic Interpretation developed from the literature review and primary study reinforces reliability and validity in the analysis stage (Miles & Huberman, 1994)	
Quantitative Numerical Findings support deductive reasoning for Neman, Lim and Pineda, 2013)						

Adapted from Creswell (2014) and Castro et al. (2011, p. 346)

The mixed methods integrative framework indicated above draws together the abductive, mixed method methodology features of the study which are aligned with validity debates indicated by Newman, Lim and Penada (2013) and Whittemore and Chase and Randle (2001) featured in section 3.5.1. The blue double ended arrows shown above link to the continuous feedback loops indicated in table 3.13, Chapter Three which Newman, Lim and Penada (2013) align with abductive reasoning. The framework above reflects the whole study focus which Zoharbi (2013) argues is aligned with mixed methods validity and reliability.

The first stage in this analysis framework involved designing open ended semi structured interview questions and items and scales in the survey based on thematic elements emerging from the literature review in order to address the aims of this study. In line with Bryman and Bell (2015) and as depicted in section 3.5.1, this ensured internal validity as the research methods measure what they were supposed to. The second stage related to data collection which has already been discussed in sections 3.6, 3.7 and 3.8 of this chapter. As depicted in section 3.5.1 and adhering to Wright (2005), in terms of the survey data collection, the researcher avoided bias and human error which McKinnon (1988) contends is a threat to validity. Section 3.4.4 also indicated how the researcher defended their axiological position by mitigating and attempting to overcome the bias in interviews.

The third stage relates to conversion or the initial stage of analysis which in terms of the online survey data largely involved the use of descriptive figures and tables depicting percentage results with ordinal cross tabulated calculations providing a deeper analysis of the relationship between the nominal results as White and Korotayev (2004) discuss. Whilst they consider this to be a basic level of analysis, as Ihantola and Kihn (2011, p. 42) concur, this enabled care to be taken to avoid "*statistical testing, illusory correlation and causal error*" which result in low internal validity emerging. Qualitative data analysis involved transcription aimed at identifying themes emerging from the semi structured interviews adhering to guidance offered by Noble and Smith (2015) and reflecting analytical validity for Whittemore, Chase and Randle (2001). Further examination of the data analysis process centred on:

- Nominal quantitative data being created, depicted by graphs and tables and then extrapolated using JISC Online Survey analysis tools and supported by further ordinal Cross Tabulation Analysis using SPSS in line with White and Korotayev (2004). Cronbach Alpha has been conducted on Likert scale measures to support the internal reliability of the mainly quantitative online survey. Ihantola and Kihn (2011) cite Onwuegbuzie and Johnson (2006) and agree that quantitative data can create value by showing a narrative profile although care must be taken not to 'over-generalise' findings. Thompson (2009) argues that descriptive statistics are particularly useful when comparing outcomes from one study with another and in this case, survey outcomes are one study outcome and interview findings, the other. As such and for Creswell and Hirose (2019), the survey was designed to provide 'confirming evidence' when comparing responses from the semi-structured interviews and in this way the concurrent triangulated sequencing design explained in section 3.4.2. was defended.
- Qualitative Data has involved thematic analysis which Alhojailan (2011) citing Hayes (1997) argues is a thorough method of understanding how the data reflects the emerging themes of the research.

Overall, the analysis approach reflected a 'cross over' mixed method thematic analysis as advocated by Frels and Onwuegbuzie (2012) and explained below.

3.8.1 Supporting the Mixed Method Analysis Approach

Swift and Piff (2010) argue that the focus on numerical calculations in quantitative data analysis involves calculations although Sekeran and Bougie (2010) indicate that whilst it is important to analyse statistics, numbers do not always offer a full explanation and are mainly used to test hypotheses or for initial exploratory studies. In line with Field (2013) and within this study, data was reduced to ensure calculations were fit for purpose and appropriate to the researcher's business research network.

Consequently, the online survey data analysis involved two key stages: firstly, a descriptive stage with charts, graphs and tables being created to depict nominal

percentage calculations. For Alhojailan (2012), depicting raw data in graphs and tables supports a 'succinct structure.' Quantitative data was exported from the JISC online survey tool (accessed through Salford University) and into excel to create graphs and charts with this use of analytical tools supporting validity for Whittemore, Chase and Randle (2001). This enabled the researcher to create a snapshot of findings, upon which more depth of analysis was then considered.

The researcher was reassured that content and construct validity had been reinforced through the table of specification exercise which took place at pilot stage which is discussed in section 3.8.2 and quantitative validity reliability checks reviewed in section 3.4.4, 3.5.1 and 3.5.2. Despite this, and given that the online survey incorporated rating scales, debate regarding how these should be analysed is contentious (Allen and Seaman, 2007). Carifo and Perla (2008) reflect the positivist tradition and argue that Likert scales require statistically analysed for them to realise their full value although Frels and Onwuegbuzie (2012) offer a comprehensive case which justifies the choices made by the researcher and is depicted in table 3.14 overleaf. Schünemann et al. (2008) argue it is important to present credible data which offers clarity and transparency and which is aligned with the methodological focus of the researcher. As such and whilst over a fifty year debate exists regarding the use of Likert scales for Carifo and Perla (2008), within the concurrent triangulated research design the researcher considered how Likert scale survey results could produce results which could subsequently be compared and contrasted with the thematic analysis emerging from interview data which reinforced the multi strand, mixed methodology focus of the study as the table overleaf shows. This indicates how the research adopted a mixed method focus in analysis in what Frels and Onwuegbuzie (2012) define as a 'crossover approach.'

Table 3.14: Cross Over Mixed Method Analysis

Cross Over Mixed Method Analysis
The focus was to reduce the data: to "*condense the dimensionality of quantitative data/findings using qualitative techniques (e.g., thematic analysis of quantitative data; Onwuegbuzie, 2003; Onwuegbuzie & Teddlie, 2003).* "
Consideration of display was crucial in order "*to present visually qualitative and quantitative results (Onwuegbuzie & Dickinson, 2008*)." This is depicted in Chapter Four whereby graphs and tables thematically summarised quantitative data outcomes whilst quotes supported qualitative debates.
In order to transform, the approach taken was to "*convert quantitative data to be analysed qualitatively (i.e., qualitizing data)"* rather than creating, "*qualitative data into numerical codes that can be analyzed statistically (i.e., quantitizing data; Tashakkori & Teddlie, 1998)."*
The study did not employ statistical correlation but used cross tabulations to support merging of quantitative data with qualitative data (Onwuegbuzie & Teddlie, 2003). Both sets of date were consolidated to merge the data sets to create a thorough thematic review (Onwuegbuzie & Teddlie, 2003) which achieved comparison or "*side-by-side qualitative and quantitative data/findings (Onwuegbuzie & Teddlie, 2003*)."
Chapter Four indicates how data was integrated into, "*two separate sets (i.e., qualitative and quantitative) of coherent wholes (Onwuegbuzie & Teddlie, 2003*)" whilst Chapter Five incorporates, qualitative and quantitative data/findings into a coherent whole. Ultimately, Chapter Five and Six offer assertion that, "*all qualitative and quantitative data yields meta-inferences (Smith, 1997).* "

Adapted from Frels and Onwuegbuzie (2012, p. 187)

Reflecting this 'crossover' or mixing approach, the researcher elected to take the nominal data (for example, in this case dynamic capability and digital communication competence features) and then by incorporating rating scales employed within the questionnaire, cross tabulate them with ordinal rating measurements. Cohen et al (2011) concur how this supports an overlap of analysis to lead to interpretation. Nominal findings supported initial analysis and cross tabulations led to interpretation. Online survey respondents

indicated results depicting organisational size and this was used to calculate cross tabulations with dynamic capability and digital communication themes in line with the devised research question as indicated. Cross tabulations were not undertaken using years the business has been in operation because the sample pool was heavily weighted towards organisations who had been operating for more than 16 years. It was also inappropriate to use the nature of business in cross tabulated calculations because representation from some of the sub classification businesses was limited. In addition to this, cross tabulated analysis of nature of business was also deemed inappropriate given that some sub sectors were underrepresented in the survey sample. To support this understanding of the themes, the researcher also decided to include some open-ended questions (permitting respondents to answer in their own words) and these were analysed using the qualitative technique detailed below.

3.8.2 Ensuring Rigour through Thematic Analysis of the Qualitative Semi Structured Interview Data

Much attention is given to data collection when undertaking qualitative research although given the complexity of the process it is vital to consider how that data will be analysed (Jirwe, 2011). Despite this, as table 3.14 indicates, the mixed methods focus of the research has centred on crossing over data and this has been enabled through considered thematic analyses. Reflecting this, several researchers recommend models advocated methods of analysing interviews including Sarantakos (1998) who proposed a five-stage model for interview analysis which maps onto Rubin and Rubin (2011) who offer a seven-step process for analysing interviews which allowed for further logic to be applied to the process. Each step is normally undertaken in sequence, although in some circumstances the steps in the process can be reordered in line with the specific research study. The guidance advocated by these and other authors has been applied to this study within the table overleaf.

Table 3.15: A Seven Step Process for Qualitative Interview Analysis

Steps in the Interview Analysis Process	Applied to this study
1. *"Transcribe and summarise each interview.* • *a full and accurate word-for-word written rendition of the questions and answers* • *reading a transcript is easier and more fruitful then listening to a recording*	The transcriber recorded ad verbatim and the researcher then listened to the recording again to verify accuracy. As advocated by Braun and Clarke (2006, p. 96) and Sarantakos (1998), accuracy in transcription was checked with transcripts being cleaned and edited.
2. *Define, find and mark in the text (code)* • *facilitate retrieval of what was said on each topic.* • *code the data by highlighting words or phrases.* • *use computer programmes e.g Nvivo, Atlas T16, Hyperresearch 3.0, QDA Miner 3.2, QUALRUS*	The thematic process was applied to the central themes in the literature and then themes were contrasted against each other. To analyse and produce themes/ concepts, initially the computer software package NVivo was considered but was subsequently dismissed as the researcher preferred manual analysis. Bergin (2011) and Welsh (2002) offer a review of the advantages and disadvantages of employing computer programmes like Nvivo. The disadvantages include: they can be too prescriptive and therefore restrict reflexivity; the researcher can tend to take short cuts; when considering using a package this can distract the researcher from their data which can 'distort or impede' the analysis and the approach places too much emphasis on scrutinising words which may distract from interpretation. Thus, the researcher elected to also use more traditional paper-based methods given that it is worth considering
3. *Sort coded themes into single date file and summarise.* • *assign each concept or theme a code.* • *each code is discrete and not related to other codes*	
4. *Sort and resort the material within each file.*	

• *extract all excerpts codes with the same label across all interviews.* • *sort into single computer file* • *summarise the coded content within the single file*	as Gibbs (2004) proposes, that it is not the technology which analyses the data but the researcher themselves. The researcher was central then in the process in making data analysis decisions. Indeed, Ibrahim (2011) cites Welsh (2002) and argues this can improve fluidity and creativity and support reliability and validity. Themes were identified and then ordered within an excel spread sheet. The themes were coded, and then different interviewee contributions were logged beneath each of them. Insights (in the form of key quotes) were logged from the best-informed participants. These were then subdivided based on size of business of each interviewee. This enabled transcript data to be summarised using each transcript. Effective logging of data enabled summaries to be created whilst original meanings were logged in the way of direct quotes as advocated by Gale et al. (2013)
5. *Weight and integrate the descriptions from different interviewees.* • *put together different parts of a narrative or descriptions of a culture or subculture by weighing and combining data.* • *combine insights from those best informed of an event, issue or institution*	
6. *Combine concepts and themes to generate own theory: work out explanations for what has been described & look for a set of related concepts and themes that together answer the research questions."*	Combination of concepts and themes emerged from the findings and are depicted are depicted in chapter five whereby the researcher shows in their analysis how the results had come together to address the research question. The related concepts and themes from the online survey and semi structured questionnaires have been 'mixed' to show how secondary and primary research endeavours had addressed the aim of the research and the research question within that penultimate chapter.

Adapted from Rubin and Rubin (2011, p. 28)

The advice offered by Rubin and Rubin (2011) is useful, follows logic and links to thematic analysis which provides structure which is key for Braun and Clarke (2006, 2012), Gavin (2008) and Guest, MacQueen and Namey (2011). This involved the researcher:

- Ensuring that the analysis and data match one another with extracts or quotes demonstrates the analytical claims, is key to effective thematic analysis for Clarke, Braun and Hayfield (2015) and can impact qualitative validity if not achieved (Baxter and Eyles, 1997).
- Presenting the analysis in an organised journey in Chapter Four which takes the reader through the data and topics defined through the literature themes. Graneheim, Lindgren and Lundman (2017) argue that if this is not achieved this threatens 'credibility and authenticity' of the findings.
- Guaranteeing that a balance is provided between the analytical narrative and illustrative extracts provided as quotes in the semi structured qualitative analysis section in Chapter Five is crucial in accurately depicting and reinforcing truth for Braun, Clarke and Weate (2016).
- Allowing enough time and resources to be allocated to complete all phases of the critical analysis supported research productivity (Chase et al. (2013). This efficiency was achieved as the data was manipulated and analysed between October and December 2019 with findings and analysis chapters write up taking place between January to and October 2020.
- Verifying the assumptions about and identifying the specific approach to thematic analysis within this chapter as Braun and Clarke (2006, 2012), Gavin (2008) and Guest, MacQueen and Namey (2011) amongst others advise. The crossover thematic approach identified within this section reinforces consistency of the process and the trustworthiness of the study for Nowell et al. (2017).

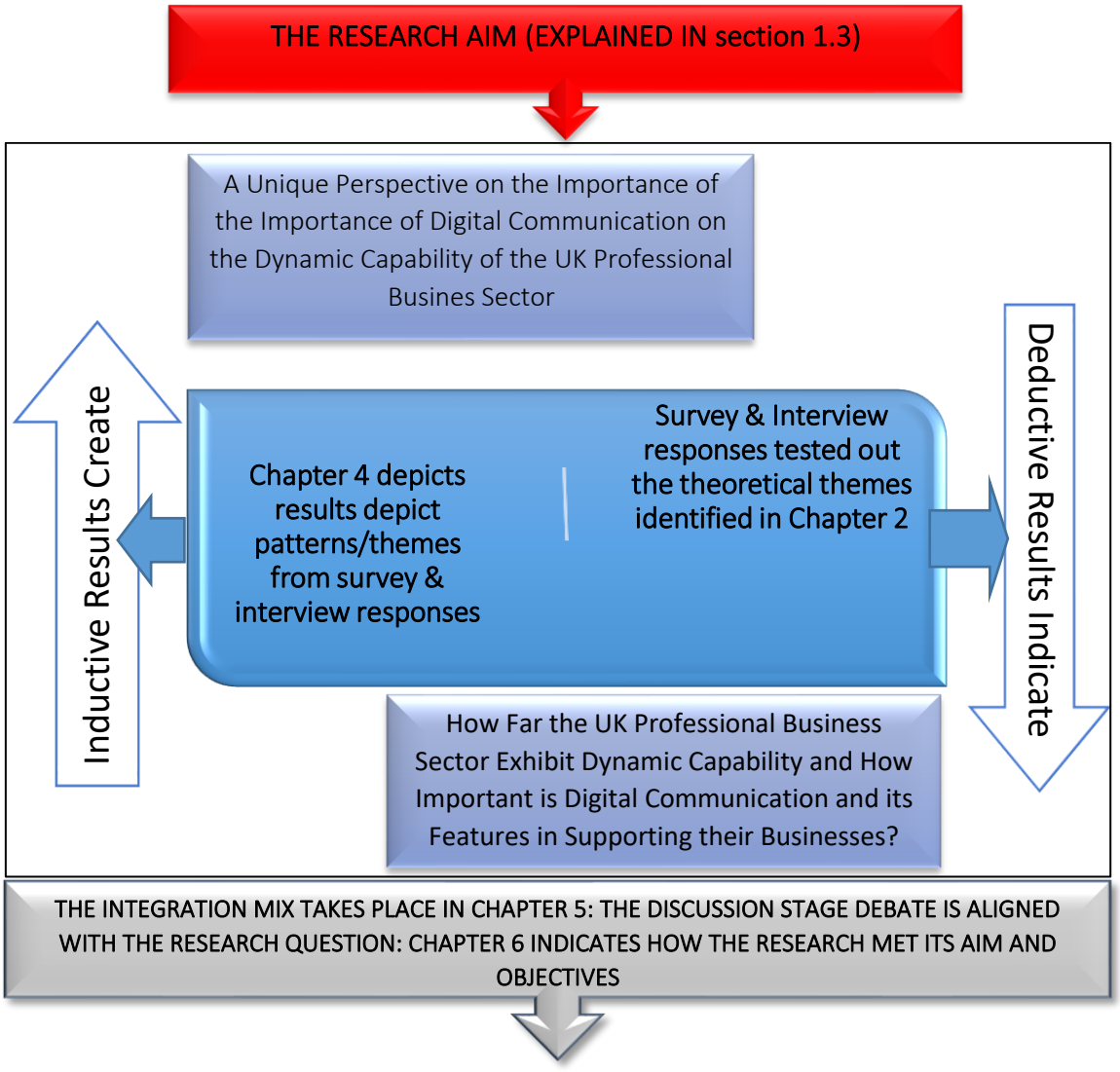
3.8.2.1 Aligning Analysis with the Mixed Methods, Deductive Nature of the Study

The last stage for Rubin and Rubin (2011, p. 28) involves the researcher ''*combining concepts and themes to generate their own theory.*'' For Johnson and Onwuegbuzie (2004, p. 17), this is the ultimate goal of abductive reasoning whereby the study is:

- Inductive: the researcher discovered patterns relating to the themes emerging from the survey and interview results.
- Deductive: the investigation tests out theories employed in the literature review
- Abductive: Ultimately, Chapter Five and Six indicate how the researcher has uncovered the best of a set of explanations for understanding the results which involves alignment with the literature themes.

The figure below indicates the ultimate goal of mixed method, abductive reasoning which is centres on addressing the research aim, objectives and the research question through the analysed data.

Figure 3.4: An Abductive Reasoning Approach Aligned with Mixed Methods Analysis Integration (author devised)



Source: Author devised

As depicted in the figure above, the final stage in analysis was also linked to the integration mix (mixing) in triangulation concurrent sequencing which takes place during the discussion stage at the end of the research process for Creswell and Plano-Clark (2011). Creating this integration mix is key in triangulation concurrent sequencing for Creswell (2004). Applying a crossover thematic approach to support analyses of both strands of data reinforces the mixed methods, abductive research design as Frels and Onwuegbuzie (2012) contend.

The researcher was key in designing an analysis strategy and indeed, overall research design considerations, with this being aligned with their personal and academic ethical focus. Ethics are considered when designing research as these relate to the philosophical world view of the researcher, to the researcher themselves and are an important consideration throughout the whole research design process (Cooper, Schindler, & Sun, 2006).

3.9 Ethical Considerations in Relation to the Study

In line with the worldview of the researcher, Mennad (1997) explains how several business ethics scholars support the application of philosophical pragmatism including Dewey, James and Churchman. Whilst Ulrich (2007) argues that is unclear how ethical practice is secured in pragmatic research, he indicates that pragmatism allows for moral, self-critical practice. Wicks and Freeman (1997) contend that traditionally positivist and anti-positivist strands have lacked focus on ethics whilst pragmatism allows the researcher to set that debate to one side and develop research centred on business interest. This is evident within this study as the researcher aimed to achieve a focus which was, "*morally rich and useful to organizations and the communities in which they operate*" (Wicks and Freeman, 1997, p. 123). Certainly, the notion of ethics for Blumberg, Cooper and Schindler (2008, p. 114) is reinforced through the researcher's pragmatism worldview and involves,

> "*moral principles, norms or standards of behaviours that guide moral choices about our behaviour and our relationships with others.*"

For Collis and Hussey (2013), issues in business research arise when there is some sort of conflict between the desire to conduct good quality research and the needs, demands and rights of the participants. This is especially pertinent to the novice researcher for Greaney et al. (2012) who argue that they should familiarise themselves with ethical approval processes within their study institution. Hence, whilst ethics also relate to the researcher themselves, they are governed by the law although this subsequently features in University ethical policies (MacNeil and Fernandez, 2006).

Reflecting this and central to the design of the study are the Salford University institutional requirements in terms of ethical research conduct with 2004 marking the end of "*self-regulation of ethics*" in UK Higher Education (Kerrison and Pollick, 2005, p. 487). As such, the study was approved by the University of Salford Ethics Committee and it met the required Institutional standards as indicated by the scanned ethical approval letter featured as Image 1 in Appendix 3. As such, the research was institutionally verified in terms of what Orb et al. (2001) define as ethical factors which included: the design of the research; researcher/participant relationships; interpretation of data and predicting the impact of different methods on participants (for example, the potential source of distress). Building on what Blumberg, Cooper and Schindler (2008) suggest, the University ethical submission and approval balanced benefits with potential harm and legal requirements in terms of disclosure of harm were key.

In line with Diener and Crandall (1978), harm to participants was a key consideration alongside invasion of privacy although as stated, ethical approval from Salford University overcame this issue. Shaw and Barrett (2006) concur that researchers must define an ethical research governance approach and contend that safety of both the participants and the researcher should be considered. In line with the University of Salford Risk Assessment Code of Practice (2010), a risk assessment was also submitted and approved in line with the Management of Health and Safety at Work Regulations of 1999. The wider University ethical submission covered participant right to privacy with participants offered choices in non-disclosure and participant deception and coercion being avoided. Largant and Lynch (2017) caution that coercion can link to 'outside influence' and be a threat to reliability of the study.

Interview participants submitted their names but generally asked to avoid publication of this due to concerns over disclosure of organisational conduct. Bahn and Weatherill (2012) agree that gathering sensitive qualitative interview data can be a 'risky business.' Fouka and Mantzorou (2011) examine ethics in the nursing context but add that some managers can be reluctant to be named in research for fear of reprisals or negative impacts of disclosure. Brody, Gluck and Aragon (2000) also link ethical approaches to debriefing and argue this supports participants to understand the study aims but it must be clear with insufficient information provided for it to be effective. In response, this took place after the interviews with participants being provided with transcripts and findings offered on request as Khan (2014) recommends. Three examples of interview transcripts are shown as Figures 4, 5 and 6 in Appendix 2 with these reflecting large, medium/ small sized business perspectives.

As Blumberg, Cooper and Schindler (2008) advise, written consent was obtained from interview participants although email response was accepted as this helped support the audit trail and the validity of the study as Whittemore, Chase and Mandle (2001) contend. Furthermore, Bourgeois, Kortuem and Kawsar, (2018) add that whilst written consent has been required for around twenty years, this is increasingly important in the context of GDPR and how that relates to research ethics. As Gordon (2006) and Prohaska contend, it was vital that written consent was gained from all and participants were clearly advised that they could withdraw from the process. For Stevenson Thorpe (2014) withdrawal in terms of qualitative research is less problematic than in quantitative research as this can take place at the end of the data gathering phase and participants can be replaced. In terms of quantitative research this can impact methodological implications although this was not the case in this study. If online survey respondents chose to withdraw survey results indicated non completion and results were not included within the final sample analysis

Extensive personal data relating to organisational names and other personally sensitive information was not collected as Cooper and Schindler (2013) caution. Despite this, interviewee names feature in Appendix 4, Table 5 for examination authenticity. As indicated, some respondents have requested privacy in terms of future publications

explaining how this might link to vulnerability if their names were published which reflects cautionary advice from Cooper and Schindler (2013). Surmiak (2018) argues there are many different types of vulnerability in qualitative research terms although in this case this links to potential risk of reprisal for Aldredge (2014). Participant rights to non-disclosure have been reflected in information forms which have been designed and have been provided to all participants in the study.

The participants were offered as much information about the study and process as they felt they needed with contact details being offered to ensure participants can request further information which Fouka and Mantzorou (2011) argue is crucial. Data Protection Legislation was adhered to fully during the entire course of the study and was reinforced through Salford University (2020) GDPR guidance. To underpin the quality of the ethical approach, the researcher completed all requirements relating to ethical approval for the PhD study as required by the University of Salford and in line with recommendations offered by Khan (2014).

3.10 Chapter Summary

The chapter presented the pragmatist, mixed methods world view of the researcher to depict their ontological and epistemological stance which is linked to their abductive reasoning, a mixed method focus and a concurrent triangulation sequencing research design. The chapter indicates how the chosen methods involved a quantitative online survey and qualitative semi structured interview methods with data being gathered from participants within the UK Professional Business Sector using a heterogonous purposive sampling approach for the online survey and expert purposive sampling for the semi structured interviews. The chapter indicates how crossover analysis supported integration and mixing to take place during the analysis and discussion stage of the PhD as Creswell (2014) advocates. Ethics have been reviewed indicating how the researcher has successfully achieved their ethical research submission at the University of Salford which is reflected in their professional approach.

The researcher applied this pragmatist, abductive, mixed method research design and their ethical focus to their PhD fieldwork activity with findings being presented in the next

chapter. These indicate online survey responses gathered from 99 participants and findings emerging from 24 semi structured interviews with middle and senior managers.

Chapter 4: Results Chapter

4 Results

4.1 Chapter Introduction

The results chapter is organised under headings depicting the two key themes in the literature:

- Dynamic capability as the main framework for analysis (Teece, Pisano and Shuen, 1997) and Teece (2007).
- Understanding the Role of Digital Communication Competence in the Contemporary Workplace.

Measures drawn from the literature review feature in table 2.9 and figure 2.7 in Chapter Two with these being shown in Tables 1 and 3 in Appendix 2 and in tables 3.6 and 3.9 in the methodology chapter and are presented overleaf.

Table 4.1: A Summary of the 'Key Aggregate Constructs' and 'Dimension Related Measures' (Barreto, 2010) Extracted from the Review of the Literature as Measures

THEME 1 - Dynamic Capabilities	
Key aggregate measures extracted from the literature. For Barreto (2010) these are key features of the debate on dynamic capabilities whilst dimension related measures are those drawn from wide dynamic capability debates	
Measures	*Discussed In*
Change	Section 2.3.2
A focus on innovation	Section 2.3.5
A focus on profitability	
Dimension related dynamic capability measures extracted from the literature.	
Restructure as a response to change	Section 2.3.2
Product/Service and Market Expansion	Section 2.3.5
Senior manager support for learning/ Line manager support for learning	Sections 2.3.6 & 7
Knowledge transfer strategic alignment	Section 2.3.6
THEME 2 - The Importance of Digital Communication Competence in the Workplace	
Dimension related digital communication capability measures extracted from the literature.	
Measures	*Discussed In*
The Importance of digital skills and digital communication competence	Throughout section 2.5
Digital communication features	Section 2.6.3
Digital communication competence levels	
The importance of digital communication competence to departments, in jobs and for individuals	Sections 2.5.2 to 2.5.4

Initially, for both the online survey and semi structured interviews, participant biographical data is depicted to illustrate roles, organisation size and business types. In terms of the online survey, graphical data supports either tabulated cross tabulated summaries or graphical representations of these calculations. Cross tabulations have not been calculated for workplace levels of digital communication competence as qualitative survey questions depicted heterogenous perspectives linked to the specific contextual business setting.

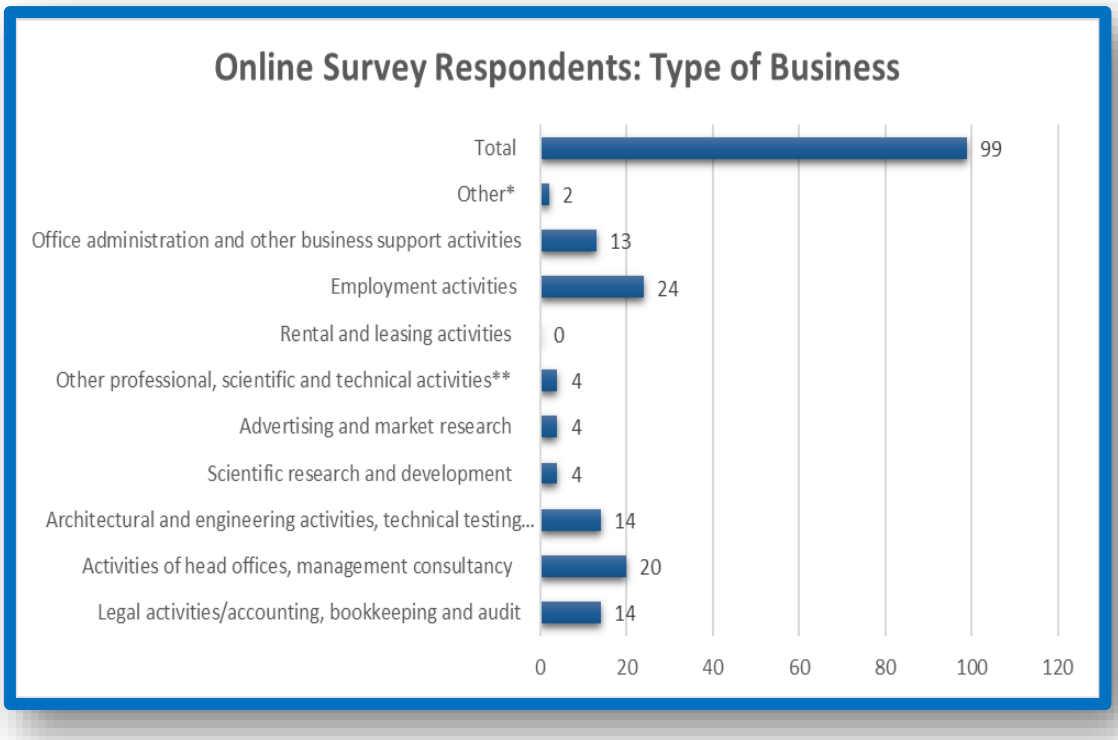
4.2 Online Survey Respondent Profiles

In this section a brief profile of online survey respondents roles and organisational background is presented. Descriptive findings are summarised using graphs and charts with the interpretation of that data shown below each figure. The HRM middle and senior management professional roles represented in the survey are demonstrated in Table 1 in Appendix 4. Personal biographical data was not required as organisational perspectives were needed to address the aims of the study. Organisational features including: the size of organisation based on number of employees; the nature of the business and the maturity of the organisation based on years in operation are depicted in what follows. The former is used to contribute to a unique analysis of how size of business relates to responses shown in the discussion in Chapter Five.

4.2.1 Online Survey Respondents: Nature of the Business

Participants were asked to define the nature of their business to ensure they worked within the UK Professional Business Sector using definitions from the Department for Business, Energy and Industrial Strategy (2020). Given the implications of GDPR reviewed within section 3.6.1 of the methodology chapter, the focus in the study was to achieve a valid and reliable contemporary snapshot reflecting sample adequacy. As such, whilst every attempt was made to gather a representative sample, a snapshot of managerial views was drawn from the organisations indicated in figure 4.1 overleaf.

Figure 4.1: Online Survey Respondents: Defining the Nature of their Business.



Number of Respondents = 99

Other* in the sample included: Unique Identification (ID):465995-465986-46426294: Integrated Services Provider and Unique ID: 465995-465986-47043702: Supply Chain Company which were deemed to be representative of the UK Professional Business Sector given that both supply chain and integrated logistics service providers are professional service organisations offering end to end service activities (Bouchard, 2014). Added to that, Table 1 in Appendix 4 indicates a listing of participant roles with the respondents self-classifying their roles using the subcategories featured in the above figure. As such, the following respondents classified their type of organisation as 'other professional, scientific and technical activities'**:

Unique ID: 465995-465986-45976994: Contract Manager

Unique ID: 465995-465986-46198629: Head of Commercial Manager

Unique ID: 527450-527441-51918842: Security & Export Control Manager

Unique ID: 527450-527441-52252293: TM1/SQL/VBA Developer

4.2.2 Online Survey Respondents: UK Localities

Figure 4.2 below reinforces how the online survey respondents reflected a national sample by representing all the regions in the UK.

Figure 4.2: Business Locations of the Online Survey Sample

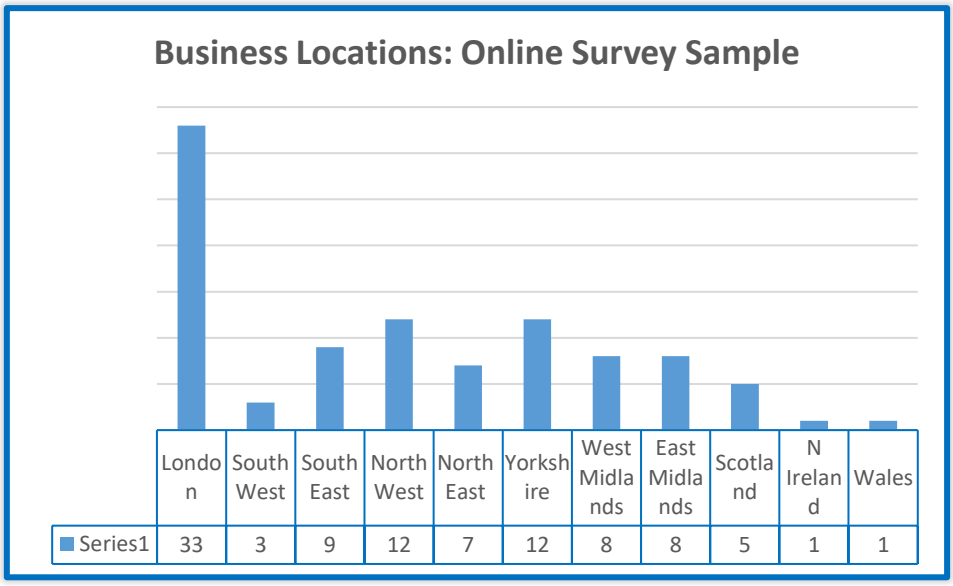


Figure 4.1 indicates that reasonable representation has been made in offering a reflection of the sectors' organisational perception of the themes whilst figure 4.2 shows how the national sample has been achieved. Further cross tabulations based on online survey respondents locations were not undertaken as the focus of the study was to achieve a national sample but not to offer sub regional analyses. This latter focus would have changed key features of the methodological approach and indeed, the aims of the study. Also, whilst respondents stated their business location this could not be assumed to be the location of the whole business and their perspectives at that location base might not reflect the perspectives managers based in other localities. The thesis highlights how:

1) This investigation employed a national sample to offer a UK perspective but not a regional analysis.
2) The focus of the study was to examine size of organisation linked to business maturity.

Despite this, the national perspective could be extended in future research as section 6.4 explains.

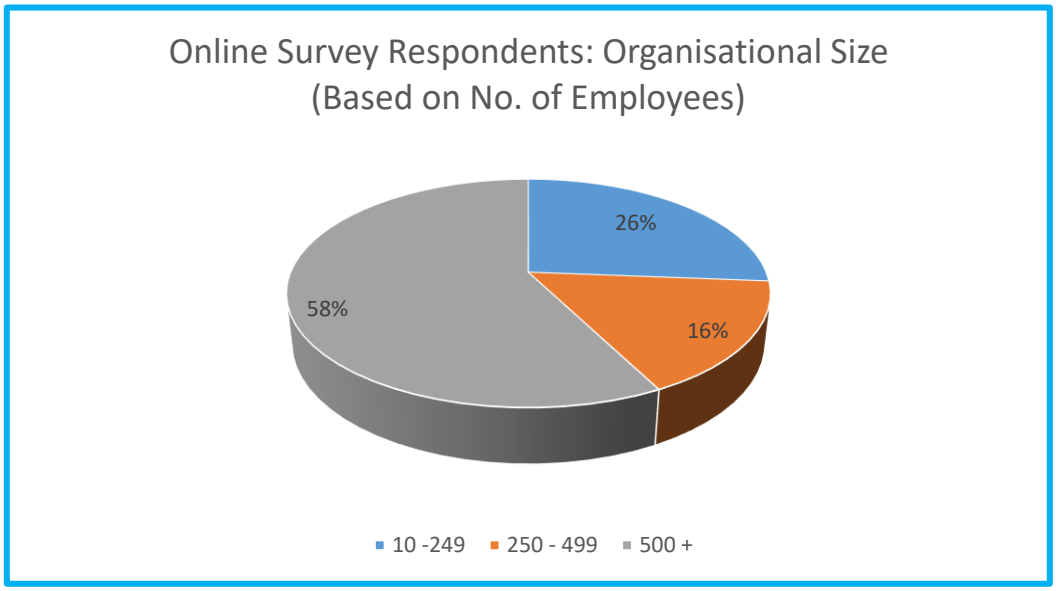
Despite this, the researcher could not directly canvass participation from scientific research and development; advertising and market research and rental and leasing organisations due to GDPR (2018) implications and thus, their contribution to the study is limited. Therefore, cross tabulated analyses of nature of business with dynamic capability measures was not appropriate as there was not full sub sectoral sample representation although again this could contribute to a future research focus as section 6.4 depicts.

Despite this, size (based on number of employees) of business has been measured in order to make comparisons between this, their strategic focus and the importance of digital communication competence in supporting that. This is aligned with the Business Process Management Maturity framework (Object Management Group, 2008) which extends the analysis and debate featured in the discussion in Chapter 5. Reinforcing this, a reasonable sample of both SME and larger organisations are represented by the online survey respondent sample as indicated in figure 4.3 below.

4.2.3 Online Survey Respondents: Number of Employees

The study extended understanding of how important digital communication was in the competitive context of the UK Professional Business Sector by comparing and contrasting if business size impacts strategic approaches. To support this, online survey respondents were asked to indicate the number of employees in their workplace and this features in figure 4.3 overleaf.

Figure 4.3: Online Survey Respondents: Number of Employees in Organisation



Whilst a majority (just under 58%) of online survey respondents work in large Professional Business Sector Organisations, 26% and 16% (cumulatively just over 42%) hold management roles in small and medium sized companies (SMEs) as indicated above. The organisational size measure is used in subsequent cross tabulation calculations as there is a reasonable respresentation drawn from both SME employers and larger organisations. In order to build on this participants were also asked to indicate how mature their organisations were based on the number of years the business had been in operation.

4.2.4 Online Survey Respondents: Organisation Maturity (Years the Business has been in Operation)

Figure 2 in Appendix 4 indicates how most online survey respondents' organisations have been in operation for more than 16 years. When a cross tabulated calculation was achieved which examined how long the interviewees' businesses has been in operation in relation to their size (featured in Table 3 in Appendix 4), large businesses had all been operating for over 40 years with two business exceptions of 24 (Recruitment) and 35 (Financial Management) years in operations. Medium sized businesses had all been

operating for under 11 years with one exception of 35 years (legal services) and small businesses had all been operating less than 10 years.

Given that this measure proved inconclusive, it was inappropriate to further employ cross tabulated analysis of years in operation with the survey thematic measures. Despite this, it was useful to cross tabulate years in operation with size of business to add to initial descriptive findings shown in Appendix 4, table 2. This provides a deeper understanding of the profile of the business sample pool taking part in the online survey. Reflecting what is shown in table 2 in Appendix 4, the majority of online survey respondents (86% in all sizes of business) have been employed over 16 years in businesses. This supports achievement of the study aims in that the participants are experienced and knowledgeable expert contributors who have offered their perspectives relating to the first literature theme.

4.3 Online Survey Results: Literature Theme 1: Dynamic Capability Theory Features Applied to the UK Professional Business Sector

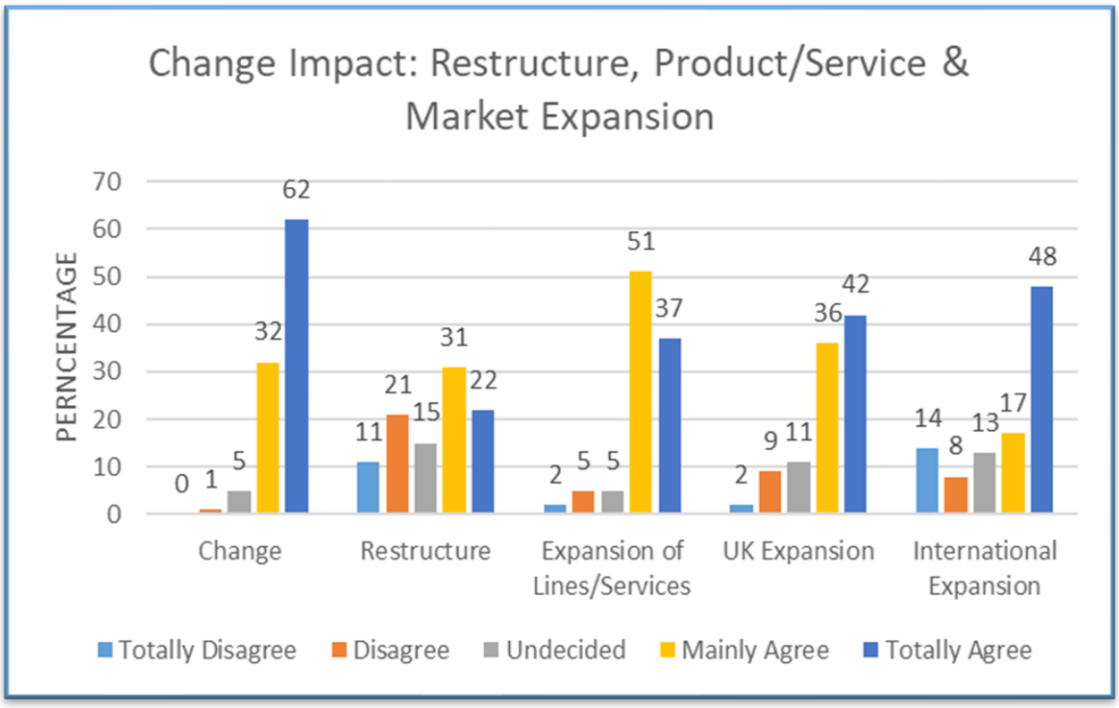
Presented below are the findings emerging from the quantitatively designed online survey addressing the first literature theme which relates to the measures drawn from dynamic capability debates. Table 2.9 and figure 2.6 in section 2.8 of the literature chapter summarises key measures extracted from that review. This this is also presented in Appendix 2, table 1 and tables 3.6 and 3.9 of the methodology chapter. These include: change impacting restructure, expansion of business lines/services and markets alongside a focus on profitability through innovation which is supported by learning and knowledge transfer. Reflecting this, figure 4.4 below initially indicates online survey respondents' perceptions of how far their organisations are aligned with the first set of dynamic capability measures including: organisational change impacting restructure, expansion of business lines/ services/ markets.

4.3.1 Online Survey Respondents: Organisational Change, Restructure, Business lines/Service and Market Expansion.

Online survey findings related to organisational change as a key feature of Dynamic Capability Theory debates are depicted in figure 4.4 overleaf. This links to perspectives

offered by Teece, Pisano and Shuen (1997) who explain that processes must be supported by entrepreneurial ability in order to 'sense and seize' throughout the process of volatile change. Change is linked to restructure whereby the organisation 'senses' how they must align their workforce with what they need to remain competitive with expansion supporting 'seizing' of opportunities.

Figure 4.4: Online Survey Respondents: Organisational Change, Restructure and Market Expansion as Features of Dynamic Capabilities



With the impact of change being a key feature of Dynamic Capability Theory for Teece, Pisano and Shuen (1997), survey respondents were asked to consider how far they were facing constant change. Figure 4.4 indicates that the majority of survey respondents agreed change is constant in their Professional Business Sector organisations with 62% totally agreeing and 32% mainly agreeing with this statement. Thus, constant change can be seen to be a feature of dynamic capabilities which relates to the UK Professional Business Sector based on this descriptive data finding.

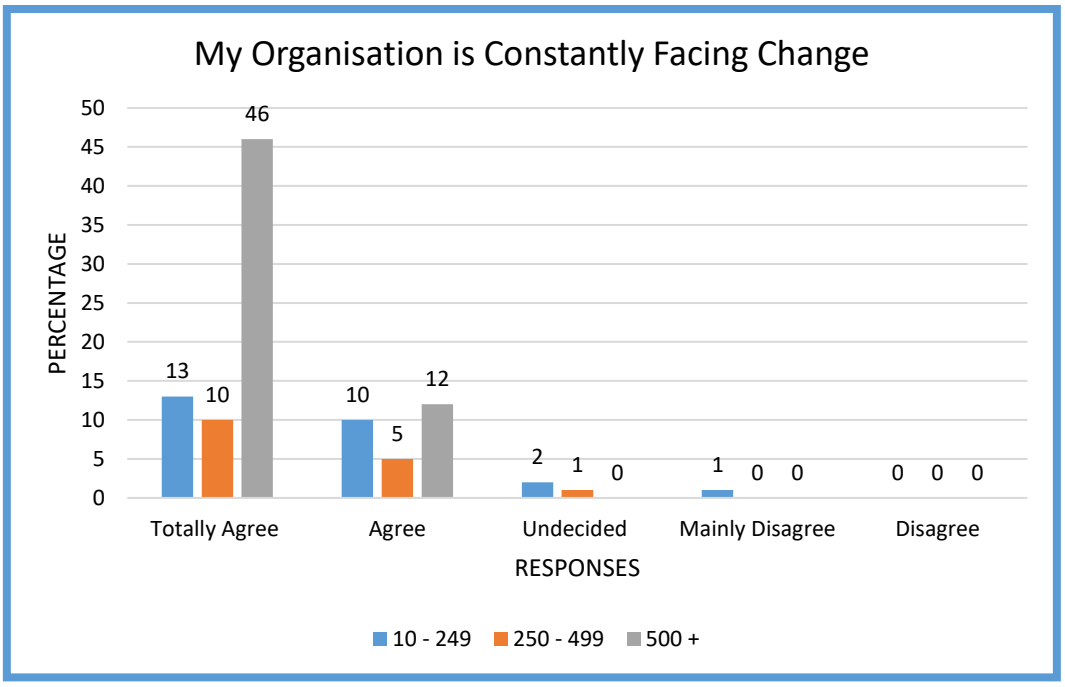
The researcher asked online survey respondents to consider if restructuring was a feature of change. As figure 4.4 indicates, this was less clear in the initial results. Whilst 53% agreed to some degree that they were restructuring, a third disagreed to some degree

and 15% were undecided. Building on this, and as a feature of 'sensing and seizing,' participants were asked how if they were expanding business lines and services and if this expansion included extending their business into UK and/or national markets. 51% of respondents agreed and a further 37% strongly agreed that they are expanding lines and services as a feature of organisational change. This expansion is slightly more evident in national terms with 36% agreeing and 42% strongly agreeing that expansion into UK markets was a strategic focus compared to 17% agreeing and 48% strongly agreeing that international expansion was in their focus. Despite this, expansion is part of the current competitive strategy focus for the majority of online survey respondents in terms of this initial descriptive analysis. To investigate this further, size of organisation was cross tabulated with dynamic capability change, restructure and expansion features to investigate any if any deeper conclusions could be reached.

4.3.1.1 Online Survey Respondents: Organisational Change, Restructure, Business lines/Service and Market Expansion: Cross Tabulated with Size and Maturity of the Organisation

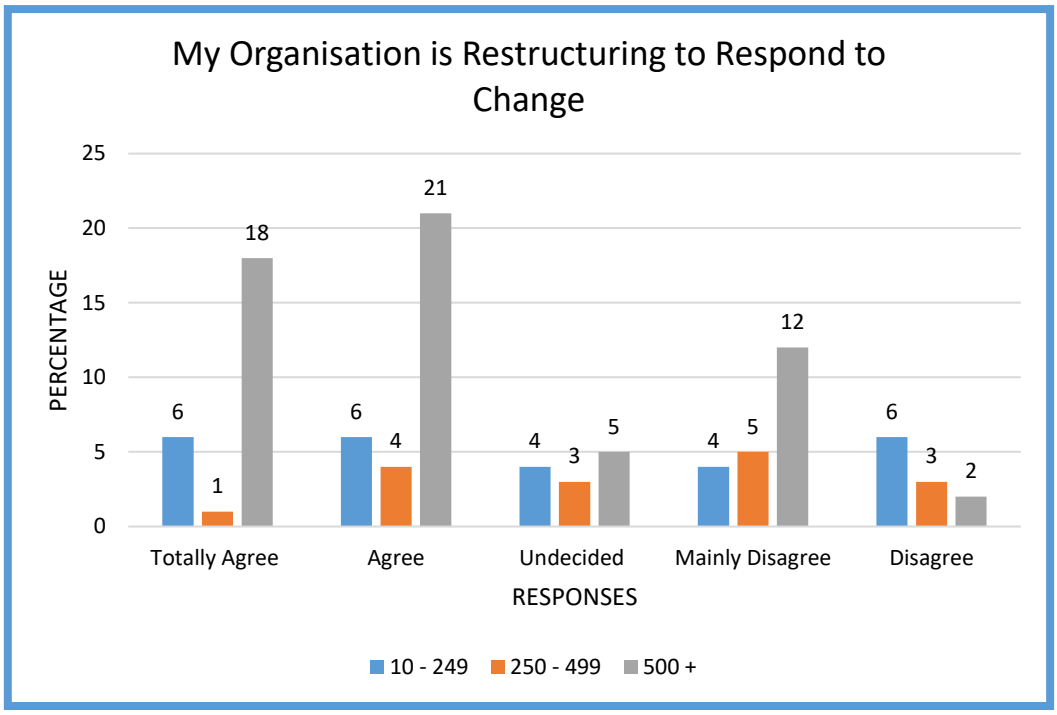
Figures 4.5 below and 4.6 overleaf indicate the results emerging from the cross tabulation calculation examining how size of organisation relates to change and restructure as a feature of change.

Figure 4.5: Online Survey Respondents: Organisational Change: Cross Tabulated with Size of the Organisation



Initial data indicated in figure 4.4 indicated that constant change could be seen to be a feature of dynamic capabilities applicable to the Professional Business Sector sample in this study. As table 4.5 above indicates, when cross tabulating size of organisation with change impact most online survey respondents perceived they were constantly facing change reaffirming the initial data finding.

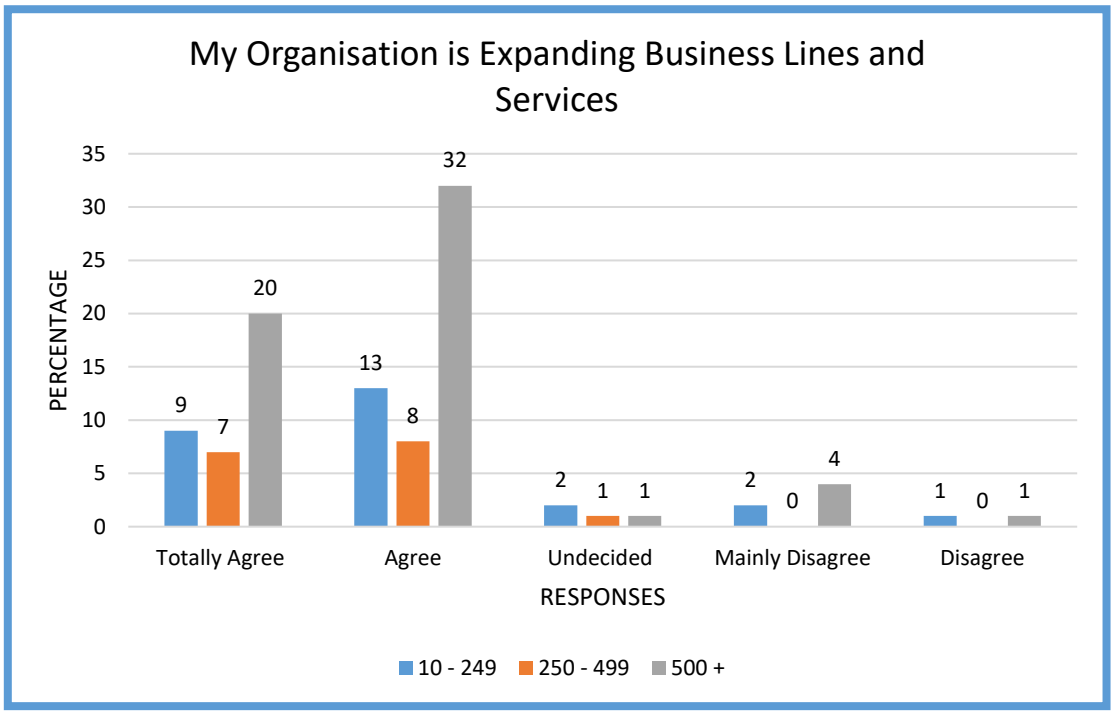
Figure 4.6: Online Survey Respondents: Restructure Cross Tabulated with Size of the Organisation



Initial descriptive data indicated an unclear result relating to how change was leading to restructure to 'sense and seize' opportunities. As depicted in figure 4.6 above and to expand on this, more than half of the small business respondents to the survey disagreed at some level (or were undecided) that restructuring was a feature of change. Furthermore, 81% of medium business online survey respondents disagreed (or were undecided) about change resulting in restructure. Overall, 60% of small and medium businesses either disagreed or were undecided that the change they were facing resulted in restructure. Despite this, 67% of the large business respondents either mainly or strongly agreed that change was resulting in restructure and thus, it might be concluded

that restructure is more likely to emerge from change for larger organisations within this sample.

Figure 4.7: Online Survey Respondents: Business Lines/ Services Expansion Cross Tabulated with Size of Organisation



In terms of 'sensing and seizing' of opportunities respondents considered how they were expanding business lines and services with figure 4.4 depicting that this clearly emerged as a feature of dynamic capabilities. As shown in figure 4.7 above, the cross tabulation calculations extend this finding indicating that 81% of respondents from small businesses either agreed or mainly agreed they were expanding business lines/services compared with 94% in medium sized businesses and 89% in larger businesses. Thus, a slightly higher majority of medium and large organisations agreed at some level that they were expanding business lines and services. To examine how business expansion extended to geographical expansion, cross tabulated analyses are reflected using figures 4.8 and 4.9 overleaf.

Figure 4.8: Online Survey Respondents: UK Expansion Cross Tabulated with Size of Organisation

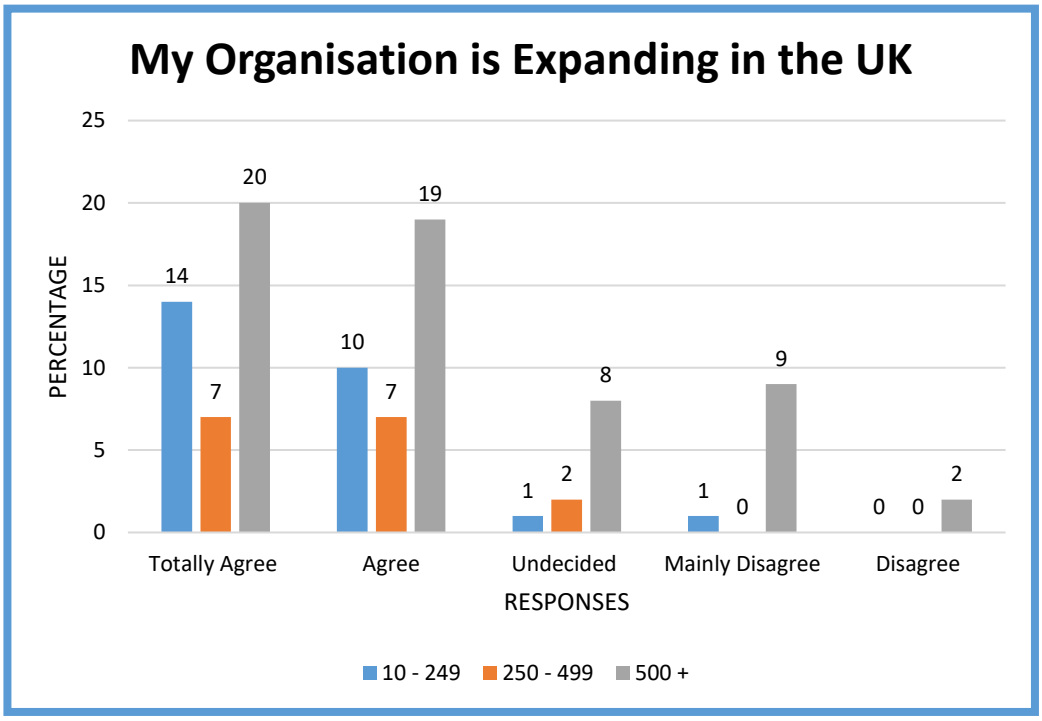
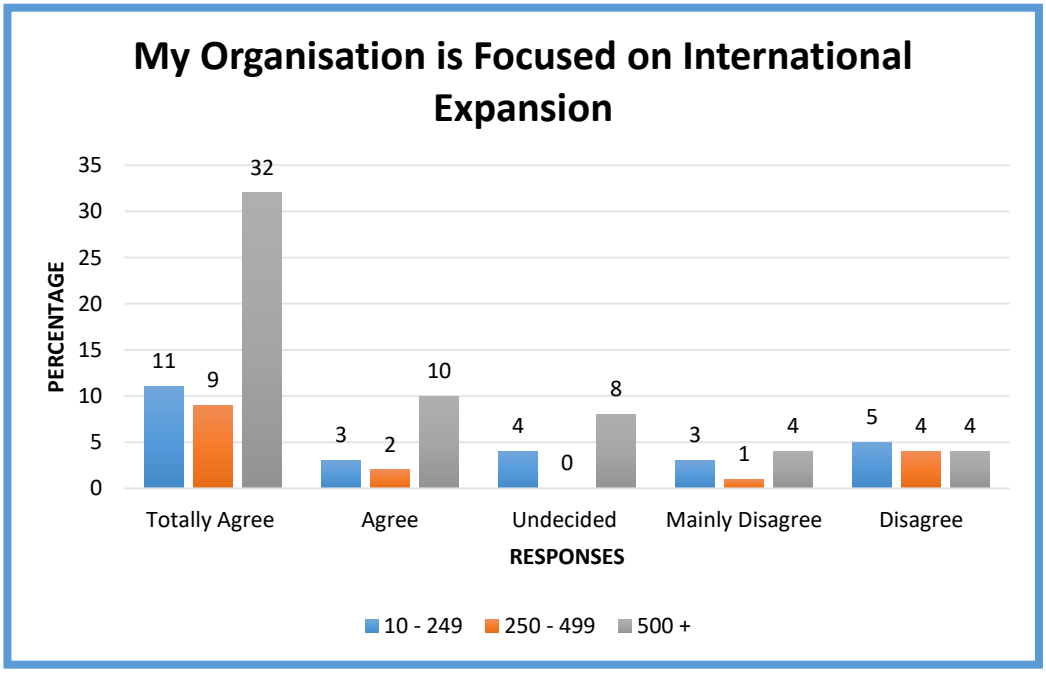


Figure 4.9: Online Survey Respondents: International Expansion Cross Tabulated with Size of Organisation



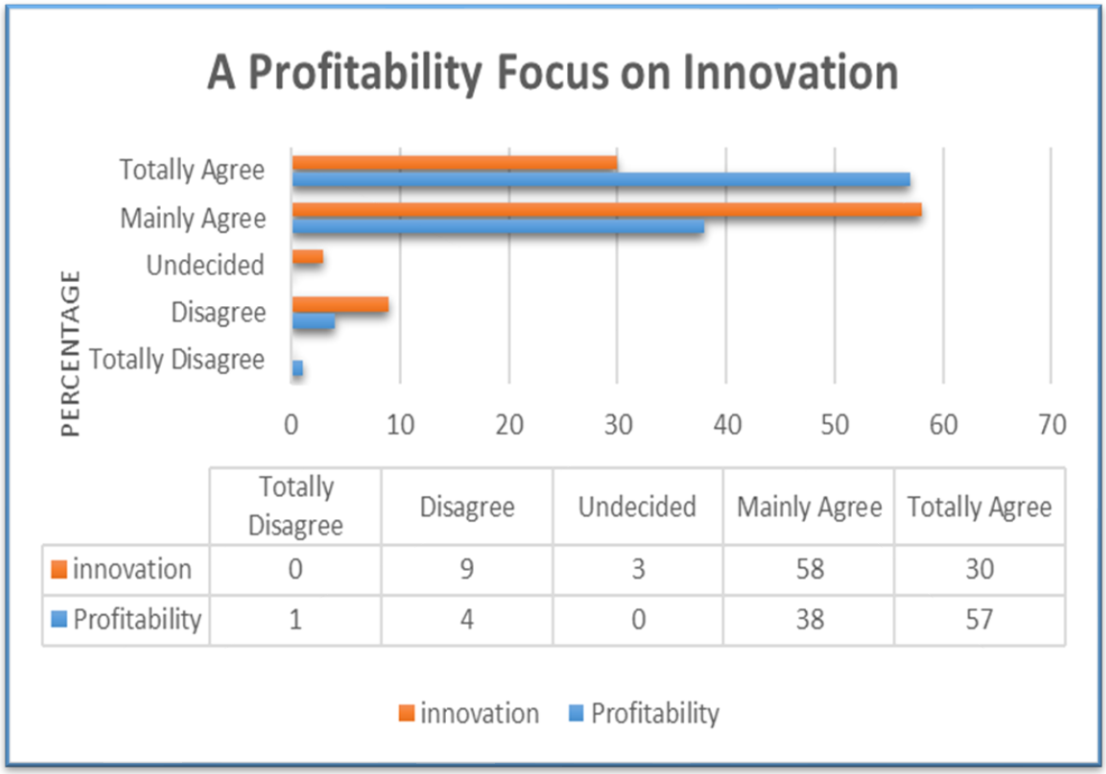
The nominal data findings indicated that small to medium sized businesses have more focus on both UK and international expansion but there was a slightly greater international focus for larger businesses. As depicted in figures 4.8 and 4.9 on the previous page and concurring with this, cross tabulated results indicated that 92% of online survey respondents in small businesses and 88% of participants in medium organisations compared with 67% in large companies totally (or mainly) agreed their organisation was focusing on UK expansion. In comparison, 54% of respondents in small businesses mainly (or totally) agreed they were expanding internationally compared with 69% (medium) and 72% (large) in other organisations. Thus, smaller and medium businesses were focusing slightly more on UK expansion whilst large organisations were focusing more on international expansion alongside UK extension of markets. Medium sized businesses were also focusing on international expansion although to a slightly less degree than large organisations.

Aspects of competitive strategies involving change and market expansion have been identified although with profitability being the outcomes of that strategy this should be considered key to dynamism in current business operations. Innovation contributes to profitability and is also clearly articulated in dynamic capability debates.

4.3.2 Online Survey Respondents: Profitability and Innovation as a Dynamic Feature of the UK Professional Business Sector Competitive Strategy

Ultimately, Dynamic Capability Theory focuses on creating competitive advantage through times of change with a focus on increasing profitability through technological innovation (Teece, Pisano and Shuen, 1997). Online survey respondents were asked to consider how far their organisations were focused on these elements with findings depicted in figure 4.10 overleaf.

Figure 4.10: Online Survey Respondents: Profitability and a Focus on Innovation as Features of Dynamic Capabilities Competitive Strategies



	Totally Disagree	Disagree	Undecided	Mainly Agree	Totally Agree
innovation	0	9	3	58	30
Profitability	1	4	0	38	57

As indicated in figure 4.10 above, 95% of online survey respondents showed some level of agreement and as such, it is reasonable to assume that profitability is both a key characteristic of the competitive strategy and of dynamic capability which applies to the UK Professional Business Sector. With profitability being linked to innovation, figure 4.10 above indicates that 87% of respondents agreed that innovation was a focus to some degree. Innovation does also seem to be a feature of dynamic capabilities in the UK Professional Business Sector from this analysis although cross tabulated analysis was conducted to extend understanding of this initial finding.

4.3.2.1 Online Survey Respondents: Profitability and Innovation focus: Cross Tabulated with Size and Maturity of the Organisation

To extend this debate, size of organisation was cross tabulated with profitability and innovation as features of dynamic capabilities.

Table 4.2: Online Survey Respondents: Profitability and Innovation Cross Tabulated with Size of the Organisation

	1 vs 5	How many employees work in your organisation?		
My organisation has key strategies aimed at increasing profitability		10 - 249 employees	250 - 499 employees	500 or more employees
	Totally Disagree	1	0	0
	Mainly Disagree	1	1	4
	Undecided	0	0	0
	Mainly Agree	9	5	24
	Totally Agree	15	10	29
	Total No. of Businesses	26	16	57
My organisation is focused on innovation	1 vs 5	50 - 249 employees	250 - 499 employees	500 or more employees
	Totally Disagree	0	0	0
	Mainly Disagree	4	1	7
	Undecided	0	0	3
	Mainly Agree	18	11	31
	Totally Agree	4	4	16
	Total No. of Businesses	26	16	57

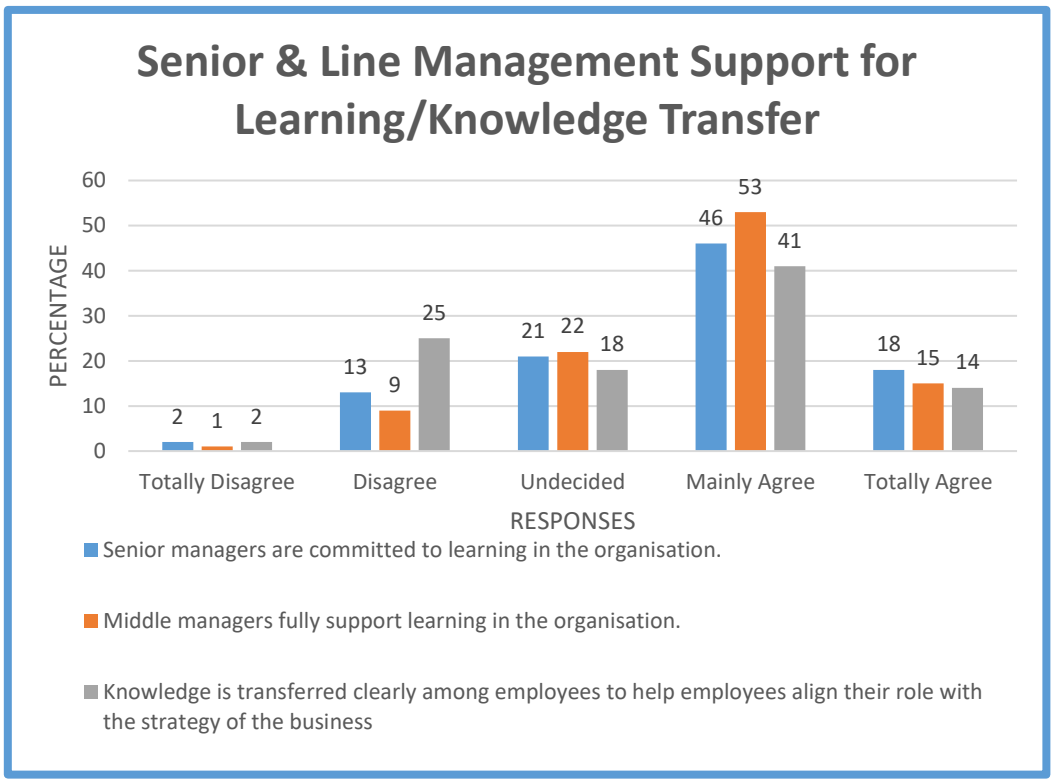
As shown in figure 4.9, initial findings indicate that it is reasonable to assume that profitability is the ultimate aim of competitive strategy and dynamic capabilities which applies to the UK Professional Business Sector sample in this study. Added to this, with a significant majority of online survey respondents agreeing at some level that innovation was a focus then this does also seem to be a feature of dynamic capabilities for the UK Professional Business Sector online survey sample. The ordinal cross tabulated results shown in table 4.2 above indicate how most online survey participants see profitability as the ultimate goal of strategy regardless of size of business. Innovation is also their focus with 85% indicating some agreement. A similar result emerged when cross tabulating business locality with a profitability and innovation focus with only 1 participant from Northern Ireland disagreeing and only 5 from various English locations being undecided.

It can be concluded that profitability underpins their strategy and they agree innovation is important but with slightly less strength of conviction. Despite this, they do see this as a focus and therefore, how far that linked to learning and knowledge transfer to support innovation capability is indicated next.

4.3.3 Online Survey Respondents: Organisational Learning and Knowledge Transfer as Dynamic Capability Features and Processes

Transferring knowledge and a strategic focus on learning are key to innovation capability and link to both skills based dynamic capability debates and to 'sensing, seizing and transforming' features of Dynamic Capability Theory (Teece, 2007)and to bundles debates from Barney (1991). Thus, the study included measures of these aspects in the investigation with the survey addressing three strategic features: commitment at strategic level by senior managers; how that commitment transfers down the line through managers and how far knowledge is transferred to support employee alignment with strategy. Findings indicating how senior management for learning, transferring learning down the line and strategic alignment of employees through knowledge transfer are depicted in figure 4.11 below.

Figure 4.11: Online Survey Respondents: Strategic Alignment with Learning and Transferring Knowledge to Align Employees with Strategy



These findings imply mixed results in terms of senior management commitment to learning in organisations. Whilst a majority of 18% totally agree and a further 46% mainly agree, 2% totally disagree and 13% mainly disagree that senior managers are committed to learning. Interestingly, 21% are undecided which indicates some indecision about senior management commitment to learning within organisations. Similarly, this reflects the finding related to how far this commitment transfers into line management support for learning. 9% of online survey respondents disagree, 2% totally disagree and 22% are undecided that they are committed to giving that support. Thus, support for learning is slightly more evident at senior levels although how this extends down the line is less clear. Furthermore, 45% disagree or are undecided if knowledge transfer aligns employees with strategy.

It is inconclusive from the online survey responses if there is strategic focus on organisational learning and knowledge transfer as strategic processes supporting innovation capability and ultimately, profitability in the UK Professional Business Sector. This is interesting as both these skills based strategic processes are clearly linked to

dynamic capability theory in the literature (Teece, Pisano and Shuen, 1997 and Eisenhardt and Martin, 2000) and it was therefore useful to conduct cross tabulated calculations to investigate the findings further.

4.3.3.1 Online Survey Respondents: Strategic Learning and Knowledge Sharing focus: Cross Tabulated with Size and Business Location of the Organisation

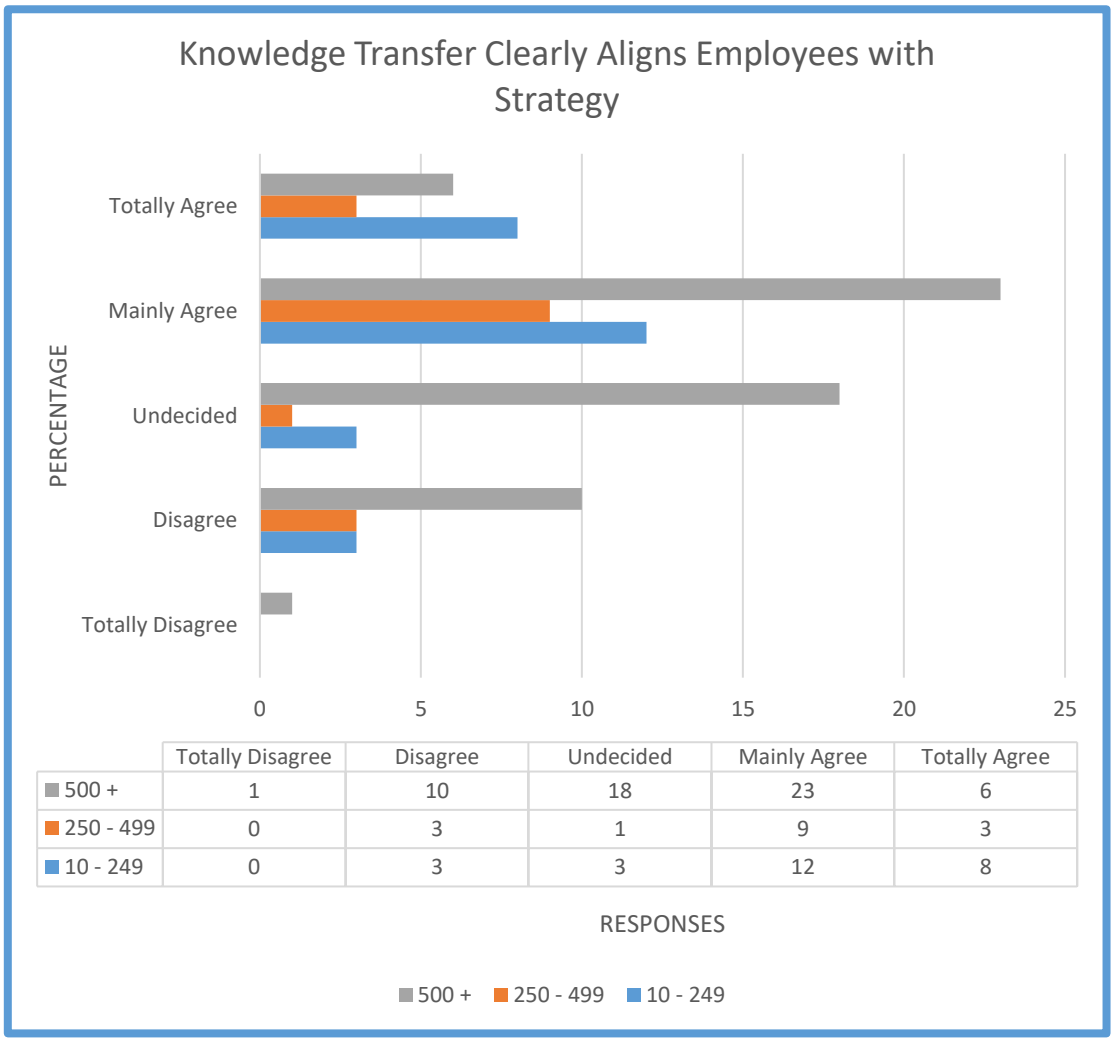
The two strategic learning measures have been cross tabulated with size of organisation results indicated in table 4.3 overleaf with knowledge transfer results depicted in figure 4.12 thereafter.

Table 4.3: Online Survey Respondents: Senior Management Commitment to Learning/ Managerial support for Learning Cross Tabulated with Size of Organisation

Senior managers are committed to learning in the organisation	1 vs 5	How many employees work in your organisation?		
		50 - 249 employees	250 - 499 employees	500 or more employees
	Totally Disagree	1	0	0
	Mainly Disagree	2	3	8
	Undecided	0	2	7
	Mainly Agree	16	9	29
	Totally Agree	7	2	13
	Total No. of Businesses	26	16	57
Middle managers fully support learning in the organisation	1 vs 5	How many employees work in your organisation?		
		10 - 249 employees	250 - 499 employees	500 or more employees
	Totally Disagree	1	0	1
	Mainly Disagree	2	2	9
	Undecided	3	3	14
	Mainly Agree	14	9	24
	Totally Agree	6	2	9
	Total No. of Businesses	26	16	57

Table 4.3 above indicates mixed results in terms of senior management commitment to/ managerial support for learning in respondent organisations. In all sizes of organisations online survey respondents largely agree that senior managers are committed to learning in their organisations with 88% of smaller organisational respondents, 69% of medium sized respondents and 74% of larger organisation respondents agreeing to some degree that senior managers are committed to learning in their organisations. Despite this, a third of respondents in medium sized organisations and over a quarter of respondents in larger organisations were unclear or disagreed that senior managers supported learning. Extending this, 31% in medium sized and 42% from larger organisations were undecided or disagree to some level that managers fully support learning in their organisations. Overall, there is greater support for learning from senior and middle managers in smaller sized organisations whilst conversely, in medium to larger organisations line management support is less transparent.

Figure 4.12: Online Survey Respondents: Knowledge is transferred clearly among employees to help employees align their role with the strategy of the business Cross Tabulated with Size of Business



	Totally Disagree	Disagree	Undecided	Mainly Agree	Totally Agree
500 +	1	10	18	23	6
250 - 499	0	3	1	9	3
10 - 249	0	3	3	12	8

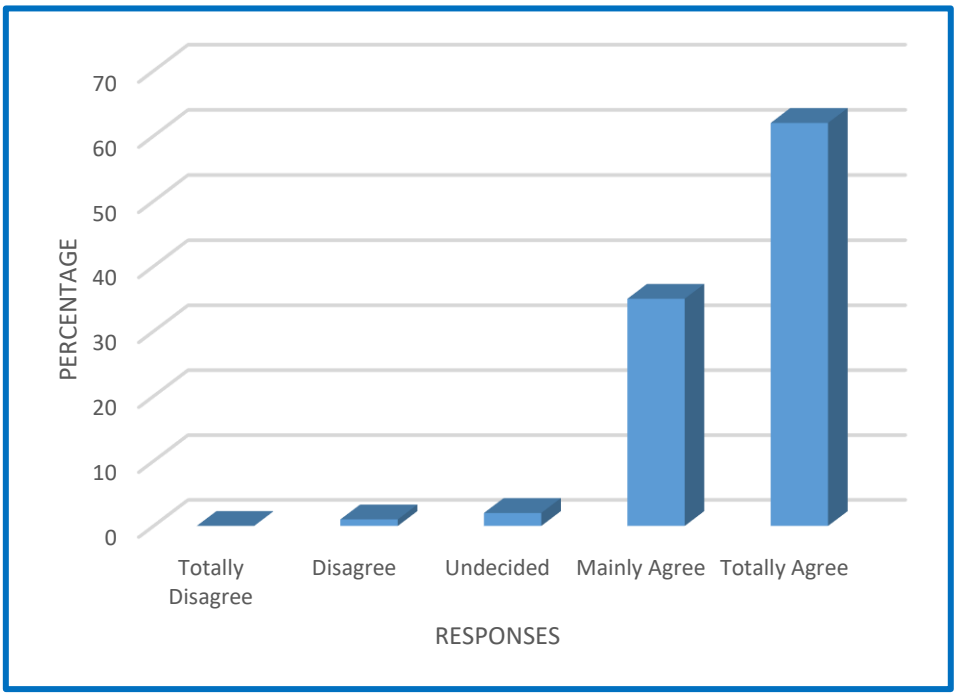
Figure 4.12 above indicates that whilst over 60% of the online survey respondents agreed that knowledge is transferred clearly to align employees with strategy in their organisations, 39% disagreed to some degree or were undecided. This is most predominant in larger organisations whereby 50% were undecided or disagreed.

This section has presented key findings emerging from the quantitatively designed online survey addressing the first theme in the literature which relates to the features of Dynamic Capability Theory. The second research theme in the literature relate to the focus on the importance of digital communication competence in supporting the competitive business strategy, with online survey responses to these thematic measures being presented in what follows.

4.4 Online Survey Results: Theme 2: Digital Communication Competence as an Essential Contemporary Skills Need in the UK Professional Business Sector

This section indicates findings related to the second literature theme which related to evaluating digital communication competence as an important skills need in dynamically capable business environments. Qualitative commentary within this section is labelled numerically as shown in Table 1 in Appendix 4 but with the O – S linked to their number (to denote online survey respondents).

Figure 4.13: Online Survey Respondents: Employee Skills as a Contributor to Business Success



Moving towards linking skills with a focus on digital communication competence, nearly all respondents agreed that employee skills contribute to business success as shown in figure 4.13 above whereby 93% of online survey respondents agreed at some level that skills contributed to their business success. To investigate this further, how far skills contribute to business success was cross tabulated with size of business as shown in table 4.4 overleaf.

Table 4.4: Online Survey Respondents: Employee Skills Contribution to our Business Success Cross Tabulated with Size of Business

	1 vs 5	How many employees work in your organisation?		
Employee Skills as a Contributor to Business Success		10 - 249 employees	250 - 499 employees	500 or more employees
	Totally Disagree	0	0	0
	Mainly Disagree	3	1	2
	Undecided	0	0	1
	Mainly Agree	7	6	22
	Totally Agree	16	9	32
	Totals	26	16	57

Nominal cross tabulated calculations indicate that nearly all respondents consider employee skills to be important to business success. Subsequently, it was important to bring the online survey measures into focus on digital communication competence and thus, online survey respondents were asked to consider how important digital communication competence was to their organisations.

Table 4.5: Online Survey Respondents: The Importance of Employee Skills in Digital Communications Cross Tabulated with Size of Business

How Important is it that employees have skills in digital communications? (These skills include interacting through digital technologies; sharing content through digital technologies; engaging in the organisation through digital technologies; collaborating; recognising digital risk and managing digital identity) is vital to our business	
Responses	Number of Responses
Totally Disagree	0
Mainly Disagree	6
Undecided	1
Mainly Agree	15
Totally Agree	78

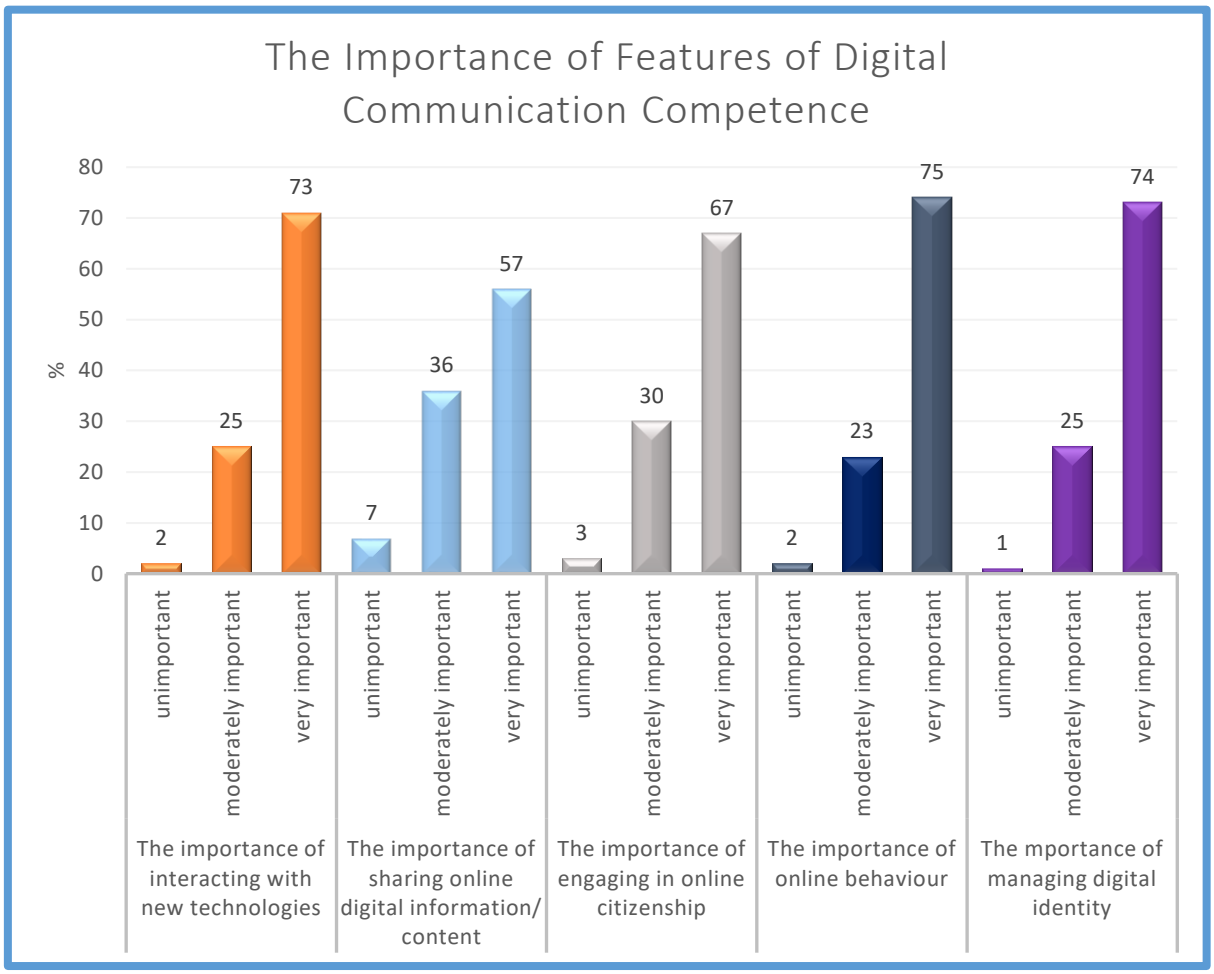
As shown in the table on the previous page, 94% of respondents agreed to some level that employee skills in digital communication were important to their businesses with 79% totally agreeing. This would appear to be conclusive agreement although to

investigate this further this measure was cross tabulated with the size of organisation (number of employees) with results being indicated in Table 4 in Appendix 4. Whilst the majority of online survey respondents consider digital communication skills to be of some level of importance to their organisations, cross tabulated results indicate a marginally different business size perspective. Participants in small and medium sized business (69% and 75% respectively) are slightly more likely to consider these very important than those in large organisations (61%) although (as shown above) the majority in all sizes consider this to be an important digital competence skills set. To examine the importance digital competence in more detail, features and levels of digital communication competence were analysed to support the focus of the study on this aspect of digital skills.

4.4.1 Online Survey Respondents: The Importance of Features of Digital Communication Competence

As stated, digital communication competence features were defined from the framework provided by (Ferrari, 2013). These include: The importance of employee interaction with new technologies; sharing of online content; the importance of digital citizenship and managing digital identity and online identity. Findings are depicted in figure in figure 4.14 overleaf.

Figure 4.14: Online Survey Respondents: The Importance of Features of Digital Communication Competence



Three Likert scale measures were employed to evaluate how important features of digital communicaton competence were to online survey respondents: very important, moderately important and not important at all. Interaction with new technologies is defined as having the ability to use various digital devices and applications to support organisational internal and external communication (Ferrari, 2013). 73% of online survey respondents considered this very important and a further 25% indicated it was moderately important.

Digital communication competence interaction was then applied to sharing of online content which is the subsequent digital communication competency according to Ferrari (2013). Sharing online content involves, having the ability to understand how important sharing digital and online content can support organisational knowledge (Ferrari, 2013).

57% of online survey respondents considered this very important and a further 36% thought it was moderately important. Only 7% thought it unimportant.

Digital communication competence through interaction and online content sharing are then linked to employee citizenship according to Ferrari (2013). Within the online survey, this was further explained as involving the employee becoming part of an engaged workforce through their use of digital communications following pilot study participant feedback. As indicated above, 67% online survey respondents totally agreeing this was important, 30% thought it was moderately important with only 3% considering it unimportant.

Digital communication competence, interaction and online content sharing are all relevant to online safety according to Ferrari (2013). This extends to organisational policies and protocols regarding online behaviour. This was further explained as, involving being able to protect the organisational reputation and to deal with the data that one produces through several accounts and applications. As the chart above indicates, respondents considered this feature of digital communication competence to be important with 75% online survey respondents agreeing this was very important and 23% considering it moderately important. Only a small minority of 2% felt it was not important at all. In terms of managing digital identity as another feature of online behaviour protocols, 74% of online survey respondents considered this very important with a further 25% indicating it was moderately important.

Table 4.6 overleaf shows nominal cross tabulation calculations of size of employee pool with digital communication competence skills. The Interpretation of these results is shown thereafter.

Table 4.6: Online Survey Respondents: Digital Communications Competence Features Cross Tabulated with Size of Business

Importance of:	1 vs 3	How many employees work in your organisation?		
Digital Communication Interaction		10 - 249 employees	250 - 499 employees	500 or more employees
	unimportant	0	0	3
	moderately important	7	3	11
	very important	19	13	44
	Totals	26	16	57
Sharing of Online Content/Information	1 vs 3	How many employees work in your organisation?		
		10 - 249 employees	250 - 499 employees	500 or more employees
	unimportant	0	0	2
	moderately important	10	4	11
	very important	16	12	44
	Totals	26	16	57
Online Citizenship	1 vs 3	How many employees work in your organisation?		
		10 - 249 employees	250 - 499 employees	500 or more employees
	unimportant	3	1	3
	moderately important	9	5	22
	very important	14	10	32
	Totals	26	16	57
Online Safety	1 vs 3	How many employees work in your organisation?		
		10 - 249 employees	250 - 499 employees	500 or more employees
	unimportant	2	0	0
	moderately important	7	2	12
	very important	17	14	45
	Totals	26	16	57
Managing Your Online Identity	1 vs 3	How many employees work in your organisation?		
		10 - 249 employees	250 - 499 employees	500 or more employees
	unimportant	2	0	1
	moderately important	5	3	13
	very important	19	13	43
	Totals	26	16	57

❖ Digital Communication Interactions

Interation with new technologies is defined as having the ability to use various digital devices and applications to support organisational internal and external communication. 72% of online survey respondents considered this very important with a further 26% indicating it was moderately important. When cross tabulated with size of business, medium sized business respondents were slightly more likely to consider this very important (81% compared with 76% in smaller sized organisations, 58% in large employee pool organisations). Overall though and given that most in all locations concurred, the majority of online survey respondents considering this to be important.

❖ Sharing of Online Content/information

Digital communication competence interaction applies to sharing of online content which involves having the ability to understand how important sharing digital and online content can support organisational knowledge (Ferrari, 2013). As shown in figure 4.14 above, 57% of online survey respondents considered this very important and a further 37% thought it was moderately important. In terms of cross tabulated results based on size of organisation, medium sized businesses (75%) and large organisation respondents (77%) considered this very important in comparison with smaller organisations (62%). In summary, larger and medium sized organisational respondents are more likely to find this feature important to some degree although there was no obvious further clarity in terms of business location being evident. Nearly all (93%) across the UK considered this to be important.

❖ Online Citizenship

Digital communication competence through interaction and online content sharing are then linked to employee citizenship according to Ferrari (2013). This happens when they connect the workforce through digital communication channels and activities and was further explained within the survey as the employee becoming part of an engaged workforce through their use of digital communications. Overall, most respondents found this to be important to some degree (92% of smaller organisational respondents, 100% of those in medium sized organisations and 98% of the larger business respondents). 96% of participants across all localities concurred.

❖ Online Safety

These measures further extend to organisational policies and protocols regarding online behaviour. Online safety is further explained as, involving being able to protect the organisational reputation and to deal with the data that one produces through several accounts and applications. As figure 4.14 on the previous page indicates, respondents considered this feature of digital communication competence to be important to some degree with 75% of online survey respondents agreeing this was very important and 24% considering it moderately important. Results from the ordinal, cross tabulation analyses were employed to develop the descriptive analysis shown in figure 4.13. 65% of smaller business respondents consider online safety to be very important compared with 88% of participants in medium sized employee pool businesses and 79% of those in larger organisations. Despite this, all medium and large organisation respondents agree to some level that this is an important area of digital communication competence with smaller organisational respondents indicating only slightly less agreement. When cross tabulating business location the overall result was that, again, a significant majority (86%) of respondents across all localities concurred.

❖ Managing Digital Identity

This area of digital competence is linked to online safety and to businesses protocols for Ferrari (2013). 73% of smaller business respondents feel this is very important compared with 88% of participants in medium sized organisations and 79% in larger organisations. Overall, 97% of the online survey sample consider this to be important to some degree. Across all business locations, 96% of respondents concurred.

Following presentation of key results emerging from the analysis of key skills-based features included in the digital communication competency framework, the study focused on analysing which levels of this competence applied to roles, groups and employees involved in the online survey sample.

4.4.2 Online Survey Respondents: Levels of Digital Communication Competency

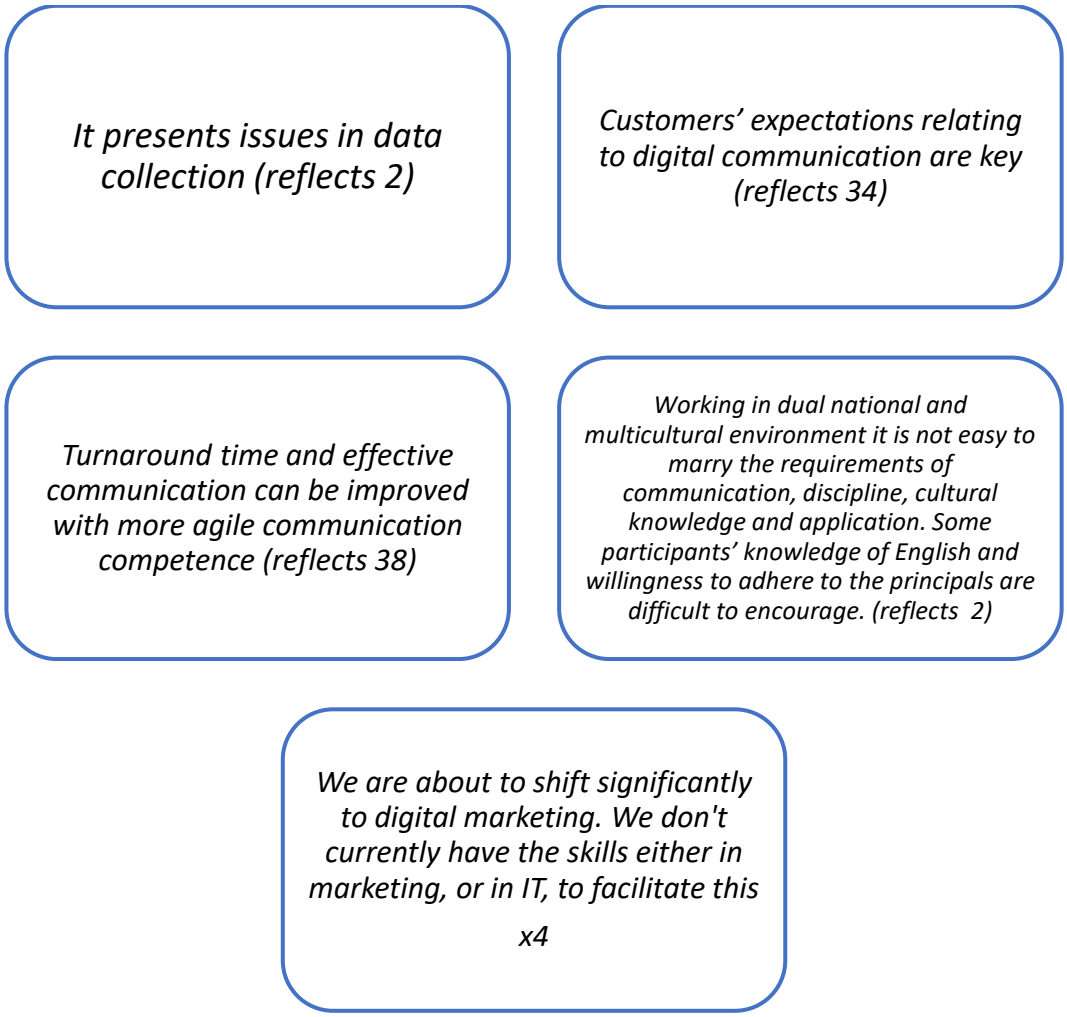
Given that the majority of online survey respondents indicated that features of digital communication competence are important to some degree to their organisations, the

survey then investigated which levels of digital communication competence were appropriate to the workforce as a whole and to employee roles, groups and employees defined in chapter 2 (Section 2.4) and chapter 3 (section 3.6). Ferrari (2013) extended the digital communication competence framework to apply differing performance level descriptors explained in section 2.5.3 of the literature review and also featured in Table 2.7 in the literature chapter and this included basic, intermediate and foundation level descriptors.

4.4.2.1 Online Survey Respondents: Considering Basic Level Digital Communication Competence

70% of respondents were happy that staff have at least basic level digital communication competence. Building on this: 15% of respondents reported that this basic level deficit is only required in some departments; a smaller proportion of respondents (12%) thought this is a problem in some departments and 10% thought this is problematic for some staff members. Overall, basic levels of the competence are evident in most workforces. Figure 4.15 overleaf summarises of the reasons why survey respondents considered this basic level of competence to be problematic with some quotes reflecting other perspectives.

Figure 4.15: Online Survey Respondents: The reasons why the lack of basic communication competence is problematic.



Alongside marketing functions, online survey respondents indicated that the lack of basic digital communication competence was an issue in finance, sales, service, production and legal, operations, project management, shared services and non-direct customer facing departments. Lack of basic communication competence was also considered problematic in terms of roles because of limited access for certain groups who are not required to use digital communication features as part of their day to day role, yet the organisation relies on this as a method of communication. Alongside usage in their role, older generational attitudes to using digital communication tools featured in online survey responses. These included:

- *"Within the older generation there are many who do not have the skills - and who don't want to learn the skills''* (Participant 64-OS: Manager).

- "(There is a) *generational gap, older workers are not interested in technology"* (Participant 10-OS: Director).
- We have, "*a significant proportion of older staff members who are nearing retirement, not digitally engaged and resistant to the digitisation of working practices"* (Participant 44-OS: HR Manager).

Lack of skills/motivation to use those skills was also cited:

- "*While email and mobile devices are not a problem there are pockets of reluctance to use 'newer' tools such as Skype; some employees see it as a distraction or are happy to continue life as a self-declared 'technophobe' without a wish to learn new technologies* (Participant 73- OS: Partner).
- *''Many are not au fait with Skype and use of online portals that already exist in our system for communication. Therefore, there is a fear of offering these and instead they default to email or for quite a few, post''* (Participant 91-OS: Senior HR Director: Productivity and Operations Projects & Change Management).
- "*long standing employees may not have or resist developing these skills*" (Participant 43-OS: HR Manager).
- "*some members of staff show a lack of understanding of the use of these technologies*" (Participant 86 - OS: Responsible Business Manager).

Lack of organisational encouragement to use those skills in non-digitally focused organisations was shown in what follows:

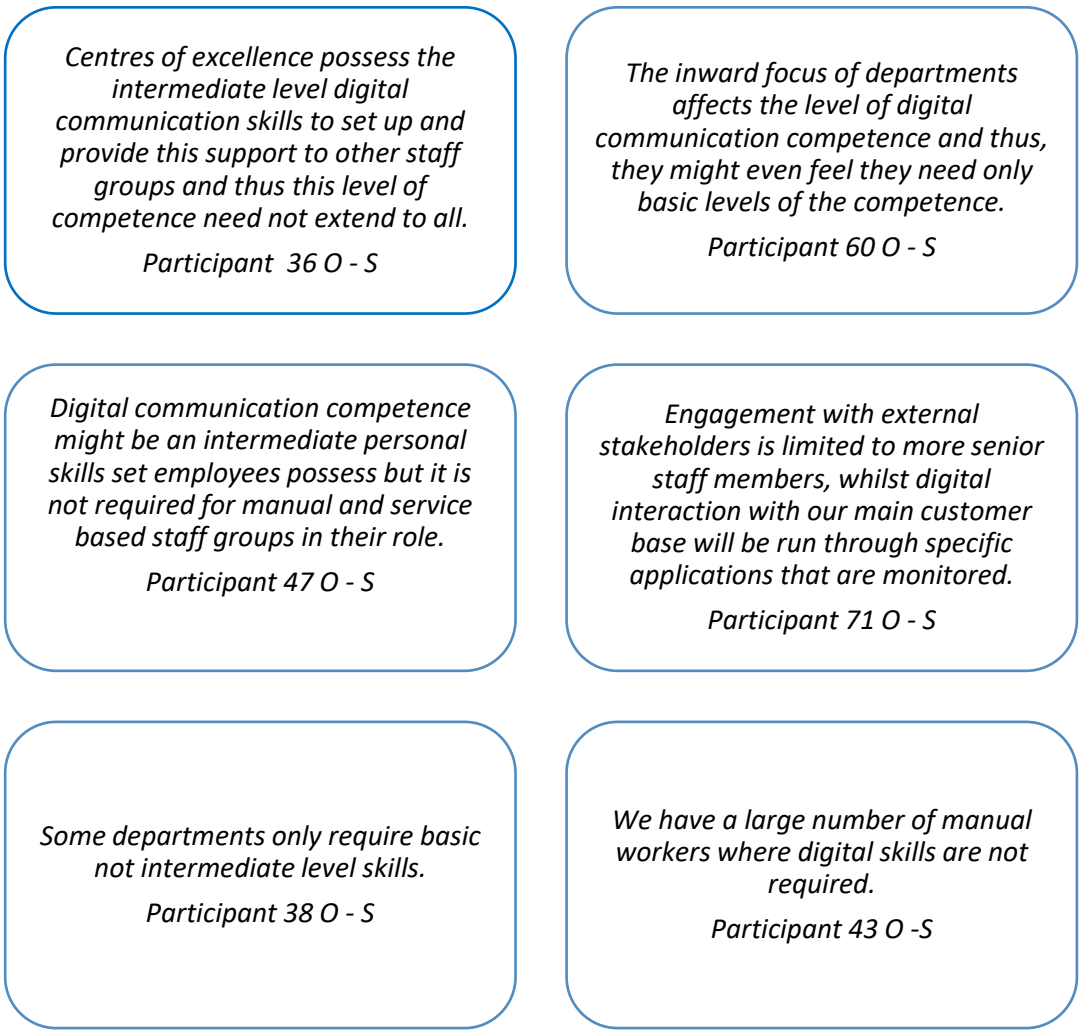
- *"They are not shown or don't have the tools in my old-style paper based meeting orientated organisation"* (Participant 38 – OS: HR Manager).

In summary, a reasonable majority of respondents (70%) consider that staff have a basic level of digital communication competence, although a small number of respondents indicated which departments this is problematic to, how that might be problematic and which employees this is an issue for.

4.4.2.2 *Online Survey Respondents: Considering Intermediate Level Digital Communication Competence*

In terms of intermediate digital communication competence, a reasonable majority (69%) of online survey respondents report that employees have at least intermediate levels skills of this nature. About a fifth of online survey respondents report though that these intermediate level skills are only required in some departments although 23% think this is a problem in some departments and 24% think this is problematic for some staff members. Thus, the need for intermediate level digital communication competence appears to be a slightly greater issue for the online survey respondents. Figure 4.16 below indicates why 21% of respondents felt that intermediate levels of competence are only needed in some departments.

Figure 4.16: Online Survey Respondents: The reasons why intermediate level digital communication is only needed in some departments/ functions.



Contrastingly, a slightly greater number of 24% of survey respondents felt it was important to develop this competence with some aligning this with their business focus. Some explained that when departments operate in different time zones then intermediate digital communication competence is vital. They also indicated whilst intermediate level digital communication competence is their current competence level, they aim to progress to more advanced levels. Lack of employee awareness and understanding of how intermediate digital communication skills can improve individual and organisational effectiveness was cited as problematic with Participant 12 O-S: a director explaining that,

> "*some departments outside the innovation functional areas lack understanding of online participation in forums and other comms methods such as Slack and other digital technologies regarding file sharing and Microsoft Teams."*

The organisational role in supporting the development of intermediate digital communication skills was highlighted by survey respondents as one (Participant 61- OS) explained that "*many haven't been trained or briefed about this though.*" Expanding on this, participant 45 – OS, a HR manager highlighted how,

> "*Only our marketing team are fully adept here. There are individuals within teams who have these skills but not the whole team. We need to expand the knowledge across all other key business functions - for instance sales*."

Additionally, the personal levels of skill were emphasised by 13% of online survey respondents with participant 3 O-S, a Business Development Director proposing that,

> *"This isn't necessarily a departmental thing but* (they) *can vary from individual to individual in the same department, this may partially be driven by mixed age ranges but can there are also other departments that have a business need to employ higher levels of digital communication, for example customers and partners that are on different time zones.*"

Considering which employees lacked this level of skill, another online survey respondent contributed a clear outcome of the survey and argued this could be attributable to age related skills abilities. Participant 38 O-S, a head of HR added that,

"*We have an ageing workforce and a wide spectrum of roles, some of which need very limited skills*. "

Participant 50 O-S, a HR director concluded that according to the definition some employees lacked intermediate digital communication competence arguing that they were not ''*digitally conversant*,'' ''*could not share content with various audiences*'' and they are ''*unable to support other employees with their own digital knowledge*''. They added that lower grade service staff and back office staff needed to develop digital communication competence to assist in supporting employee brand and supporting internal communications although one acknowledged that these grades, "*tend to be less active on digital platforms*."

The majority of online survey respondents are happy that their organisation has at least basic to intermediate level digital communication skills. Despite this, a slightly higher number of participants feel that the lack of intermediate digital communication skills is problematic to departments and in some roles. To develop this debate, online survey respondents also commented on advanced level digital communication skills and with these online survey respondent views being depicted in what follows.

4.4.2.3 Online Survey Respondents: Considering Advanced Level Digital Communication Competence

Only 19% of respondents felt advanced level digital communication competence was evident in most departments whilst 38% added that this was only evident in some departments and a further 47% suggested this was only needed by certain departments and in certain job roles. The general view is that that some departments do not need to have this focus because they do not access the tools on a day to day basis. Conversely, the external focus of some roles result in the need for advanced level digital communication skills with participant 65 O-S, a manager indicating that,

"*marketing, sales and investment employees need these skills to interact outside the organisation*. "

When asked why advanced level skills are only required by some departments, online survey respondents emphasised the organisational role with a participant 8 O-S, a chief operating officer stating that,

> *"our use of digital communications is currently limited - the skills are in a specific team, or teams, and they 'lead' others in conducting digital activity''*.

Others built on this aspect of the debate and indicated that this level of expertise requires investment and training which is provided to those where their role specifies this level of capability and/or where there is an individual drive to learn. In these cases, the requirement is that this expertise supports other areas where they have different technical capabilities (i.e. sales, commercial, HR etc.). Concurring, a participant 66 O-S , a managing director explained how,

> *''We train 'go to' people with advanced training in the legalities of handling/transferring technologies*."

Some online survey respondents argued that advanced level digital communication activities should be confined specifically trained staff arguing that reputational damage is a big consideration. Despite this, others argued that: HR, marketing, finance, sales, business support functions, research and development and quality managers should have or work towards developing these skills to be able to support other functional areas in their businesses. Conversely, several felt advanced level digital communication competencies were only applicable to roles based in technology and communications teams including: corporate communications; ICT & digital teams; technical support; online content authors/content creation; software developers and software engineering.

With features and levels of digital communications being shown through the quantitative online survey results and qualitative comments added to the survey, the chapter now depicts findings emerging from the qualitative semi structured research strand relating to both themes in the literature.

4.5 Semi Structured Interview Participant Findings: Literature Theme 1: Dynamic Capability Theory Features Applied to the UK Professional Business Sector

At this point, qualitative semi structured interview findings are presented and arranged in line with the research literature themes with the initial debate centring on the dynamic capability measures defined in section 2.8 of the literature chapter. These measures are presented in table 4.7 which features overleaf.

Table 4.7 : A Summary of the 'Key Aggregate Constructs' and 'Dimension Related Measures' (Barreto, 2010) Extracted from the Review of the Literature as Measures: Semi Structured Interviews

THEME 1 - Dynamic Capabilities		
Key aggregate measures extracted from the literature. For Barreto (2010) these are key features of the debate on dynamic capabilities whilst dimension related measures are those drawn from wide dynamic capability debates		
Measures	*Discussed In*	*Question Asked*
Change	Section 2.3.2	What key strategic changes are you facing in the organisation?
A focus on innovation	Section 2.3.5	In what way are you addressing innovation? In what ways does digitalisation impact your organisation currently?
A focus on profitability		Can you tell me how you focus on profitability please?
Dimension related dynamic capability measures extracted from the literature.		
Restructure as a response to change	Section 2.3.2	How far does restructure feature in your current plans and activities?
Product/Service and Market Expansion	Section 2.3.5	In what ways are you focusing on expanding business lines and services? Are you expanding into markets within the UK or Internationally?
Senior manager support for learning Line manager support for learning	Sections 2.3.6 & 7	How do you support learning throughout your organisation? How do managers support employee learning?
Knowledge transfer strategic alignment	Section 2.3.6	What strategies and processes do you have in place to support knowledge transfer in your company?
THEME 2 - The Importance of Digital Communication Competence in the Workplace		
Dimension related digital communication capability measures extracted from the literature.		
Measures	*Discussed In*	*Questions Asked*

The Importance of digital skills and digital communication competence	Throughout section 2.5	How important are digital skills in your workplace? How important is digital communication competence as part of that digital skills set?
Digital communication features	Section 2.6.3	How far are the following in terms of importance to your business? ❖ Sharing of Online Content/Information ❖ Digital Communication Interaction and Online Citizenship ❖ Online Safety and Managing Online Identity?
Digital communication competence levels		Generalising this to the whole organisation, at what level would you say your employees are when communicating digitally?
The importance of digital communication competence to departments, in jobs and for individuals	Sections 2.5.2 to 2.5.4	Are any job families/departments/job roles/employees in your organisation have only basic digital skills when communicating digitally? Does that pose any problems to your organisation? Which job families/departments/job roles/employees in your organisation need advanced level digital communication competencies?

o provide an overview of the participants' background, biographical profiles of semi structured interview participants are depicted in Table 5 in Appendix 4 illustrating their roles, the length of time they have been in that role, the nature of their organisation, the size of the organisation and the number of years the business has been in operation.

4.5.1 Semi Structured Interview Participants

24 semi structured interviews have been conducted and transcribed to showcase qualitative results. Figures 4, 5 and 6 in Appendix 2 indicate examples of transcripts representing small, medium and large business interviewees. Additionally, Table 5 in Appendix 4 highlights the profile of the semi structured interview participants who were drawn from small, medium sized (SME) and large businesses which represent a UK wide sample. The table also indicates how senior and middle managers were drawn from all sizes of UK Professional Business Sector organisations with 12 large and 12 SME (6 medium and 6 small) managers participating and representing most sub sectors within the UK Professional Business Sector classification shown in figure 3.8 within section 3.7.

This also indicates their home base and organisational localities of this UK national sample.

Dynamic capability thematic measures extracted from the literature are summarised in table 4.7 at the start of this sub section, table 2.9 and figure 2.7 in the literature chapter and included: organisational change responses; restructure focus and expansion in terms of business lines and services alongside UK/International expansion; a focus on profitability and innovation; strategic learning and a focus on knowledge transfer. Depicted below are the key findings emerging from the qualitatively designed semi structured interviews with the headings indicating how that sub section addresses these measures of dynamic capabilities.

4.5.2 How Far Do Change and Restructure Impact the UK Professional Business Sector?

Semi structured interviewees were asked to consider how change was impacting their organisations and if this resulted in restructure.

4.5.2.1 Change and Restructuring in Larger Organisations

In terms of larger organisations perceptions concerning features of key strategic change, these were interlinked with other features of dynamic capability debates centred on creating competitive advantage including profitability and changing business models. Debates concerning the impact of change largely related to:

- Growth, efficiency, scalability and flexibility in the global business environment.
- Restructure as a feature of change.
- The impact of technological advancements.

Adaptability to change was a common strategic consideration for all the larger organisation interview participants. The Global Leader for Talent Services (participant 2) in a large management consultancy business encapsulated the key features of how change impacts his sector by offering a strategic insight and explaining how his organisation focused on global alignment through systems, processes and behaviours. He said this was achieved through,

'*Huge efficiency programmes to reduce operational costs and a focus on automation - removing manual support function through digital tools."*

Global Leader for Talent Services: Large Management Consultancy (participant 2)

The Group Sector Managing Director (Participant 5: an international recruitment business) discussed the challenges of remaining competitive when employees are a major cost to the business. He also explained how his business was focusing on "*scalability and flexibility" to* create competitive advantage and aligning the workforce with that strategy proved difficult given that employees need a firm geographical base. This continually resulted in restructure with another 8 out of 11 interviewees also indicating that this was a feature linked to change in their organisations. For example, Participant 7, Head of Talent Acquisition a large global loyalty benefits business indicated that the organisation was making C-suite changes to streamline reporting lines and thus supporting efficiency programmes ('C-suite gets its name from the titles of top senior staffers, which tend to start with the letter C, for "chief," as in chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO), and chief information officer' according to the Cambridge Online Dictionary, 2020). Added to this, participant 8, a Senior Director of HR Projects and Change Management in a global company, explained how they used what they called an HRR (HR Review) to continually consider restructure as a feature of their succession planning changes which centred on meeting internal/external staffing needs. With their focus on scalability through a refreshed global business model, participant 8, the HR Director for UK & Ireland in a financial services organisation, explained how the team based in Ireland were facing redundancy or redeployment as the location of this function was negatively impacting on operational effectiveness and perceived flexibility of service provision.

Building on this, change involving growth, scalability and flexibility were key for all the larger organisations who had a UK base which extended globally. For example, participant 6, the Global Head of Talent and Recruitment in a global engineering services organisation, explained how their strategic focus had been on removing layers of 'complexity.' This involved being,

'*less geographically focused and more sector focused…based around the products we create rather than being focused on countries*."

Participant 11, the Senior Director of HR Projects and Change Management in a global financial services organisation reiterated the focus on scalability, arguing that their strategy involved,

> *"dramatic growth, so global revenues at the moment are around £21 billion and the vision is by 2030 the revenues will be £50 billion so more than double the growth."*
>
> Senior Director of HR Projects and Change Management: Global Financial Services (participant 11)

Interviewees in larger, global organisations also explained how they were achieving scalability and flexibility and linked their debate to the challenges of driving global change which included: achieving commitment and engagement alongside reconfiguring internal processes and systems. Global scalability for participant 8, the HR Director for the UK & Ireland, involved changing their business model from a multi domestic form into what was what she defined as a global model. Despite this, and because communication and engagement were not strategically in focus, managers in subsidiaries outside of the head office centre were left ''*bewildered*.'' Participant 11, the Senior Director of HR Projects and Change Management added that larger global organisations were sometimes slower in their uptake of systems and processes which could support their international operations. She said that their systems were '*clunky*' and included: 'Connect' (a content based document platform for employees) and an online portal called 'Company name' University (a learning & development portal) but that these were separate platform systems which required reconfiguration and alignment for them to be employed more successfully.

Despite the slower adaptation to change in these organisations this was supported using technology and this was reiterated in all the interviews with participants based in large organisations. For example, participant 1, the Client Service Director EMEA Region, explained how their strategic change focused on extension of a global platform employing AI technology both internally and as an external product line extension. In this

way, AI was being used to both capture and share digital knowledge. Participant 5, the Group Sector Managing Director of an international recruitment business, added that his organisation focused on how to leverage artificial technology with the challenge involving maintaining the same level of experience, or an enhanced level of experience, for internal and external stakeholders. For participant 3, a Global People and Culture Director (in a large financial services organisation), the challenges of transforming operations from multi domestic to global forms emphasised the importance of having a digital focus. He argued that the digital landscape is both internally and externally consuming and that they were focusing on improving their technical depth and processes in order to create a 'digital mind-set'. This involved placing a strategic priority on digitalising employees and aligning their culture with that focus. This digital focus was also evident in debates from interviewees based in medium and smaller organisations as shown next.

4.5.2.2 Change and Restructuring in Medium and Small Sized Businesses

Change significantly impacted perspectives of interviewees based within medium and smaller organisations although how that linked to their strategic focus differed depending on how traditional their professional business function was.

In some organisations, employing technology to respond to change was clear for all medium sized semi structure interviewees aside from those (HR) managers based in legal services. With a business and digital transformation outsourcing focus, participant 17, the Head of HR in a medium sized outsourcing services business said they see innovation as key with technological advancement being a central feature of their work. Some of their current work involved supporting contact centres with AI solutions incorporating chat boxes to improve efficiency. Reflecting this, participant 13, a Chief Executive Officer in IT recruitment, indicated how his organisation had gone through significant change in the last three years whereby the focus of the business had changed alongside the financial model. This centred on technological innovation and included the organisation identifying they had the capability of working in an emerging area of the market called smart building technology and focusing their energy on that.

Offering a more traditional but also macro external perspective on strategic change, participant 18, the Head of People in a medium sized legal organisation discussed the

implications of changes in the law relating to personal injury and medical negligence. The implication of introducing fixed costs meant that his organisation revisited their business model to realign their workforce with different work approaches. Added to this and taking a rather more operational focus, participant 16, the Head of HR in a legal services organisation linked change features with restructure with that organisation focusing on centralising administrative processes to allow legal professionals to pay attention to specific clients.

Building on this, the link between change and restructure was very strategic for some. For example, participant 13, the Chief Executive Officer of an IT recruitment consultancy explained how he initially employed this process to gain tax advantage within that company but the latter focus on restructure was ''*all about building.''* Interestingly, the focus here on '*building*' of the employee base was on employee skills with resources being consolidated into some of the higher skilled areas and reduced in less skilled functions. Acknowledging that digital skills remained a current priority within that organisation, participant 14, the Chief Operating Officer within the same company considered that more recent restructure was more aligned with performance of business units and the changing profile of leaders within the organisation alongside a shifting focus on the direction the business was centred on. Thus, change impact in medium sized businesses emerged from macro external pressures but also from an organisational focus on strategic realignment of systems and processes to sustain competitive advantage.

This organisational focus was indeed reflected to a degree with all interviewees from smaller organisations who thought change was a daily challenge but also had strategic focus. Reflecting this, participant 22, the Managing Director of a recruitment consultancy indicated that change involved,

> "*Push and shove of external and internal forces! From Brexit and the impact on temporary labour…wages, on skills to changing legal challenges like IR35 added to changing client needs, changing motivations of temps we source…*(it is).. *constant and battering*. "
>
> Participant 22, Managing Director: Small Recruitment Consultancy

Participant 20, a Financial Services Management Consultant concurred adding that uncertainty with the economy was driving their change focus in his organisation. Clients were increasingly requesting advice on how to build scale and create significance in their businesses in response to that change.

Reflecting this macro perspective, strategic visioning was clear for some small business interviewees. Participant 19, the Chief Financial and Operating Officer in a small management consultancy linked that to service provision. He explained how their business was involved in NHS digital transformation and hence, the challenges in their opportunities emerged from the Government's stated agenda to extensively digitise the NHS which he argued was ''*probably attempted too soon*.'' Thus, for his organisation, their work centred on moving the NHS from a traditional paper based sector into one operating from a digital platform. This involved constant use of contractors to enable digital advancement of processes to be crucial in product and service delivery.

Added to this, all the interviewees within smaller UK Professional Businesses saw digitalisation of operations as key. Participant 24, a Senior Consultant in a HR and business solution consultancy services indicated how her career now centred on understanding clients' needs in terms of HR analytics and learning solutions centred on digital platforms. Building on this, participant 23 the Owner and Chief Energy Officer of a HR consultancy embraced change in building his consultancy team and in developing his service provision. Creating an innovative organisational design to support this, he launched this to help support the expansion of his service offering. With modification and reconfiguration of his service offering, he linked his team of consultants to adaptability in relation to change and to business expansion. With business expansion being key in dynamic capability debates in terms of 'sensing and seizing' opportunities, this was investigated in interview debates featured in what follows.

4.5.3 In What Way Are Interviewees from the UK Professional Business Sector focusing on Expansion of Business Lines and Services and UK/ International Business Expansion?

In terms of understanding how far interview participants were 'sensing and seizing' opportunities during change the researcher asked them to consider how they were

expanding business lines and services and if this expansion included extending their business into UK and/or national markets.

4.5.3.1 Expansion of Business Lines and Services and UK/ International Business Expansion in Larger Organisations

Interviewees from larger organisations brought forward three key elements when discussing how they were extending business lines and services and their focus on UK/International expansion:

- Diversification in product lines and services to support growth.
- The role of technology and a 'digital mind-set.'
- Extension of international markets and the inherent challenges that presented.

Aligned with the views of all the larger organisation interviewees involved in the sample, participant 2, a Global Leader for Talent Initiatives explained how expansion in the international context had forced constant change to diversify and expand business lines and services. He said that profitability and growth was their main focus and, "*the big thing is diversifying as much as possible*." For most large organisation interviewees, the UK market offered no further opportunity for growth and expansion with the focus instead being global. Reflecting this, participant 11, the Senior Director of HR Projects and Change Management explained how her organisation had a dual focus with the first centring on acquisition to develop their international portfolio and centring activity on Asia and Eastern Asia. Their other focus related to standardisation, modification and adaptation of internal processes and systems using technology to support that. Similarly, participant 1, Client Service Director EMEA Region, explained how global expansion a feature of their business strategy for many years and their focus was on expansion of services and on standardisation with technological alignment of platforms being key in that.

With a dual UK and global market focus, participant 5, the Group Sector Managing Director in a large recruitment organisation explained how their business development involved a rather less complicated and more tactical approach. Rather than targeting large acquisitions, his organisation centred on working with customers during smaller sale cycles and on building relationships with them. Thus, they focused work on smaller units or functions within both UK and global organisations to create growth. As shown in the

previous section, participant 3, a Global People and Culture Director (in a large financial services organisation) discussed enterprise in terms of the digital landscape and explained that not only applied internally but to the external market and in relation to customer experience. For him, an enabler for that internally,

> "*is to create a digital mind-set which is why we're digitising a lot of our people and culture systems. We need to work from the inside out*."
>
> Participant 3: Global People and Culture Director

For all the participants, this diversification of product lines and services presented several challenges. For example, participant 11, the Senior Director of HR Projects and Change Management, argued this involved growing the global headcount, "*to around 125,000 in the next 8-9 years."* Participant 4, Group Head of Resourcing a global financial organisation explained how the biggest challenge involved cultural alignment across international locations with his organisation creating a strategically defined culture programme to address that. Participant 8, the Director of HR for the UK and Ireland added that host country national culture impacted leadership approaches which conflicted with, and impacted on, engagement in the business based in other nations. Additionally, participant 7, the Head of Talent Acquisition (in a large financial services organisation) discussed the challenges of working with clients based in various international locations who acted autonomously and contingently even when making claims they represented a global organisation. Concurring, participant 6, a Global Head of Talent and Recruitment argued his organisation was not a global organisation but rather an enterprise extending internationally. He explained then that the focus was not on working throughout the globe but on extending service and product line innovations to be enterprising.

With diversification of mainly service provision within a largely global market environment, this presents a number of challenges for interviewees representing larger organisations. At this point, it is useful to consider how business expansion applied to medium and smaller sized organisational participants and how they responded to that challenge.

4.5.3.2 Expansion of Business Lines and Services and UK/ International Business Expansion in Medium and Smaller Organisations

Medium sized interviews offered more varied responses when considering expansion of service/ product lines and extension into UK/International markets. Reflecting this, and in terms of expansion of service/business lines, participant 13, a Chief Executive Officer explained how product and service line expansion included significant expenditure in two key areas. The majority involved software development, creating in-building cellular enhancement system and also enhancing the consultancy area of systems design. Building on this, participant 14, a Chief Operations Officer explained how expansion of service lines was key with recruitment consultants continually focusing on business development. That involved using digital systems to source talent for existing customers with that expansion mainly centring on the UK but also extending to the US.

Added to this, participant 17, the Head of HR in a business and digital transformation services explained how they were continually expanding both service and product provision into both UK based and national markets. Service line expansion involved the management consultancy component of their business whereby they advise on change, mergers and acquisitions, business process remodelling and restructuring legalities. Their managed services provision involves them developing and selling their own digital products including learning platforms and analytics packages. Similarly, participant 16, the Head of HR in a medium sized legal company, also explained how they concentrated on business development which involved bundling services to enable services to be more transparent to clients in order for them to purchase more of their services. In terms of UK/International expansion, they centred on the UK market with the greatest challenge for them being attracting legal talent. They attribute that issue to their geographical location within the North West of England which serves to create complexities when recruiting graduates who are attracted to larger legal companies based in Manchester and London. For participant 18, the Director of People in the other medium sized legal services business participating in the interviews, the consideration for them is how far to take their growth with their activity being solely centred on the UK and even further focused on the north of the country. Despite this, participant 15, the Head of HR in the medium sized scientific research business who work with over 90 blue chip clients said this was driving them to expand into Europe. The HR Director in this business explained how expansion into a European market had presented some challenges including: legal

issues applied to recruiting talent; sourcing digital talent in the competitive EU environment and adapting to European working environments. Thus, varied responses are evident regarding geographical expansion for medium sized businesses although service/product line expansion was clearly in focus. At this point, it is sensible to examine how far this linked to the smaller SME business context.

Expansion of business lines and services was clearly a strategic focus for semi structured interviewees based within smaller businesses although UK expansion was slightly more in focus for some of these participants. For example, participant 19, the Chief Financial and Operating Officer in a management consultancy organisation said their focus was on digitalisation of processes and systems to support the NHS. This involved the external recruitment of US technology specialists to design unique health monitoring equipment which could be self-administered. In his organisation, their consultancy services had centred around two UK localities, although this had been extended to a wider UK context to help them build on their profitability.

Participant 22, a Managing Director of a small recruitment services company, had established that business within the last five years after leaving a medium sized recruitment organisation where he had been a Managing Director. His growth had been centred on one UK base although he worked nationally and with businesses to create wider business opportunities. His business to business (B-2-B) focus had enabled him to expand on this client base and required that he extended his staff base. Despite this, he had no plans to extend internationally because of his personal circumstances. His strategy was to grow the business in order for that to be sold as an acquisition when he retired.

Conversely, participant 23, the Owner and Chief Energy Officer in the small HR consultancy company had focused his own talent search for consultants on a global scale. As such, he had recruited consultants from Australia, Mexico, Italy, Romania and the UK to support his business expansion. His service delivery extended into and beyond Europe and had been modified and adapted to develop his service line offering to create profitability which was aligned with innovation. This focus on innovation links to the dynamic capability debates and thus, this is considered further in what follows.

4.5.4 In What Way Are Interviewees from the UK Professional Business Sector focusing on Profitability and innovation?

Market expansion through development of products/ services and/or geographical diversification is linked to how organisations create profitability. Profitability is the clear outcome of how innovative the organisation is and how it indicates it has innovation capability. With these dynamic capability features being widely linked in academic debates it is pertinent to extend this debate to include contributions from UK Professional Business Sector interviewee participants involved in this study.

4.5.4.1 Profitability and Innovation in Larger Organisations

From a larger organisational interviewee perspective, profitability linked to other dynamic capability features of business expansion, innovation, dynamism and constant change and related to:

- Increasing profitability through market awareness.
- The role of people and modification of systems and processes in achieving profitability.
- Linking innovation with productivity to enable profitability through technological innovations.

In terms of increasing profitability this linked to extension of product service lines for participant 4, the Group Head of Resourcing in a financial management organisation, who indicated that his organisation recognised that from,

> *''a marketing perspective that innovation was requiring that we had to keep pace with the market and offer products and services lines for our customers which we hadn't been doing so."*
>
> Participant 4: Group Head of Resourcing: global loyalty and benefits organisation

Participant 12, the Talent Director in a large management consultancy, explained how to remain competitive in the market their focus was on: upskilling and reskilling their engineers; transform parts of their operations using robots and building innovative

technical maintenance skills to meet client needs. Other features of technological innovation also became clear in all interviews and are summarised in the table below.

Table 4.8: Semi- Structured Interviews: Technological Innovations Employed in Larger Organisations

Interviewee P denotes participant	Technological Innovations
P. 3: Global People and Culture Director	Innovations in chatbot and automation. "*In the UK alone the HR department is operating in 24 countries and get about 500 requests a month coming through the HR inbox – developing a chatbot will 'ship out' all of that activity. It means people will get an automatic response wherever they are around the world rather than having to wait a day and it also means globally 2/3000 requests will be stripped out which come in in a month*."
P. 1: Client Service Director EMEA Region	Chat bots to streamline candidate experience. *''AI to upsell service lines to clients''*
P. 11: HR Director for UK & Ireland	Significant investment in R&D and driving the use of data analytics and big data.
P: 8: Senior Director of HR Projects and Change Management.	R & D & new product development: *''Omnia diagnostics or gene therapy''*
P. 5: Group Sector Managing Director	*"chat bot and artificial intelligence. In fact, we've just bought a business 'Karen HR' which is an AI bot business in Canada and we've bought that with a view to integrating it into our customer operations to give to candidates more of an experience."*

As the table indicates, interviewees in larger organisations were innovating using chatbots, AI, automation and enhanced service line development and additionally, the importance of research and development (R & D) also featured in nearly half of the larger organisation interview responses. Despite this, the Client Service Director EMEA Region in a management consultancy business (participant 1) indicated how R & D in his organisation had typically been a collaboration between marketing, business leaders running accounts and technology teams, although he considered it would be more effective if it had a dedicated head of service.

Interviewees indicated other issues impacting on profitability and innovation for larger organisations. Participant 8, the Senior Director of HR Projects and Change Management acknowledged that,

> *"one of the downsides from a global corporation from a HR point of view it may be less innovative than say a small company that's got more flexibility and agility and able to be a bit wackier."*
>
> The Senior Director of HR Projects and Change Management: Scientific Development Organisation (participant 8).

Participant 11, the Group HR Director for the UK and Ireland based within a global financial services organisation concurred adding that scalability of service line offering proved challenging. She argued the size and success of the business lends itself to large service-based support rather than to tailored provision for smaller organisation. She agreed that this lack of accessibility, flexibility and agility was an issue for larger, global organisations. Concurring, the Group Head of Resourcing within a global financial management organisation discussed how his business needed to simplify and streamline itself into what could be more like an accessible organisation. This would support the infrastructure to allow the business to work more productively and allow itself to become more efficient and therefore improve its profitability.

4.5.4.2 Profitability and Innovation in Medium and Smaller Sized Organisations

Profitability was key for all interviewees based in medium sized Professional Business Sector organisations although how this was achieved differed depended on the nature of the business. In terms of participants' interpretation of how profitability is enabled they all considered:

- Increasing profitability through people and modification of systems and processes.
- Linking innovation with productivity to enable profitability through technological innovations.
- Measurement being key.

In terms of identifying talent, participant 16, the Head of People in a medium sized legal firm explained how productivity linked to profitability and their focus then was on attracting and recruiting lawyers with the right levels of experience. In the digital transformation services context, innovation drives productivity and workforce structure modifications have supported that. The Head of HR in that business explained that with a focus on competing in their product line and management consultancy services, they created a knowledge and innovation team headed up by a director for knowledge and innovation.

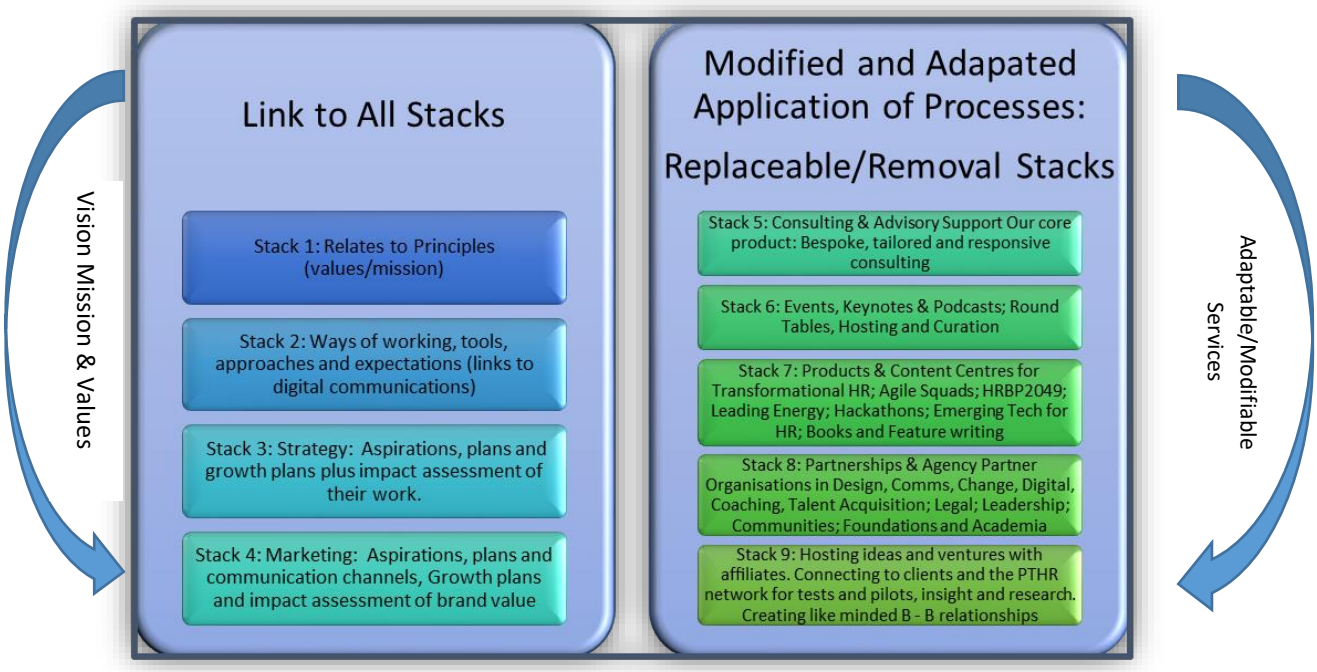
Linking profitability with systems and processes, participant 14, the Chief Operations Officer of a medium sized IT recruitment consultancy said their organisational focus centred on creating bundles of performance reports which measured activity levels, efficiency levels and ROI and analysing this data was key to achieving impact on the bottom line. For him, the key to profitability was on how he and his team create and modify innovative approaches to drive strategy. Reflecting several others including participant 15 a Head of HR in scientific research outsourcing, he emphasised that measurement is crucial in understanding how innovation focus links to profitability.

In terms of the legal service interviewees, both centred their approach on knowledge transfer by working with universities to drive innovations in their organisations. For example, participant 16, the Head of People in a medium sized legal services business explained that, "*we're looking at machine learning and AI and how we can use those in what we do*." Reflecting this new technology focus, participant 13, the Chief Executive Officer in an IT Management Consultancy Service explained how he centred on creating a digital identity for the business to recover it from failure and the focus was on '*an emerging area of the market called smart building technology.'* His organisation acquired a smaller software company to address this focus. Participant 14, the Chief Operations Officer in a medium sized IT outsourcing provider worked closely with the Director of Consultancy Services to create an informal R & D team. This highlighted innovation as their focus on their research which enabled new process and product creation aimed at driving forward strategy, process efficiency and to create competitive advantage. Product and service development included digital e-books for client facing activity and

implementing an AI technology platform aimed at recruiter behaviour. In this way they were able to support expansion of their services and sales lines.

Profitability was also key to business growth and expansion for all interviewees working in small businesses with all organisations growing their employee, contractor and temporary client pool through business expansion. Innovations in strategic business model design, technology/system adoption and product design supported their focus on business growth and profitability. For example, and with a strategically driven approach, a small consultancy business leader (participant 23) designed a unique and innovative business model centred on enhancing their profitability. Participant 23, the Owner/Chief Energy Officer and the Senior Consultant (participant 24) explained how, working actively using guidance from Bofarull (2019), they created a unique business design model employing what they called a 'Stacks' approach. He explained how this is commonly used in computer programming whereby a stack is a data structure which enables content to be added to, removed or pushed from the top of the contents. In the HR consultancy business design their 'Stack system' allows them to adapt, prioritise and reprioritise what their strategic focus should be to create dynamic growth. This is depicted overleaf.

Figure 4.23: Semi-Structured Interviews: The Small HR Consultancy Organisation Stacks Business Design



Source: Adapted and created from a small HR consultancy using an original idea from Bofarull (2019)

The figure above indicates how the core stacks (stacks 1 to 4) centred on the vision, values, mission and strategy of that organisation. The Owner and Consultants then design (and adapt) service provision for clients based on pushing forward and/or removing priority of their service offering (indicated as Stacks 5 to 9 above). The business design links to technological innovation and in line with the focus of this study, employs digital communications to reinforce ways of working. Thus, as Stack 2 above indicates: Use of Asana; Slack; Zoom; Google Drive; Twitter; LinkedIn help support communication channels to create efficiency and effectiveness in ways of working. Stack four indicates how the team reject 'hard selling' but use energies and values to create content which they share online with clients.

In another approach to improving efficiencies and effectiveness in ways of working and with a technology/system design focus, participant 22, a small recruitment business Managing Director invested in a hiring automation platform called 'Fountain' to support their business to business (B to B) activity. This enabled data capture and content

creation, which was shared to improve B to B interactions, networking and to enable effective sourcing of temporary staff. Extending system design innovation, participant 19, the Chief Financial and Operating Officer in the management consultancy working on the NHS Digital Strategy explained how "*dynamic innovation*" was centric to their profitability. For example, they were currently,

> ''*running feasibility studies in one particular region on behalf of the NHS England around wearable technology*."
>
> Chief Financial and Operating Officer in a small management consultancy

This involves people wearing a device (a little like a Fitbit or an Apple iWatch) which takes statistics from the patient which can be accessed to predict if that person could suffer from an acute illness and in this way, this could help to support the NHS to be less reactive as a service. The interviewee explained how NHS-E (NHS England) is currently supported by NHS-I (NHS Improvement) and NHS-D (NHS Digital) although the latter two are merging. They will establish NHS-X which is going to set digital standards and drive consistency through the NHS in terms of the way that data is stored, manipulated and handled. He argued that,

> "*We need to be right at the forefront of that, we need to be advising them really on what that should look like to stay in the game*. "
>
> Participant 19: Chief Financial and Operating Officer in a small management consultancy

Consultancy and recruitment based participants 19 to 24 indicated strategically innovative approaches to drive their profitability and all the small business owners (participants 21 -23) and senior managers consultants (participants 19, 20 and 24) involved in the interviews indicated how they used their own and others knowledge to afford them insight. They aligned that with their own prior learning experiences gained through successful professional careers to drive their innovation. This essential focus on learning and transferring knowledge is keenly associated with academic debates on dynamic capabilities and thus it was important to consider how far interviewee

participants' organisations were focusing on organisational learning and having a further alignment with the transfer of knowledge.

4.5.5 In What Way Are Interviewees Organisations in the UK Professional Business Sector focusing Organisational Learning and Transfer of Knowledge?

Organisational learning and knowledge transfer are features of dynamic capability debates and are also transformational skills based strategic processes contributing to the study skills bundle. Thus, the study employed these measures and semi structured interview findings related to these features are depicted in the following sub sections.

4.5.5.1 Organisational Learning and Transferring Knowledge to Align Employees with Strategy in Larger Organisations

From a larger Professional Business Sector interviewee perspective, learning was largely perceived to be strategically driven. For example, participant 12, the Talent Director in a large Management Consultancy Business indicated that they had a strong focus on organisational learning although that was not a feature of the HR function and instead it had a separate strategic focus with three learning academies linked to that. All other large organisational interviewees concurred (participants 1 to 12 inclusive) and some (participants 1, 3 and 12) indicated how they had also created organisational universities to support their strategic focus on learning. Conversely, one large recruitment organisation had become one of the Times 100 Best Places to Work and received national recognition despite having no formal learning and development function. During a very reactive time in their business they had,

> *"constantly put people in situations where they were out of their comfort zone, constantly putting people into new projects and new roles."*
>
> Group Sector Managing Director: large recruitment organisation (participant 5).

In that interview and another with participant 9 (a HR Director in Financial Services) it became clear that that organisation had an emergent approach to organisational learning

whereby following this reactive period of business, they developed strategically to create an internal capital function with a learning and development component. As such, employees in participant 5's organisation now access an online platform called 'Edge' which supports remote 'on the job' learning across the organisation. This incorporates modular learning which is then measured as part of the performance review process and is linked to individual development plans. Similar platforms were employed within the large engineering services organisation, the scientific development organisation and the financial services organisation.

Organisational learning was aligned with succession planning, workforce planning, performance management and employee engagement in all larger organisation interviews (participants 1 -12). With learning platforms creating synergy between these component elements of organisational learning it became clear that they feature as 'bundles' of strategic HR processes. Added to that, interviewees indicated that social media platforms support learning although several interviewees questioned how far managers supported that to drive it down the line. For example, one stated that,

> "*LinkedIn Learning is available to all, but the expectation still is that employees drive this through their managers and budget is allocated but is generally underspent*."
>
> Global Leader for Talent Initiatives: large management consultancy (participant 2).

It would seem then that whilst adoption of learning platforms appears to be key in larger organisational responses, not all interviewees were wholly positive about how far they were actually creating employee development. Indeed, 'on the job', remote learning relies on self-sufficiency and is thus not always successful (Group Sector Managing Director, participant 5). Additionally, organisational commitment to learning sometimes focused on seeking external talent to meet strategic needs rather than developing internal talent for some (participants 1 and 9). Finally, online platform learning tends to be somewhat limited in content with it being largely functional and relating to the immediate job requirements rather than building development (Participant 4: Group

Head of Resourcing). Learning platforms are aligned with performance management systems, although they are reliant on managers to enable quality of discussion to support that (Participant 8: Senior Director of HR Projects and Change Management). Concurring, localisation of learning means that is hugely dependent on managers' commitment to driving it and that varied between departments with some managers being more aligned with it than others (Participant 1: Client Service Director EMEA Region). Here it would seem learning was driven from the top but effective co-ordination was dependant on contingent managerial approaches.

Despite this, the fusion between knowledge capture and transfer was evident in large Professional Business Sector organisations. Indeed, Knowledge management was largely formalised in larger organisations with functions dedicated to that.

> "*We have a small team in our IT department (4/5 people) and they are responsible for setting the knowledge management protocols to some degree, to promote and deliver them. But they set the policy, they oversee it and deliver it and to some degree police it. it's a specialist function that requires practitioners in that space to deliver it."*
>
> Talent Director and Group Head of Resourcing: large consultancy organisation (participant 12).

Again, platform systems support formal knowledge transfer in all large organisations including participants 1 to 12. For example, in a large Management Consultancy, an AI platform called CPS is employed which serves to both capture and centralise organisational knowledge features. This is seen to be a "*game changer*" because it enables sharing of knowledge but also internal social engagement (Participant 1: The Client Service Director EMEA Region). Similarly, online modular learning delivery is centred on capturing and sharing knowledge with strategically conversant employees meeting client needs through knowledge transfer for some with one interviewee arguing that,

> "*Our team supporting the investing banker sector know exactly how that works, the roles that are undertaken, they understand when bonuses are paid, they*

understand the players in that space, the challenges affecting that space in terms of things we saw over the last 5 years."

Group Sector Managing Director: large management consultancy (participant 5)

It is clear that aligned employees support this strategic nature of knowledge transfer and this was also enabled by operational elements. These include: telephone, face to face or WebEx delivered on web operating updates, programme updates, changes to teams, new product offerings and organisational issues with guest speakers also contributing to understanding of how new knowledge can be created (Participant 12: Talent Director: Large Financial Services Organisation representing other perspectives). Despite this, several interviewees including participants 1, 5, 8 and 11) argued that whilst knowledge transfer was measured in employee surveys and monitored using the digital platforms it was reliant on the individual employee engagement with the content, their motivation and even their mood when in work as line management support for that varied from department to department. As such, and in large organisations there was a strategic focus on learning and knowledge transfer but how far managers supported that is less obvious. Indeed, and in medium sized organisations, a rather more varied perspective became evident as the next section indicates.

4.5.5.2 Organisational Learning and Transfer of Knowledge in Medium and Smaller Sized Organisations

Full organisational commitment to learning varied for semi structured interview participants in medium sized organisations. For example, for participant 18 (the Head of People) in a medium sized law firm, learning was at the forefront of strategy with that being centred on professional learning mandated by the legal authorities but also complemented by non-legal leadership development programmes. In that organisation they, ''*have an internal L&D team and a senior lawyer involved in that."* Added to that, they offer a six-year legal apprenticeship scheme called 'trailblazer' whilst for non-legal employees, leadership development is delivered through a programme called '*Leader Up'* which is aligned with succession planning. Reflecting another strategic focus, participant 13, the Chief Executive Officer of a medium sized IT management consultancy explained how their learning focus centred on skills to drive their strategy though change. This

resulted in external hiring to source the skills whilst also focusing on internal development of the employee skills base. He acknowledged that digital and analytical skills were, "*in high demand but low supply."* Participant 14, the Chief Operating Officer indicated that the employee learning focus had actually been very 'on the job,' functional and driven by managers although more recently an external consultant had delivered recruitment training to consultants.

This indicated less of a strategic focus with this also being evident in an employee driven focus on learning in one medium sized legal organisation. In that business, employees are asked what they want to develop and where they think their careers should be developed and this is then handed over to the managers to discuss with them. HR then enter the debate by delivering what the outcomes of that discussion are.

> *"so then basically once we have got all the bottoms up through and we've ratified it with managers, that then obviously comes with a cost and we cost it all up and take it to the board. "*
>
> Head of HR: medium sized legal services organisation (participant 16).

In another medium sized organisation the Head of HR (participant 15) said that "*90% of learning is on the job*" Despite this, the deployment of their six-sigma quality programme enabled organisational wide sharing of content. Thus, whilst their learning focus was lacking strategic focus, their knowledge transfer approach links to a strategically driven quality process. Linking learning with transfer of knowledge further, digitalisation of learning systems was also evident in a further two medium sized interviews. One was moving away from traditional types of classroom learning and self-led learning and bringing in a system called 'fuse' (which is a learning management platform). This also serves as a communication platform which enables social learning where communities can be established and, in those communities, material can be hosted and content shared (Head of HR, medium sized scientific research outsourcing consultancy). For participant 15, that this is reliant on the employees engagement with the system for it to be successful. Similarly, in another medium sized recruitment organisation, learning is gained through content creation and sharing, and this is enhanced through 'workplace'

online communities of discussion. A family brand supports employee engagement centred around online knowledge gained through shared strategic understanding (Participant 14, the Chief Operations Officer) although how far learning is captured and measured was a strategic issue for their organisations.

Indeed, in the medium sized context, sharing of digital knowledge is still developing for some organisations. Reflecting a more traditional approach, participant 16, the Head of HR in a medium sized legal business explained how they were focusing on 'lunch and learn' events and coaching programmes offered by Heads of Departments to transfer knowledge. Conversely, participant 13, the Chief Executive Officer of an IT management consultancy centred his focus on building digital communications to develop tacit knowledge sharing. He also employed more traditional methods of explicit knowledge sharing including regular meetings, 'round table' events and online company briefings. They also extended knowledge sharing to the wider recruitment sector and this indicated some strategic maturity in their knowledge management approach.

In smaller Professional Business Sector organisations, organisational commitment to learning was evident to some degree. In both smaller HR and financial services consultancies there is a greater strategic focus on learning which emerges from the consultants' prior expertise with consultants being recruited with the talent that is needed for them to enable business growth. Thus, they create a strategic focus on client services through centralising learning on developing what they understand the client needs and they link learning to sharing knowledge in terms of this. For example, they bring methodology to what might be considered a classroom setting but create a 'safe space' where clients can be guided to create their own solutions.

> *"So we do, do a sort of a learning piece and they gain knowledge to have a methodology that becomes theirs. "*
>
> Participant 23: Chief Energy Officer and Owner: small hr consultancy

In that organisation explicit knowledge is also shared using dialogue to create solutions although given an international distribution of consultants, this is supported by social media channels.

Conversely, in the smaller recruitment setting, learning is largely 'on the job' with consultants being recruited with the requisite skills base to perform in the job. One Managing Director (participant 23) saw learning as an internal, self-driven feature of what his consultants must deliver and thus, recruited them with the skills he considered essential. His expectation is that they will use research skills to be able to understand sectors, client needs and organisational requirements.

> "*Of course, I am focused on learning to create growth but its more organic and natural than formal and organised*. "
>
> Participant 21: Managing Director: small recruitment organisation.

Participants 20 and 24 added that they brought their own knowledge to their senior consultancy roles and drove their own learning pathways. One explained that,

> "*If I need to develop in any way, I will use my own resources to drive that and I manage it myself*."
>
> Participant 20: financial services management consultant.

Knowledge sharing within most smaller teams is also quite traditional as it involves daily dialogue and interactions. Despite this, all use Smart phone technologies including conference calls, Zoom, Skype and Facetime to share ideas and interact to create understanding. With larger and medium sized organisations linking learning and knowledge transfer to digital communications it appears then that digital tools and processes are also routinely employed within some medium and smaller organisations. Thus, at this point the second literature theme is brought into focus which relates to the importance of digital communication competence.

4.6 How Important is Digital Communication to Interviewees in the UK Professional Business Sector?

This section indicates findings related to the second literature theme of digital communication competence as an essential skill set supporting the competitive advantage context of these businesses.

4.6.1 How Important Are Employee Skills to the Organisation?

Moving towards the focus of the study which investigated the importance of digital skills to business success, all semi structured interview participants emphasised skills are key to their businesses. Their debates reinforced how digital skills support organisational efficiencies. From a larger organisational perspective, digital skills are considered an enabler to business growth and eliminate, "*barriers to efficiency – whether that's communicating, collaborating, getting stuff done"* (Participant 3: Global People and Culture Director: in a large financial services organisation). This links with the study focus on digital communication competence although more generally:

> "*Digitalisation and technology can be used as enabling the model to work and function in a better way,* (it can) *bring about standardisation where appropriate and it should enable localisation. It makes us more efficient; it will give us robust data both historical and predictive. From a HR perspective it should be able to give us where we are in ten years' time."*
>
> Participant 6: Global Head of Recruitment and Talent: large engineering services organisation

Reflecting this and the view of all large organisation interviewees, the Global Leader for Talent Acquisition) (participant 7) argued that that digitalisation would have significant impact on their businesses in the immediate and longer term context. Additionally, several interviewees acknowledged how the digital landscape had changed with one reflecting that when he entered into the sector traditional forms of communication (like landlines) supported the workplace. He argued that even now mobile phones were being replaced by digital tools including, "*WhatsApp messaging or a snapchat, some sort of instant messaging"* to communicate with clients (Participant 5: Group Sector Managing Director: large recruitment organisation). None of the interviewees questioned or were negative about how digital skills contribute to strategy or business growth and indeed, competence in this skills area was assumed as a contributor to business success. Reinforcing this, digital skills were an assumed essential feature in talented employees skills sets (Participant 1: Client Service Director EMEA Region, participant 12, the Talent Director and participant 4, the Group Head of Resourcing).

The majority of medium sized businesses were equally strategic in their digital focus. Participant 15, the Head of HR in a scientific research consultancy said, "*we would class ourselves as a digital market disruptor so digital is our focus."* Participant 13, the Chief Executive Officer in a medium sized recruitment business, explained how when he came into his role the key issue throughout the recession was that "*analytical and digital skills were in high demand but low supply*" (Participant 13: Chief Executive Officer: medium recruitment consultancy). Thus, he redesigned his company business model and strategy moving away from being an IT recruiter "*to being focused, niche and centred on digital skills*." The Head of People in a legal services organisation (participant 18) discussed the impact of digitalisation on his sector and said that in the next decade the legal sector would face major changes. He pointed out that large legal service organisations are already digitally aligned and that was posing problems for his organisation.

> *"It's a question of how far we can take that. So to what extent are we going to be replaced by digitalisation? We see it as a complimentary role to make our job easier."*
>
> The Head of People: medium sized legal services organisation (participant 18).

The impact on certain job functions became clear in other interviews. The Head of HR in a business company (participant 15) said, "*digital competency will be a driver certainly in some roles".* Participant 18, the Head of People in a medium sized legal services organisation explained how they had been using digitally competent employees in their knowledge transfer partnership roles and the need for digital leadership was also identified by the Head HR in a medium sized legal organisation (participant 16). She said that their focus on digitalisation had faltered because there was no dedicated leadership in that area. Explaining how there was some sense of strategic urgency in recruiting that talent, she considered this was crucial in relaunching their 'innovation hub' and digital focus.

In all smaller organisations the focus on recruiting consultants with the requisite digital skills sets to enable business growth was clear although a heterogeneous approach was evident. Recruitment consultants needed to be proficient in using social media channels, extrapolating and sharing content and in promoting brand through digital

communications (Participant 22: the Managing Director in a small recruitment agency). HR consultants also needed to have higher levels of digital communication competence and be conversant with digital communication channels to enable them to become thought leaders in digital communities (Participant 23, the Owner and Energy Officer). Indeed, a digital focus was central to strategy in his consultancy organisation as they are,

> "*Utilising the best digital tools, infrastructure and connectivity to be more effective in creating value for their people and the world.*"
>
> Participant 23: the Chief Energy Officer & Owner: small hr consultancy

In terms of sourcing additional digital skills, the contingent nature of the business became evident. For example, participant 19, the Chief Financial Officer in a management consultancy said that,

> *"we are looking at people that are very much closer to advanced level skills rather than intermediate levels but the digital competencies that we are looking for are a track record of implementing and imbedding digital systems within the NHS."*
>
> Participant 19: the Chief Financial Officer: small management consultancy

Linking with the focus of the study, leaders including participants 19 and 21 to 23 in smaller organisations had employed their own advanced level features of digital communication competence to recruit HR/recruitment consultants and scientific contractors. Mainly using digital communication channels, they extended their consultancy/contractor base by reaching out nationally and globally to specialists. In one case and through the use of digital communications, a HR consultant (participant 24) was recruited to an organisation having never met the business owner in person.

Within this section it is clear that interviewees in all sizes of business thought digital competence is key to their business future, growth, efficiencies and vital in some roles. Added to this, medium and smaller interviewees recognised the importance of digital communication competencies linking the debate to the following findings.

4.6.2 How Important are features of Digital Communication Competence to Interviewees in the UK Professional Business Sector?

This section highlights the focus on the second research theme which relates to how digital communication competence underpins dynamic capabilities. Reflecting the online survey, the semi structured interview questions were based on Ferrari (2013) and the definition and explanation of features of digital communication competence. To begin, the importance of sharing online content was considered followed by discussion relating to digital interaction and organisational citizenship. Finally, managing digital identity and online safety were also debated.

In terms of online sharing this involves, having the ability to understand how important sharing digital and online content can support organisational knowledge (Ferrari, 2013). All larger organisations involved in the study were strategically focusing on technology with digital platforms supporting this feature of digital communication competence. For example, the global engineering services provider have introduced a 'CTO office' (Chief Technical Office) and a 'CIO officer' (Chief Information Officer), both of whom are being explicit in the way that technology is shared and how it is used. As participant 6 (the Global Head of Talent and Recruitment) explained, for them their focus is on global standardisation across all platforms which might include HR platforms incorporating recruitment, reward, learning and development and other contingent elements of their HR functions.

Participant 3, the Global People and Culture Director (in a large financial services organisation) made a strategic bid to align internal communications with his team and introduced monthly online bulletins. In what he described as rather a traditional organisation, they moved from quarterly newsletters and now offered online monthly manager bulletins. This is an online communication piece designed for every manager in the business to be able to share with their teams and including information spanning the global business. They also introduced a monthly 'vlog' (a video podcast) which is delivered by Chief Executive Officers on a monthly basis.

Participant 18, the Head of People in a medium sized legal organisation explained how online sharing would have huge impact on business in the next few years and applied this to the legal context. He indicated how the impact of GDPR (2018) has been a big driver

for their organisation and this has led to a focus on a paperless strategy. Because of that the organisation is being urgently forced to move from traditional models to digital content sharing. He added, "*we are going to be replaced by digitalisation, playing a complimentary role.. makes our job easier*." In another medium sized recruitment organisation online sharing is key to brand identity, marketing, employee engagement and corporate social responsibility. It also "*generates competitive edge within and throughout the sector*" (Participant 14, Chief Operating Officer). At the time the organisation employed Workplace to enable this but moved to Microsoft later in the year because of a cost saving strategic drive.

In all smaller organisations, online content sharing supports operational effectiveness. The owner of a small recruitment organisation indicated that, "*online sharing streamlines our systems and keeps us connected*." This links to online interaction and organisational citizenship with online interaction being defined as having the ability to use various digital devices and applications to support organisational internal and external communication (Ferrari, 2013). Digital communication competence through interaction and online content sharing are then linked to employee citizenship according to Ferrari (2013) which is an enabler of employee engagement within the organisation.

These features featured heavily in interview debates especially within the larger organisational context where interaction was in focus. One large organisation used, "*Wazuko to throw ideas and questions out to the general populace*" (Participant 2: Global Leader for Talent Initiatives, large management consultancy). Several other interviewees explained how they also used 'Workplace' which is an online social media platform which can be used for promoting and sharing news and for creating live C-Suite updates (Workforce Software, 2020). Participant 12, the Talent Director in a large management consultancy organisation added that they used a proprietary internal social media system which they called iEngage although they had replaced that with Microsoft share point and Yama because of cost implications. In another large consultancy organisation, several initiatives also centred on interaction and organisational citizenship. The Global People and Culture Director (Participant 3 based in a large financial services organisation) had made a strategic bid to align internal communications with his team, 'used metrics and

click through rates' to examine employee engagement. As a result they have, "*probably 30% more engagement globally than we've ever had*."

From the medium sized business perspective, a recruitment organisation had centralised their business growth model on social interactions and explicitly on digital communications. Participant 13, the Chief Executive Officer explained how that business has basically been *"in the toilet"* when he was brought in to devise a new business model which, *"prioritised communicating to candidates not customers."* He added that led to him developing a defined digital communications strategy arguing that this was not simply an organisational processual tool but was considered a strategic requirement. It served to enhance the brand to applicants in that it helped them, "*establish a reason for them to work for us and that was through digital communications"* (Participant 13, the Chief Executive Officer in a medium sized recruitment consultancy). Building on this, Participant 14, the Chief Operations Officer in that medium sized IT Recruitment Consultancy Group explained how organisational citizenship was now achieved by encouraging employees to contribute to knowledge by content creation which is easily accessible. This also included a focus on cross upwards, downwards and horizontal communications aligned with external marketing through digital communications and promotion of content both internally and externally to support the brand identity. Despite this, the Head of HR in a medium sized legal organisation indicated their lack of focus on digital communication competence interaction explaining that they were falling behind in relation to digital interaction but that this was not their focus at this time. Similarly, Participant 18, the Head of People in the medium sized legal organisation explained how they did not have systems in place for employees to digitally interact although in this case this was a current and urgent priority.

Conversely, in smaller organisations online interaction and organisational citizenship is key in daily operations and was a feature of strategy for one consultancy. The HR consultancy organisation employ the 'Stacks' business design discussed in section 4.4.5.3 earlier in this chapter. Stack four is core across all processes and systems and is entitled 'marketing.' It represents, "*aspirations plans and communication channels"* which define "*growth plans and impact assessment of our brand value*" (Participant 23, Chief Energy Officer and Owner: small hr consultancy). Digital interaction is key to this 'stack' and to

the way the organisation operates. In terms of daily operations, consultants in smaller recruitment organisations rely on digital interaction given that they work flexibly and are often located outside the office. This flexible working approach both contributes to organisational citizenship and helps consultants to "*get the job done*" (Participant 22, the Managing Director in a small recruitment organisation). Participant 24, a HR consultant, explained how it would be detrimental to wellbeing in work if she could not connect with other consultants during the week. She explained this included using WhatsApp, Teams and Zoom to support this but added that social media networks including Twitter and LinkedIn supported communication with her wider professional network. She acknowledged though that use of interactions was rather more informally driven than a strategic initiative although she pointed out that the owner of her organisation assumed digital interactions were a business focus although managing digital identity was the responsibility of individuals.

Managing Digital Identity and Online Safety are linked to, "*personal protection, data protection, digital identity protection, security measures" and* enable *"safe and sustainable use*'' (Ferrari, 2013, p. 12). Some elements of this definition were reinforced through online safety policies and protocols in most large organisations with cyber security measures and internal monitoring systems being key in all large Professional Business Sector organisations. For example, "'*robotics and automation are policed. These check our usage, primarily from a security perspective" and* they also, "*flag up if people aren't using our tech in the way its intended*" (Participant 7, the Head of Talent Acquisition in a large management consultancy). Central departments support the 'policing' of online safety and web protocol behaviours with one interviewee saying,

> *"We have a corporate IT security team which push out Yammer feeds and communication feeds that remind about online safety of phishing and report opportunity. They're quite proactive in making people smarter."*
>
> Participant 11: Senior Director of HR Projects and Change Management: scientific development organisation

In that organisation, organisational learning supports online safety and practices through delivery of assessment based, mandatory ethics training. This is also evident in other large

organisations where they, "*invest in a lot of training for employees and a lot of it comes under what we call compliance"* and that links to their weighty focus on technology and the risks associated with that (Participant 8: HR Director for the UK and Ireland: global financial services). Conversely, Participant 1, the Client Service Manager for the EMEA region in a large management consultancy organisation indicated that in terms of this area they are below basic in competence as a there is a gap in risk and online safety with no formal policies and processes being in place.

Despite this, all medium sized businesses consider online safety to be very important. They see that as vital with GDPR (2018) making this a key priority. One legal services organisation had delivered dedicated campaigns on online safety and had a "*dedicated cyber security team who also occasionally launch phishing campaigns."* Participant 3, the Chief Executive Officer of an IT recruitment organisation said risk and compliance were strategically highlighted and employees adhere to that through a compliance manager, a health and safety manager and a project director. They report to the board on the status of those areas. For the smaller organisations in the study, online safety protocols are assumed with owners (participants 21-33) and senior managers (19-20) relying on consultants exhibiting professionalism and business acumen in their roles although the small recruitment consultancy owner added, "*I am fastidious about reminding my team about cyber security threats.*" He managed online usage and gave the example of an occasion when he had "*come down heavily on one in the past because of his online social media presence*. "With interviewees linking the features of digital communication competence to their organisational processes and systems, the last research focus examined which levels of this skills set were most appropriate in their business settings.

4.6.3 Which Levels of Digital Communication Competence Are Most Appropriate in the UK Professional Business Sector?

Having depicted the features of digital communication competence, Ferrari (2013) extended the skills set framework to apply different performance level descriptors including: basic, intermediate and foundation levels which were explained in section 2.6.3 in the literature chapter. Findings from the semi structured interviews related to this research question are depicted in what follows.

Intermediate level digital communication skills are the general norm for employees in the larger Professional Business Sector organisations although this differs depending on type and nature of business. In a global scientific research organisation, participant 11, the Senior Director of HR Projects and Change Management indicated that in terms of the UK the overall level of competence was intermediate because a manufacturing base is not based there. She added that had it been this would have made their overall level of competence basic and similarly, in a global engineering services organisation both the Global Head of Talent and Recruitment (participant 6) and HR Manager (participant 10) argued that existence of a manufacturing base lowers the overall competence level of employees to basic. Higher levels of ability are not required in those roles because they do not allow employees access to digital communication tools during work. Despite this, that organisation has strict safety protocols, dedicated strategic digital teams with organisational leads and digital content sharing and social media platforms. This is dure to national security protocols although centralised services are more relaxed in terms of this and thus, the Global Head of Talent and Recruitment (participant 6) concluded that their overall level of competency cannot be defined under one banner but '*leaned towards intermediate*."

In consultancy, technology focused and recruitment settings, digital communication competency is seen to be a mixture ranging from intermediate to advanced. For example,

> *"I would say* (we are) *intermediate plus, I'd say the majority would be in the expert category but then there would be a number of people in the group who are much less able. On balance with a digital communication perspective that would bring us back to a more intermediate plus level"*
>
> Participant 5: Group Sector Managing Director: large recruitment consultancy.

Arguing that they are 'quite advanced,' participant 8, the HR Director for UK & Ireland in a global financial services organisation, argued that the issue is not their own level of digital competence in this area, but when working in consultancy the focus is on having the right language skills to be able to talk technology. She added that *"technical people need to understand the technology"* but to support the business they need to *"rise above and talk at a more human and outcome focused level"* (Participant 8, HR Director for UK

& Ireland: global financial services). Other interviewees also contributed to the debate on 'soft skills' to support higher digital skills. For example, the participant 10, the HR Manager in engineering services added that "*negotiation, consultation and engagement"* managerial skills complemented digital communication skills. Additionally, intermediate level skills "*are viewed as a given so not specified explicitly on job adverts*" (Participant 1, Client Services Director, EMEA Region, large management consultancy) and thus, they assume employees possess this skills base although, "*they are really important in our industry"* (Participant 1, Client Services Director).

Other interviewees based in larger organisations also expanded on the definitions provided by Ferrari (2013). Participant 5, the Group Sector Managing Director in a recruitment setting asked his Chief Technology Officer to examine the definitions because he thought they were rather generalised. As such they add "*intra and extra enterprise collaboration tools (e.g. Slack, Yammer, SharePoint) to intermediate level definitions*." They also thought that at advanced level, employees should be able to

> "s*cript and code simple applications and automations using low code or macros within a safe framework and subject to IT security policies*."
>
> Participant 5, Group Sector Managing Director: large recruitment consultancy.

Reflecting this technology based focus on revised definitions, in a large management consultancy context, communications centre around Skype, WebEx, email, instant messaging and voice/audio although these require only basic levels of ability. Participant 12, the Talent Director, explained that social media teams have 'good' intermediate level skills but when there is a specialist, formal digital communications team then they are only 'average' in their basic digital level skills in comparison.

With digital communication teams exhibiting higher levels of digital communication skills this then relates to another theme emerging from larger organisational perspectives relating to levels of abilities. As such, interviewees discussed how teams and roles required differing levels of digital communication competence. For example, participant 8, the Director of HR for UK and Ireland considered support functions to have slightly lower levels of skills compared with the mainly advanced general perspective of the organisation. She added that HR themselves lack intermediate or advanced level skills

indicating it was ironic they had to recruit an external HR analytics professional given their business focus was analytics. In another global large management consultancy, the level of digital communication competence ranged very broadly from 'below basic' to 'exceeding advanced' depending on access to technology systems, the field based nature of roles and lack of standardisation of systems and processes (Participant 4, Group Head of Resourcing, engineering services).

Alongside the understanding of how roles impacted abilities, age was also considered to influence both competence and motivation to use digital communication tools. The culture of the organisation also impacted on the age dynamic, for example when the demographic of the company is younger, "*a lot of the folk that work for us are much more digitally native"* (Participant 5, Group Sector Managing Director: large recruitment consultancy). Resistance to using digital communication channels based on age was also brought forward in interviews:

> *"Older people don't want any more systems. Their resistance means that they aren't stepping into the learning and education being provided and it means they're not willing to immerse themselves in the technology to a point where they can start to appreciate the value that it brings."*
>
> Participant 5, Global People and Culture Director in a large financial services organisation

Immersion in technology appears to be key for some roles requiring advanced level digital communication competence. For all large organisational interviewees this is evident in:

- Any employee who is engaging with 'high tech' customers. In the consultancy, recruitment and digital sub sectors, then the whole organisation needs to be elevated to advanced levels (Participant 5, Group Sector Managing Director).
- E- commerce and marketing roles (Participant 11, Senior Director of HR projects and change management).
- Marketing, e-commerce, specialist communications and technology teams (Participant 1, Client Service Director EMEA Region)

In might be concluded then that overall in the larger organisational setting the norm appears to be intermediate level digital communication competence with some roles and departments requiring advanced level of this skills set and functional roles only needing basic levels of skills. From a medium to smaller organisation level perspective, a lack of consensus on abilities was more evident. Participant 13, the Chief Executive Officer of a medium sized IT management consultancy explained that with their focus on a digital communications strategy this enabled his employees to progress from basic to a higher, intermediate level in digital communication competence. Some employees had achieved advanced level skills (product marketing and the digital marketing team) and this enabled them to help others learn intermediate level digital communication skills on the job. Compounding this, participant 14, the Chief Operations Officer in that organisation considered that currently employees were generally 'intermediate to advanced level' in the digital communications skills base. Reflecting the perspective of the senior manager in the larger recruitment organisation he indicated an age based perspective and explained that "*we are weighted towards gen z and millennials."* He argued that *"they have that inherent skills set or have had the opportunity to develop it in recent years* "(Participant 14, Chief Operations Officer in an IT recruitment organisation). For him, advanced level digital communication competence is an important skill set for recruitment consultants as this enables engagement with passive potential talent with digital content sharing supporting that. This was especially key to that organisation in that they are the outsourcing provider of specialist digital skills professionals to larger organisations involved in the study and thus for him, all employees in external facing roles including their marketing team required advanced digital communication competence and skills involved in that.

Organisational type, nature of business and culture in medium and small organisational contexts impacted workplace digital communication skills levels. In a smaller management consultancy organisation who based their business on the NHS digital strategy, "*90% of our people are in between intermediate and advanced* (in their level of ability)*"* (Participant 19, Chief Financial and Operating Officer). He argued that marketing and communications consultants have higher level competencies than what is defined in the description by Ferrari (2013). He said these relate to digital marketing, digital content

creation/sharing and search engine optimisation. Conversely, participant 18, the Head of People in a medium sized legal business argued that legal professionals have a legacy of having everything being printed off and brought to them by a support team. Thus, they are not expected to do anything beyond what is expected in the job and therefore they only have basic level digital communication competence skills. Participant 16, the Head of HR in another medium sized legal firm indicated that these basic digital communication skills set even applied to senior partners in their organisation attributing this to them being reliant on traditional methods of communication.

Participant 16, the Head of HR in the medium sized legal company added that the actual employees' abilities are not the issue then but rather their own organisational systems themselves. Thus they are fully conversant with social media use on a personal level although, given that the organisation has no digital communication strategy and formalised intranet system, this limits that advanced capability to intermediate and even basic levels in work. Supporting this, participant 18, the Head of People in the medium sized legal business indicated how they had trialled the Workplace social media platform and had seen a 95% uptake despite this not being of strategic focus.

Contradicting this medium sized legal perspective, other medium sized leaders interviewed in this research indicated that their digital communications focus has been developed through their own advanced level skills understanding. Participant 13, the Chief Executive Officer of a medium sized IT management consultancy added there was potentially a gap in the framework definition in the distinction between basic and intermediate. He argued that whilst employees were personally proficient in using digital communications, they could extend their professionalism by gaining brand ambassador awareness. He indicated that the features of digital communication competence defined by Ferrari (2013) and others could be extended to include online brand promotion.

This was evident in the smaller HR consultancy setting, where consultants and the owner employ advanced level social media digital communications to covey the corporate message. In that organisation this was a core feature in their marketing stacks business model strategy. Similarly, in the smaller recruitment setting, consultants and the owner have advanced level digital communication competencies as they provide all recruitment

solution functions for that organisation. In those organisations they also felt that digital communications extended to a brand promotion feature.

4.7 Results Chapter Conclusions

The findings chapter has depicted results emerging from a mainly quantitatively designed online survey involving 99 managerial respondents and 24 qualitative semi structured interviews with senior managers. The measures in the survey and questions in the interviews centred on the two literature themes: Dynamic Capability Theory (Teece, Pisano and Shuen, 1997) and understanding the role of digital communication competence in the contemporary workplace. At this point, conclusions do not depict mixing as that is the focus of the final two chapters of the thesis.

Dynamic Capabilities: Online survey key findings indicate that the UK Professional Business Sector sample are facing constant change with a restructure response being more prevalent in larger organisations. All focus on business product/service line and market expansion although larger organisations are more centred on international growth. Nearly all believe their organisations are strategically aligned with profitability and innovation. In medium and smaller organisations learning/knowledge transfer support was largely less strategic whilst in larger organisations it was unclear how that was supported by line managers and to a degree, senior managers. Semi-structured interviewees were equally responding to constant change through expansion of products/service/UK /international business developments. Larger organisations were restructuring and diversifying product lines and services to support growth through a technology 'digital mind-set' focus. In medium and smaller sized businesses responses varied in terms of geographical expansion although service/product line expansion was evident. All interviewees have a profitability and innovation focus linked to: market awareness; the role of people and modification of systems and processes and technological innovation. In larger organisations, strategic commitment to learning/ knowledge transfer was evident although line management support was questioned. Medium and smaller sized organisations responses varied but overall, were less strategic. With the learning, knowledge and skills link being clear in the literature this related to the second theme within the research.

The importance of digital communication competencies features and levels of ability: In terms of **online survey respondents**, nearly all consider digital competence and digital communication skills and features to be important to their business. Generally, an intermediate level of ability applies to the whole sample although advanced level ability is needed in some organisations, some jobs and some work functions. Similarly, **semi-structured interviewees** link digital competence with business success and most argue that digital communication competence is equally important. Most interviewees indicated employees had intermediate levels of competence although digitally focused businesses required intermediate to advanced skills. If employees worked in technological product development or digital content roles, they need advanced level skills and conversely, if an operational/functional base existed in their organisations or the business lacked digital focus on skills, this reduced the level to basic for some roles.

4.7.1 Concluding Statement

Key findings from both interviews and the survey have been depicted within this sub section. Within the next chapter, 'mixing' will occur when the research aim, questions, literature and data are drawn together. In this way, the following chapter will discuss how far digital communication competence is important in the UK Professional Business Sector context.

Chapter 5: Discussion

5 Discussion

5.1 Introduction

This chapter addresses the research question which emerged through an initial exploration of the literature and was continually revised during the analysis of the online survey and interview findings. Key findings are highlighted and linked to the literature themes in order to enable further conclusions to be drawn in chapter six. This discussion chapter and the subsequent concluding chapter represent the key analyses stage of the research for Creswell (2014) whereby the 'mix' of quantitative and qualitative data now becomes evident.

5.2 The Research Question: How far is the UK Professional Business Sector dynamically capable and how important is digital communication competence in that context?

In addressing how far the UK Professional Business Sector is dynamically capable, three aggregate measures were employed which linked to dynamic capability debates. Barreto (2010) explains how these are key features of the construct. The investigation also applied dimension related constructs which Barreto (2010) explains are popular measures featured in many dynamic capability studies. These are summarised in table 5.1 overleaf which also identifies the key writers who debated these measures.

Table 5.1: Aggregate Measures and Dimension Related Constructs Linked to the Discussion

Defined by Barreto (2010)	Measures	Contributing Authors
Aggregate Measures	Facing constant change	Teece, Pisano and Shuen (1997)
	Linking a focus on innovation with profitability	Deeds, DeCarolis, and Coombs (1999); Heflat and Winter (1997) and others including Teece (2007).
Dimension Related Constructs	Linking change to restructure Extension of product/ service and UK/International expansion	Girod and Whittingham (2017) and others Deeds, DeCarolis and Coombs (2000)
	A focus on strategic learning and knowledge transfer linked to innovation capability which is significantly linked to dynamic capability debates by many. This was measured using the following: • Senior management commitment and line manager support	Zollo and Winter (2002) Teece & Pisano (1994); Teece, Pisano, & Shuen (1997); Eisenhardt & Martin (2000) and Teece (2000) Augier and Teece (2009) and numerous others

Findings emerging from the investigation of these aggregate measures and dimension related constructs are applied to the following discussion using a mix of online survey (quantitative) and semi structured interviews (qualitative) results.

5.2.1 Linking the UK Professional Business Sector to the Dynamic Capability Measures Drawn from the Literature

5.2.1.1 How far is the UK Professional Business Sector Facing Constant Change

Continuous adaptability to change was key for 94% of online survey and all interview participants with this being applied to growth, scalability and flexibility in large organisational debates reflecting the findings of Garavan et al. (2016) who examined how growth could be enabled to ensure organisational maturity is enhanced. Despite this, participants 3 (a Global HR and Culture Director), 8 (a HR Director for the UK and Ireland and EMEA regions) and 11 (the Senior Director of HR Projects and Change Management) argued that the cumbersome and international size of larger international organisations impacted reactivity and efficiency of response. This links to arguments from Anderson (2017) and Bhatt et al. (2010) who examined turbulence and responsiveness in global markets. For participants 2 (the Global Leader for Talent Initiatives), 3 (a Global HR and Culture Director) and 9 (a HR Director) this impacted C-suite changes, modification of efficiency programmes with platform delivery, employment of AI and creation of a digital mind set. Ultimately, with digital priorities being clear in all interviews, larger organisations change focus was aligned with the digital context of the UK and the national debate centred on global growth which the UK is driving to achieve (GOV.UK., 2020).

Using technology to adapt and modify their response to change was also crucial for nearly all medium and smaller sized interviewees aside from a participant 16, a HR Manager in legal services. All of the other medium and smaller organisation interviewees participants (13-15, 17-18 and 19-24) indicated how they were creating new ideas and extending their market base through innovation and adaptation of their resources. Hii and Neely (2000) connect these debates with innovation capability which also links to this study as shown later in this chapter. Modification of structure, business model and internal processes to respond to external macro changes was clear for all interviewees with all (participants

13-24) medium and smaller organisations meeting customer solutions through alignment of their business model reflecting discussion from Wang and Ahmed (2007) who see this as key in digital transformation.

In summary, findings indicate that most online survey and all interview participants were efficiently reacting to change by adapting their processes to meet business goals indicating agility in their focus although how far their change response linked to restructure and business/service line and market expansion is now considered.

5.2.1.2 Linking Change to Restructure and Extension of Product/ Service and UK/International Expansion

Restructure, expansion of business lines and services and UK/International expansion are change outcomes which link to key dynamic capability debates centred on modification and adaption of the resource base (Ambrosini, Bowman and Collier, 2008). Despite this, more than half of the small business online survey respondents disagreed at some level (or were undecided) that restructuring was a feature of change. Furthermore, 81% of medium business online survey respondents disagreed (or were undecided) about change resulting in restructure. Conversely, 67% of the large business online survey respondents agreed that change was resulting in restructure and thus, it can be concluded that for online survey respondents restructure was more likely to emerge as a feature of change in larger organisations.

Interviewees based in large organisations (participants 1-12) confirmed this online survey finding. All linked their debates to internal and external restructure and to how they were modifying their resource base to adapt to changing market demands reflecting similar debates offered by Girod and Whittingham (2017). For participants 2 (a Global Leader for Talent Initiatives); 3 (a Global People and Culture Director); 4 (a Group Head of Resourcing); 6 (a Global Head of Talent and Recruitment) and 8 (a HR Director for UK & Ireland) this generated issues in extending into international markets including: resistance to change in different localities; confusion over processes defined by head offices; employee confusion over change resulting in challenges in different countries and legal implications of International process and system change. This links to long standing and well-articulated debates examining the factors impacting business expansion and

internationalisation which are offered by Luo (1999) and others. Indeed, this has also been linked to dynamic capabilities (Luo, 2000) which reflecting the main construct focus in the study.

Larger organisational interviewees including participants 1 (a Global Leader for Talent Initiatives); 6 (a Global Head of Talent and Recruitment); 8 (HR Director for UK & Ireland) and 11 (a Senior Director of HR Projects and Change Management) also linked restructure to succession planning, talent management, performance management and workforce planning reflecting both bundling debates from Barney (1991) and the talent management focus of Lewis and Heckman (2006). This also goes some way to identifying additional features of 'bundles' of practice relating to a skills based focus in the sector which have previously been viewed to be something of a confusing 'black box' for Sirmon, Hitt and Ireland (2007).

All interviewees from larger organisations centred their discussion on diversification of product lines and services to support growth with 88% of online survey respondents confirming they were focussing on expansion in this way. For all larger organisation interviewees, the role of technology, the importance of an organisational 'digital mind-set,' and the importance of higher skilled work confirmed digital transformation workplace debates offered by Kane et al. (2015) and Boes et al. writing in Briken et al. (2017). With all large organisations focusing on digital transformation (for participants 1 -12) there was some evidence of digital leadership although their approach contrasted with Singh and Hess (2017) and Rickards et al. (2017) who define the Chief Digital Officer as a dedicated role in that senior leaders in different roles subsumed parts of the Chief Digital Officer functions into their own roles.

With 94% of online survey respondents in medium sized businesses agreeing that their organisations were focussing on expanding business line and services, a digital focus was also clear for participants 13 (a Chief Executive Officer);14 (a Chief Operating Officer); 17 (a Head of HR); 19 (a Chief Financial Officer); 20 (a Financial Services Management Consultant) and 23 (an Owner and Chief People Officer). This involved software development, creating in-building cellular enhancement systems and also enhancing the consultancy area of systems design with some businesses creating and selling their own digital products including learning platforms and analytics packages. Again, this links to

Boes et al writing in Briken (2017) who explains these are features of the digital workplace. These digital features also clearly align interviewees' focus with Servoz (2019) and others who discuss new technologies and the impact of AI. Additionally, medium and smaller sized leaders including (participants 14, a Chief Operating Officer; participant 18 (a Head of People) and participant 23 (the Owner and Chief Energy Officer) emphasised the role of employees in supporting this digital mind-set and argued that building engagement to the identified redesigned processes was vital confirming the findings of Ployhart et al. (2014).

Furthermore, 81% of online survey respondents from small businesses agreed they were expanding business lines/services with all interviewees in smaller businesses confirming that. This involved digitalisation of processes and products to support the NHS for participant 19 (a Chief Financial Officer) and a digitally based operating model being adopted in order to drive future focused HR consultancy for participant 23 (an Owner and Chief Energy Officer). Recruitment expansion was also supported by investment in talent analytic platforms for participant 22 (a Managing Director). Participants 19 (a Chief Financial and Operating Officer); 21 (a Managing Director); 22 (another Managing Director) and 23 (an Owner and Chief Energy Officer) linked an operational focus on recruiting digitally skilled employees to a tactical focus. Through their strategic leadership they highlighted business and product expansion depicting how digital transformation is achieved for Heavin and Power (2018).

In summary, In terms of restructuring, business/service line and UK /International expansion, all larger organisations were efficiently reacting by adapting to improve their processes and meet their business goals. Generally, whilst medium and smaller organisations are centred on business line extension, their geographical expansion was generally UK based although all sizes of organisations were ultimately focused on profitability. Indeed, profitability is created through innovation and is an indicator of innovation capability with these dynamic capability features in focus next.

5.2.1.3 Linking an Innovation Focus with Profitability.

Ultimately, the processes involved in dynamic capabilities relate to how organisations create a unique strategic ability through their entrepreneurial activity through their focus

on innovation to achieve profitability (Teece, 2007). 95% of online survey respondents agreed that profitability was a key characteristic of their competitive strategy with a further 87% of respondents agreeing that innovation was a strategic focus. Participants 1 (a Client Service Director EMEA Region); 3 (a Global People and Culture Director); 6 a Global Head of Talent and Recruitment); 8 (the HR Director for UK & Ireland and also Exec Business partner for consulting partners across North EMEA) and 11 (a Senior Director of HR Projects and Change Management) concurred that increasing profitability through market awareness was crucial with these interviewees explicitly linking that to research and development (R & D) reflecting Deeds, DeCarolis and Coombs (1999) who consider this vital in dynamic environments. All interviewees in large organisations also linked their debates to modification of systems and processes centred on profitability with all employing digital based platforms to highlight issues and create responsiveness. By employing technology-based innovation in this way this supports Dadfar et al. (2013) and Herrera et al. (2019) who consider this key in the digital workplace. In using chat boxes, AI, automation and enhanced service line development to drive a technology-based innovation system development all interviews in large organisations discussed digital features defined by Dervitsiotis (2010). Indeed, in identifying which current innovative technologies are needed to support dynamic capabilities, this extends the findings of McLaughlin (2017) and Lawson and Samson (2001) who see this as crucial in generating competitive success but who failed to identify which specific digital features were linked to this.

Aside from participants 15 (a Head of HR) and 16 (a Head of People in legal services),interviewees in medium sized organisations indicated a similar level of digital focus and drove this through their strategy, processes and systems reflecting both business model innovation and technology-based innovation which are well debated features of dynamic capabilities for Teece (2007, 2012). Similarly, all interviewees in smaller businesses had created business growth through innovation in strategic business design, technology/system adoption and product design which supported their focus on profitability again reflecting Dervitsiotis (2010). Indeed, the STACK business model which was employed within one organisation linked to modification and adaptation of service offering and to digital transformation debates offered by Warner and Wäger (2019) and

Karimi and Walter (2015). Originally defined by Borafull (2019), this was adapted by participant 23 (an Owner and Chief Energy Officer) to create a competitively focused, dynamic business model which other smaller and medium sized business leaders could potentially adopt and modify to meet their strategic focus.

Innovation in business process maturity links to the way organisations generate capacity for learning and knowledge transfer. These features are significantly reflected in dynamic capability debates (Easterby-Smith and Prieto, 2008 and many others) and were investigated as further measures within this study as key features of a skills based bundle linked to both dynamic capabilities (Teece, 2007) and resource based perspectives (Barney, 1991).

5.2.1.4 A Focus on Organisational Learning and Transferring Knowledge to Align Employees with Strategy

Transferring knowledge and a strategic focus on learning are key to innovation capability although despite this, a mixed perspective emerged from online survey respondents and semi structured interviewees in terms of findings relating to these dimension related measures.

74% of larger organisation respondents agreed that senior managers were committed to learning in their organisations and thus, this infers there might be a learning culture in their organisations as Sloman (2007) discusses. Interviewees clarified these online survey findings with all large organisational interviewees linking their learning and knowledge capture and transfer approach to digital platforms and also to organisational universities with modular learning being delivered through these platforms. Organisational learning and knowledge capture and transfer was also aligned with succession planning, workforce planning, performance management and employee engagement in all larger organisation interviews reflecting 'bundling' debates offered by Barney (1991). Although this largely centred on digital platform delivery, it reflects the fourth industrial perspective offered by Vey et al. (2018) and also links to the EU (2020a, 2020b) focus on digital platforms contributing to business success. For example, one interviewee explained they used a platform called 'Edge' which is a digital enhancing tool enabling

organisational wide learning which Daly and Overton (2017) link to driving a strategic focus on learning.

Despite this, over a quarter of online survey respondents in larger organisations were unclear or disagreed that line managers supported learning and 50% were undecided or disagreed that they supported knowledge transfer. Reinforcing this, Participants 2 (a Global Leader for Talent Initiatives); 3 (a Global People and Culture Director); 4 (a Group Head of Resourcing) and 6 (a Global Head of Talent and Recruitment) were also unclear how learning and knowledge transfer was supported down the line and indicated that the success of strategic learning alignment might differ between departments because of this. These interviewees argued that the contingent success of this delivery was dependent on their managers who are a key conduit to learning success for Gibbs (2003) and Hutchinson and Purcell (2007) and as shown, this was not always evident for a significant number of online survey respondents and for these interview participants within larger organisations.

88% of smaller organisational respondents indicated there was senior management support for learning which is potentially unsurprising in the smaller business environment where managers are more closely connected to employees for Petts (1998). Extending this, participant 18 (a Head of People) indicated a strategic focus with this being linked to legal apprenticeship schemes which have become popular as a route into becoming a qualified legal advisor according to UCAS (2019b). Participant 18 also explained how his organisation also formally supported formal delivery of management development schemes which reflect a traditional approach popular at the end of the last century for Harrison (2005). Conversely, for participant 16 (the Head of HR), employees defined training needs which were that costed on an ad hoc basis which was less strategic in focus. Furthermore, in the small business settings of participants 19 -22 and 24, the approach was a little less strategic with more informal managerial development opportunities being linked to coaching and mentoring and consultant training being on the job reflecting Obaid, Farooq and Abid (2020) who review these less formal training methods.

Reflecting this mixed perspective, a third of online survey respondents in medium sized organisations disagreed that there was senior management support for learning and a

third thought there was also a lack of line management support. Additionally, for interviewees in nearly all (other than legal services for participant 18, a People Director) medium and smaller organisations a learning focus was either on the job or leaders including participant 21, a Managing Director, participant 22, another Managing Director and 23, the Owner and Chief Energy Officer focused on recruiting employees with the required skill set which was needed on appointment. For all smaller organisations any further development was on the job and knowledge transfer was also seen to be less strategic for a quarter of online survey respondents. This reinforces debate from Farvaque et al. (2009) who report that SMEs tend to focus on learning through this approach although as participant 14 (a Chief Operating Officer) confirms and Almeida and Aterido (2015) contend, organisations who approach learning in this way could lag behind in creating competitive advantage. Conversely, there was some evidence of digital knowledge capture and transfer for participant 13 (a Chief Executive Officer); 14 (a Chief Operating Officer) and participant 23 (an Owner and Chief Energy Officer) although legal services participants 16 (a Head of HR) and 18 (a People Director) and participant 15 (a Head of HR) thought their systems were a long way away from that focus.

In summary, a mixed perspective emerged indicating that strategy was not always aligned with these features in some medium and smaller organisations and conversely in larger organisations line management support was not transparent despite these dimension related measures being well articulated in dynamic capability debates. Having analysed key findings and at this point, it is now important to discuss how findings link to the theoretical frameworks for analysis employed within the study.

5.2.2 Highlighting how the theoretical frameworks of analyses detailed within the literature chapter link to the dynamic capability research findings.

To further address the first part of the research question, the frameworks for analysis discussed in the literature chapter and subsequently applied to the key findings in this section are:

- Assets, processes and paths (Teece, Pisano and Sheun, 1997)
- Sensing, seizing, transforming/managing threats (Teece, 2007)

- Business process maturity model levels (the Object Management Group, 2008)

Additional perspectives on heterogeneity, homogeneity and equifinality proposed by Teece, Pisano and Shuen (1997), Teece (2007) and Gelhard, von Delft, and Gudergan (2016) are also applied to the following analysis. Section 1.2 in the introductory chapter and section 2.7 in the literature chapter offered some professionally published evidence indicating that features of dynamic capabilities appeared to apply to the UK Professional Business Sector although this section extends that by analysing the findings from this PhD study. The first theme links to the aggregate research construct of change.

5.2.2.1 Sensing and Seizing: Adaptation and Modification during Change

As shown earlier, continuous adaptability to change was key for 94% of online survey and all interview participants with this being applied to growth, scalability and flexibility in larger organisational debates. Consequentially, larger organisations were 'sensing and seizing' through global extension of their base and driving this using technological advancements reflecting debate from Teece (2007). With their focus on profitable growth, they were also moving 'asset positions into processes' as Teece, Pisano and Shuen (1997) explain. With size in some larger global organisations impacted reactivity and efficiency of responsiveness for participants 3 (a Global HR and Culture Director), 8 (a HR Director for the UK and Ireland and EMEA regions) and 11 (the Senior Director of HR Projects and Change Management), this might impact 'seizing' potential although they were employing technology to overcome this, serving to 'manage threats' (Teece, 2007) with strategic support for this creating 'paths' as Teece, Pisano and Shuen (1997) explain.

Using technology to adapt and modify their response to change was also crucial for nearly all medium and smaller sized interviewees (aside from participant 16, a Head of HR) whose organisations were 'sensing and seizing' in this way (Teece, 2007). Despite this, all interviewees explained how they created new ideas and extended their market base through innovation and adaptation of their resources reflecting 'sensing, seizing' debates for Teece (2007). Furthermore, all interviewees indicated their investment in technology was reinforced by senior management buy-in and this links to how 'paths' are created for

Teece, Pisano and Shuen (1997). To some degree this also links to equifinality debates proposed by Gelhard, von Delft and Gudergan (2016) in that interviewees' contingent systems differed but the focus on technology, change and profitability were the same outcomes. Modification of structure, business model and internal processes to respond to external macro changes was clear in all interviews with all organisations perspectives indicating they were 'sensing' and 'seizing' opportunities by meeting customer solutions through alignment of their business model in line with Teece (2007).

In summary, all online survey and interview participants were efficiently reacting to change by adapting their processes to meet business goals in terms of business process maturity (Object Management Group, 2008). They were showing agility and process maturity in their focus on this although how far they responded to change through restructure and through business/service line and market expansion is considered in what follows.

5.2.2.2 Sensing and Seizing: Restructure, Expansion of Business Lines and Services and UK/ International Business Expansion

How far organisations focused on restructure alongside expansion of business lines and services and UK/International expansion to 'seize' opportunities featured in the investigation as a change outcome and dimension related measures serving to support modification of the resource base as Ambrosini, Bowman and Collier (2008) discuss.

Section 5.2.1 highlighted online survey and interview results which indicated that large organisations were more likely to be restructuring in response to change than smaller and medium organisations and thus, they can be considered to be more dynamically capable in this respect. Reflecting this, participants 2 (a Global Leader for Talent Initiatives); 3 (a Global People and Culture Director); 4 (a Group Head of Resourcing); 8 (a HR Director for UK & Ireland) and 6 (a Global Head of Talent and Recruitment) explained how they scanned local and international markets to create new business opportunities and achieve market diversification by placing existing products into these new markets as Teece (2007) advocates. Diversification in the product or service line portfolio was also evident for all online survey respondents and all interviewees based in medium and smaller organisations. They were less focused on international expansion but their focus

was nonetheless strategic reflecting their dynamic capability to some degree in that they sought new markets and opportunities to extend their growth. The medium and smaller organisation approach also reinforced heterogeneity debates proposed by Teece, Pisano and Shuen (1997) in that how they achieved that was contingently defined by all interviewees. As such they were modifying and adapting their 'assets' to become 'processes' with most business leaders (aside from participant 16, a Head of HR) being digitally focussed and creating 'paths' in line with the framework offered by Teece, Pisano and Shuen (1997).

In summary, in terms of restructuring, business/service line and U.K./International expansion, all larger organisations were efficiently reacting by adapting to improve their processes to meet their business goals indicating optimum, innovative business process maturity (the Object Management Group, 2008). Generally, whilst all medium and smaller organisations centred on business line extension, geographical expansion was UK based for most with the exception of participants 13 (a Chief Executive Officer); 14 (a Chief Operating Officer and participant 23 (an Owner and Chief Energy Officer). For those participants, their business process maturity level is optimum although in terms or a greater focus on business expansion legal service businesses including those of participants 16 (a Head of HR) and 18 (a Director of HR) were 'predictable' for the Object Management Group (2008). They had only begun to exploit the capability of the 'process infrastructure and process assets' (Teece, Pisano and Shuen, 1997) although their focus then was to achieve defined results with a managed but somewhat limited process result which impacted optimum innovative profitability (the Object Management Group, 2008).

5.2.2.3 Sensing and Seizing to Enhance Profitability through Innovation

Ultimately, the processes involved in dynamic capabilities relate to how organisations create a unique strategic ability through entrepreneurial activity whereby they 'sense' how this might be achieved through their focus on innovation to 'seize and transform' to achieve profitability (Teece, 2007). All interviewee respondents were strategically centred on this regardless of the size of their organisation and indicated that:

- Increasing profitability through market awareness was crucial for large interviewees explicitly reflecting 'sensing' debates through their focus on research and development (R & D) (Teece, 2007). As such, an equifinality result was depicted by participants 1 (a Client Service Director EMEA Region); 3 (a Global People and Culture Director); 6 a Global Head of Talent and Recruitment); 8 (the HR Director for UK & Ireland and also Exec Business partner for consulting partners across North EMEA) and 11 (a Senior Director of HR Projects and Change Management) in that they focused on R & D contingently to support expansion and to arrive at a shared profitability outcome confirming Gelhard, von Delft and Gudergan (2016).

- All the interviewees focus on modifying systems and processes to create profitability links to how asset positions become processes through path alignment for Teece, Pisano and Shuen (1997). Furthermore, the heterogeneous use of digital technologies confirms Teece, Pisano and Sheun (1997) as they indicated contingent approaches.

Aside from participants 16 (a Head of HR) and 18 (a Director of People) in legal services, all interviewees in medium and smaller sized organisations indicated a similar level of digital focus and drove this through their strategy, processes and systems reflecting to some degree both business model innovation and technology-based innovation which are well debated features of dynamic capabilities for Teece (2007, 2012). Furthermore, the STACK business model adapted from Bofarull (2019) heterogeneously created significant profitability for participant 23 (the Owner and Chief Energy Officer) and clearly reflected dynamic capability debates linked to modification and adaptation of assets to become processes supported by leadership 'path' commitment (Teece, Pisano and Shuen, 1997).

In summary and in terms of business process maturity, 87% of online survey respondents concurred with all the interview respondents. As such, they were 'optimising and innovating' with their focus on profitability through innovation. Interviewees 16 and 18, who were based in legal services, highlighted their focus on profitability although had less digital focus in terms of systems and processes and as such, their business process maturity was 'predictable' but not fully 'innovating. ' They were managing processes and results and standardising systems to create a stable but not a fully growth focused result.

Innovation in business process maturity is linked to the way organisations generate capacity for learning and knowledge transfer. These features are significantly reflected in dynamic capability debates (Easterby-Smith and Prieto, 2008 and many others) and were investigated as further measures within this study as features of a skills based bundle linked to both dynamic capabilities and resource based perspectives (Barney, 1991).

5.2.2.4 Transforming through a Focus on Organisational Learning and Transferring Knowledge to Align Employees with Strategy

Supporting learning and the transfer of knowledge are key to innovation capability and link to both skills based dynamic capability debates (featured in section 2.3.4) and to 'sensing, seizing and transforming' features of the theory (Teece, 2007). Conversely though, a mixed perspective emerged indicating that strategy was not always aligned with these features for nearly all medium and small participants aside from participant 18 (a Director of HR); participant 23 (an Owner and Chief Energy Officer) and participant 24 (a Senior Consultant). Conversely, in larger organisations line management support was not always transparent for participants 2 (a Global Leader for Talent Initiatives); 3 (a Global People and Culture Director); 4 (a Group Head of Resourcing) and 6 (a Global Head of Talent and Recruitment).

Despite this, all larger organisational alignment with online learning/knowledge management platforms and the contingent process bundles they linked to those indicated they used these in a heterogeneous way in line with Teece, Pisano and Shuen (1997). Evidence of 'bundling' linked to performance management and succession planning reinforcing dynamic capability debates offered by Teece, Pisano and Shuen (1997). Conversely, all interviewees in medium and smaller organisations aside from participants 18 (a Head of People) and 23 (an Owner and Chief Energy Officer) indicated their learning focus was 'on the job' with participant 14 (a Chief Operating Officer) acknowledging that organisations who approach learning in this way could lag behind in creating competitive advantage impacting dynamic capability reflecting debates from Eisenhardt and Martin (2000). Aside from participants 13 (the Chief Executive Officer); 14 (the Chief Operating Officer); 23 (the Owner and Chief Energy Officer) and 24 (the HR Consultant), dynamic capability was also impacted by a lack of transparency in knowledge

transfer for other interviewees based in smaller and medium organisations who argued this lacked analysis in their strategic reviews.

In summary, all larger and some medium organisations indicate business process 'predictability' (Object Management Group, 2008) in that they are managing learning and knowledge transfer processes in largely a quantitative manner and standardising using online platforms. In some medium and smaller organisations learning and knowledge are 'managed' in business process maturity as the former is linked to roles and is largely on the job with the latter reflecting repeatable practices although some use of technology results in reduced work (Object Management Group, 2008).

Section 2.3.6 of the literature linked innovation capability to learning, knowledge transfer and skills to connect them as a digital skills practice bundle in this study. Whilst learning and knowledge transfer study outcomes are less clear, the investigation focused on examining the importance of digital communication competencies in the UK Professional Business context to both examine if that practice bundle might be vital and to address the research question in full.

5.2.3 The Importance of digital communication competence in the contemporary UK Professional Business Sector contemporary context.

Initially, the first part of this part of the analysis relates to, "*the collective (organizational) level*" of digital communication skills (Sousa and Rocha, 2018b, p. 327) which applied to the employee pool which was defined at the start of section 3.6. The online survey outcomes and semi structured interviews offered strong evidence indicating that digital communication competence is important in the contemporary UK Professional Business Sector contemporary context. Indeed, section 4.4 in the findings chapter depicted how 93% of respondents agreed that digital skills contributed to business success whilst 94% agreed that digital communication competence is important in their business context with semi structured interviews highlighting why this was important.

5.2.3.1 The Importance of Digital Communication Competence in the Contemporary UK Professional Business Sector Context

Semi structured interviewees confirmed online survey respondent findings with all interviewees arguing that digital skills support organisation growth and efficiencies. They agreed that digital communication competence was a vital feature of this digital skills set which supported communication and collaboration to overcome inefficiencies in line with Fitzgerald et al. (2012). For all interviewees digital skills were also seen to be a work enabler, efficiency generator and a robust and reliable data creator ability which would have significant impact on their businesses in the immediate and longer-term context if applied to data analytics reflecting debates from Angrave et al. (2016). Perspectives offered by participant 6 (a Global Head of Talent and Recruitment) concurred with Deloitte (2019) as both consider data analytics to be key in the digital environment. The digital skills focus of all interviewees also confirms the findings of Khalil, and Belitski (2020) and Rashid and Ratten (2020) who centre their discussion on the importance of this skills set.

All interviewees (aside from participant 10, a HR Manager) depicted perspectives aligned with the changing nature of the digital landscape and discussed the impact of digital disruption confirming the focus of Warner and Wäger (2019) and others. The need for higher level digital skills was also presented concurring with Kispeter's research focus in 2018, although the issue of the lack of these skills threatening business survival was clear for participants 16 (a Head of HR) and 18 (a Head of People) who were based in more traditional legal services organisations. Their debates reflected the extensive skills gap discussion shown in section 2.5.2 of the literature chapter with these interviewees considering the threat of automation discussed by Servoz (2019) and many others. They acknowledged this was currently impacting the legal sector confirming Turner et al. (2017, p. 27) who explains that "*junior associates and paralegals are already the endangered species in the law firms"* because of this. Also, with these interviewees also acknowledging that many of the larger legal firms are investing in new technologies including "*machine learning processes for contract analysis, due diligence, and legal research,"* for Turner et al. (2017, p. 27), this compounds the fierce competition which these interviewees knew they were facing.

For most interviewees in all sizes of businesses digital leadership was emphasised as being crucial in their contemporary workplace context reflecting the digital leadership

focus of Hess et al. (2016). In line with El Sawy et al. (2016), all interviewees applied their thinking to their business model and the digital linkage, platforms, mind-sets and skill sets in the workplace. Thus and with a digital skills focus being apparent, participants were asked to consider the importance of features of digital communication competence defined by Ferrari (2013).

5.2.3.2 The Importance of Features of Digital Communication Competence

Features of digital communication competence were defined using the 'very influential' (Kispeter, 2018) digital communication competence framework offered by Ferrari (2013). As such and reinforcing the importance of digital communication competence further, strong findings emerged with 98% of online survey respondents considering interaction with new technologies to be important. Sharing digital and online content and online employee citizenship were only slightly less important with 93% and 97% respectively considering this important. What was evident is that the importance of online safety and managing digital identity is crucial to these organisations with 98% and 99% respectively considering this important. When considering what was crucial, interacting with new technologies, online safety and managing digital identity were key for online survey respondents.

Interviewees from larger organisations expanded on the importance of these features of digital communication competence with participants 1-12 perspectives linking online sharing to their use of digital platforms to enhance service delivery in line with a current focus of the EU (2020a and 2020b). All interviewees discussed the key role of digital leadership in driving their focus on strategic digital communications also highlighted by Vecciolini (2019). Medium and smaller organisations participants 13 (a Chief Executive Officer); 14 (a Chief Operating Officer 19 (a Chief Financial Officer) and participant 23 (an Owner and Chief Energy Officer) all considered online sharing to be key to organisational efficiencies and vital in creating a competitive edge. For these interviewees, digital technologies included online platforms and technologies such as Wazuko, IEngage and Workplace also supported collaboration in their organisations. Using these helped them to speedily address issues and help to create 'collective intelligence' supporting their digital eco-system concurring with Elia et al. (2020). This enabled employees to

contribute to online debates and enhanced virtual team communications as Bradley and McDonald (2011) advocate. In other organisations including participants 15 (a Head of HR) and 22 (a Managing Director) there was less focus of online sharing which to some degree reinforces the unclear perspective on how far knowledge transfer was supported depicted in section 5.2.1.

Although online citizenship was slightly less important for online survey respondents, this was highlighted as being rather more important for interviewees. Digital technologies were employed to align employees with each other and one recruitment agency had centred their strategy on this feature to enhance talent attraction and brand recognition according to participants 13 (a Chief Executive Officer) and 14 (a Chief Operating Officer). In contrast, participants 16 (a Head of HR) and 18 (a Head of People) in legal services organisations discussed how they lacked a focus on online social interactions indicating that they did not have the systems in place to support this although they considered this to be an urgent priority. Given they acknowledged they were failing behind larger legal services businesses based in Manchester and London, their debates reflected Spadafora (2019) who reports that some smaller and medium sized UK businesses lack the focus of larger organisations in automating business processes and systems. Contrastingly, in all other smaller organisations online interaction and organisational citizenship was key in daily operations. It was also a feature of strategy for one consultancy who linked this to their strategic business model with their plans and communication channels supporting their growth strategy and brand value according to participant 23 (Owner and Chief People Officer).

Reflecting the online survey results, a strategic focus was clear for all larger organisations with interviewees emphasising the importance of online safety and managing digital identity reflecting a significant, current focus by the EU (2020c). This linked to policies, was reinforced through training and for participants 8 (a HR Director for UK & Ireland and also Exec. Business partner for consulting partners across North EMEA.) and 11 (a Senior Director of HR Projects and Change Management) was ‘policed through dedicated’ departments. Similarly, these features of digital communication competence were seen as key for medium and smaller organisations with participants 15 (a HR Manager) and 18 (a Head of People) linking this to the impact of GPDR (2018).

With interviewees reinforcing online survey findings and clearly emphasising the importance of features of digital communication competence, the study then examined which levels of ability were important within the UK Professional Business Sector.

5.2.3.3 Understanding how levels of digital communication competence apply to the UK Professional Business Sectors, to job roles and to individual employees.

Levels of digital communication competence were identified as being basic, intermediate and advanced as defined in the framework offered by Ferrari (2013) and which are depicted in table 2.7 of the literature chapter. Whilst 68% of online survey findings indicated that a basic to intermediate level of competence was important within their organisations, having only this basic levels of competence was also seen to be problematic. Furthermore, online survey respondents including: respondent 45 – OS, a HR Manager (O-S denotes Online Survey as table 1 in Appendix 4 explains); respondent 38 O-S, a Head of HR and respondent 50 O-S, a HR Director and interviewees including: participant 1 (a Client Service Director EMEA Region); 15 (a HR Manager and 20 (a Financial Services Consultant) all argued that older workers lacked digital communication competence with their perspectives reflecting Age UK and Age Concern (2010) research findings. They also indicated that: customers thought they need higher levels of the skill set; lack of digital communication skills affected turnaround time and other efficiencies and lack of this competence would negatively impact their future focus on digital marketing. Additionally, participant 6 (a Global Head of Talent and Recruitment), participant 8 (the HR Director for UK & Ireland and also Exec. Business partner for consulting partners across North EMEA) and participant 10 (a HR Manager) reinforced the importance of the skill set although they added that work based digital communication skills were not needed when there was a manual employee base. Participant 15 (a Head of HR) explained how automation was impacting manual roles confirming debates from the BBC (2019b) and for participant 10 (a HR Manager) their potential lack of connection to the communication infrastructure means they might not be aligned with the communication strategy reflecting the perspective of Loges and Young (2001).

For participant 6 (a Global Head of Talent and Recruitment), participant 8 (the HR Director for UK & Ireland and also Exec. Business partner for consulting partners across North

EMEA), participant 10 (a HR Manager) and online survey respondents including 12, 21-OS, 15-OS, 19-OS, 34-OS, 45-OS, 61-OS, 72-OS, 89-OS (all based within large organisations), strict security protocols applied to some manual groups. Indeed, in the business setting of participant 6 (The Head of Global Talent and participant 10 (the HR Manager), Ministry of Defence (2011) standards applied. Conversely for all interviewees based in consultancy, technology focused and recruitment settings, digital communication competency levels were seen to be on a continuum ranging from intermediate to advanced levels with the norm tending to lean towards advanced levels of skill. In these businesses their skill focus is aligned with digital transformation as explained by Heavin and Power (2018) and Vey et al. (2017) support.

The importance of digital transformation was also highlighted with participants 19 -20 and 23-24 (who were based in smaller consultancy settings) indicating how advanced level digital communication skills helped them work towards this focus in line with debates offered by Sousa and Rocha (2019b). Interviewees also indicated how advanced level digital communication competence was an important skill set in medium and smaller recruitment settings of participants 13 (a Chief Executive Officer); 14 (a Chief Operating Officer) and 22(a Managing Director) where it was used to overcome the industry dilemma of attracting passive talent identified by many professional commentators (for example, Kappel, 2018 (for Forbes); Deloitte, 2013 and PwC, 2014). They also explained how the knowledge intensive focus of the business linked to digital communications in line with Monge and Contractor (2003) cited by Trier (2008). Despite this and overall, intermediate levels of the competencies were important for the whole sample although this differed for some job functions, job roles and some individuals as explained in what follows.

5.2.3.3.1 The Importance of Digital Communication Competence in Job Roles & Job Functions

Qualitative responses within the online survey depicted in section 4.2.2 confirmed semi structured interview findings which indicated how advanced level digital communication competence is associated with any function with an internal/external facing remit for participants including marketing and sales departments as their central role in business communications is reliant on digital methodologies confirming Waldeck et al. (2012). For

online survey respondents (O-S 47 and O-S 32), this applied to HR, sales and other departments who have a dual internal and external focus to meet customer demand reflecting Newman (2018). Conversely, online survey respondents O-S 75 and O-S 12 concurred with participants 10 (a HR Manager) and participant 15 (another HR Manager) and argued that advanced level digital communication competence was currently only needed in specialised roles. In line with the revised DIGCOMP level definitions they argued that this is where employees were needed, "*create solutions to solve complex problems"* Carretero, Vuorikari and Punie (2017, p. 26). Both online survey respondents (O-S 75) (O-S 96) and (O-S 29) and interviewees including participant 1 (Client Service Director EMEA Region); 2 (the Global Leader for Talent Initiatives); 13 (Chief Executive Officer); 14 (Chief Operating Officer) confirmed that some specialist employees needed the ability to not only 'interact using digital technologies' and digital communication systems but to also to generate 'new ideas' and develop new processes to adapt and modify their systems. For numerous online survey (including O-S 75, 0-S 46, 0-S 23) and all large organisational interview respondents, advanced level digital communication capability was also evident in teams working across different time zones and supported communication in their geographical dispersion. Thus, they confirmed how digital communications were ''*at the heart of the operating environment of these teams"* (Prasad and Akhilesh, 2002, p. 103).

In summary, larger organisations depict higher level digital communication competence in centralised functions and this remains the skill set of specialised, strategic workers whilst conversely, in other more digitally focused medium and smaller organisations there is more of a whole workforce focus with leaders supporting this. Despite this, this whole workforce competence in digital communications impacts differently for some workers and in determining how important the skill set is in the competitive environment of the UK Professional Business Sector it is vital to consider this.

5.2.3.3.2 Digital Communication Competence: Individual Employee Implications

Indeed, the individual employee aspect of organisational skills need is important and requires focus for Sousa and Rocha (2019b) with findings indicating that:

- In larger and medium sized recruitment and consultancy organisations where participants 5 (a Group Sector Managing Director); 13 (a Chief Executive Officer) and 14 (a Chief Operating Officer) argued that a generally younger workforce served as a skills enabler, these employees were defined as 'digitally native.' For Prensky (2001) this denotes children who had grown up within the technological era and with innate abilities to use technologies. Interviewee 13 (a Chief Operating Officer) said that their innate ability serves as an advantage in these digital environments.

- As highlighted above online survey respondents including: respondent 45 – OS, a HR Manager (O-S denotes Online Survey as table 1 in Appendix 4 explains); respondent 38 O-S, a head of HR and respondent 50 O-S, a HR Director and interviewees including: participant 1 (a Client Service Director EMEA Region); 15 (a HR Manager and 20 (a Financial Services Consultant) age created a problem with the communication infrastructure. They perceived older workers: lack digital skills; did not have the motivation to learn those skills and/or were not interested or lacked understating of new technologies reflecting research from Age Concern and Help the Aged UK (2010) which established similar findings. This is problematic given that the whole organisation focus on digital skills is crucial to overcome 'the grey digital divide' (Lagacé et al. 2016).

In summary, when assessing which levels of competence apply to departments, functions, or to employees themselves the perspective this not only addressed the fourth research objective but also emphasised the importance of digital communication competence further reinforcing the third research objective. Ultimately, this chapter has shown how the research question has been addressed indicating that the UK Professional Business Sector are largely dynamically capable and consider digital communication competence to be important in their business context. This also reinforces that the key aim of the study has been achieved with further conclusions being considered in the following final chapter.

5.3 Chapter Summary

Within this chapter, findings have been aligned with debates presented within the literature chapter. In addressing the research question, the chapter has shown how the UK Professional Business Sector largely consider intermediate to advanced levels of digital communication competence to be important to their businesses reflecting how Ferrari (2013), Carretero, Vuorikari and Punie (2017), Kispeter (2018) and many others see these skills as being vital in the contemporary workplace. These organisations generally exhibiting dynamic capability features defined by Teece, Pisano and Shuen (1997); Teece (2007) and others although their strategic learning and knowledge focus requires further attention to enable greater innovative capability and to reinforce that as a dynamic skills resource bundle.

The research question was devised to primarily investigate the research themes, which would then enable the research objectives and consequently the aim to be met. The question was also devised to focus the study on specific features of dynamic capabilities and digital communication competence, and this ensured that the study stayed within the research framework and did not become distracted by wider digital transformation debates. Digital skills and competencies are constantly changing as is the UK business context although in addressing the research question this has offered the UK Professional Business Sector a snapshot of how they need to focus on digital skills in general to drive forward their dynamism and to stay in line with the changing digital business world. To offer further conclusions, the final chapter aligns the findings and discussion with the research objectives and recommendations emerging from the investigation are offered.

Chapter 6: Conclusions

6 Conclusions

6.1 Introduction

Within this final section, conclusions emphasise the importance of digital communication competencies in the competitive advantage context of the UK Professional Business Sector. This begins with a summary of the research problem and rationale with all four research objectives then being reviewed to indicate how far the aims of the study have been met. The chapter also presents the research contribution and suggestions for future research. Finally, a concluding statement offers a summary of the key messages the research study has delivered.

The introductory chapter indicated how the research problem centred on the crucial role of digital skills in the emerging new technology era of work (Nania et al. 2019 amongst others). These skills are crucial in supporting UK economic growth although a persistent digital skills gap within a volatile business environment complicate this (Kispeter, 2018 and others). With the UK Professional Business Sector being a leading knowledge based, service industry contributing to national competitivity (Riley et al. 2020), the research uniquely examined how digital communication competence supports competitive advantage context of that sector.

Employing dynamic capabilities as the key framework for analysis, the study has made an original contribution to theory by investigating if features of the construct linked to their competitive approach. The study also uniquely employed the Business Process Maturity Model (BPMM) (the Object Management Group, 2008) to examine how business size impacted processual maturity of those features. The study highlighted the need for digital communication competencies in the UK Professional Business Sector and in the changing world of work and examined how features of that skills set supported their organisational response. In achieving this, the following sections explain how the investigation met the key aims of the study.

6.2 Meeting the Research Aims

Thus, within the study, the central research aim was to,

'Critically evaluate the role of digital communication competencies in the competitive advantage context of the Professional Business Sector.'

In meeting the aim, the study has addressed four research objectives.

6.2.1 Research Objective One: 1. To critically evaluate the literature to understand how Professional Business Sector organisations develop their competitive position in line with the digital skills focus in the UK economy.

Chapter Two offered a critical evaluation of the literature which centred on two research themes. To achieve this research objective, the competitive position of the UK Professional Business Sector was analysed using dynamic capabilities as conceptual frameworks for analysis. The first linked to Teece, Pisano and Shuen (1997) and the second to Teece (2007). In employing the Business Process Maturity Model (Object Management Group, 2008) to analyse how size of organisation impacted dynamic capability, the literature indicated how this linked to dynamic capabilities debates and to the skills focus of the study. The literature chapter also identified dynamic capability construct measures employed within the investigation to extend understanding of the theory and identified how the construct can be linked to digital transformation, digital technologies and ultimately, to digital skills debates. Furthermore, the dynamic capability focus on strategic learning and knowledge transfer as features of a digital skills bundle linked to the second literature theme.

That focused on the digital skills focus in the UK economy, which are crucial in contributing to competitive business growth although a well-publicised skills gap continues to be a pervasive issue (Nania et al., 2019). The focus then moved to the digital workplace where digital communications are key and finally spotlighted the 'very influential' (Kispeter, 2018) DIGCOMP framework proposed by Ferrari (2013) which has been identified as a theoretical framework for analysis of digital communication competence. That was employed to investigate the importance of that area of digital competence in the competitive advantage context of the UK Professional Business Sector. Ultimately, the literature chapter supported a unique contribution to theory to be made by spotlighting how the UK Professional Business Sector reflects the themes depicted in the literature.

This section indicates how the first research objective has been addressed through the literature chapter debate. Subsequently, the second research objective linked to the data collection component of the investigation.

6.2.2 Research Objective Two: To collect primary data from respondents' in the Professional Business Sector to investigate the key literature themes relating to dynamic capabilities and digital communication competence.

In achieving this research objective, methodological choices made by the researcher enabled primary data to be gathered which contributed to the comprehensive findings depicted in Chapter Four and summarised in Appendix Five. The researcher systematically addressed the research aim, objectives and questions using a pragmatist, abductive, mixed methods methodology and applying a concurrent triangulated sequencing design discussed in section 3.4. Representing the UK Professional Business Sector 99 managerial respondents from across the UK reflected the homogeneous purposive sampling approach completed a valid and reliable quantitative online survey. A further 24 senior and middle managers from across the UK took part in valid, reliable and transferable semi structured interviews as an expert homogeneous sample. Validity and reliability was in focus as section 3.5 details. Appendix Five highlights findings emerging from managerial level professionals who were invited to participate in this mixed method study. These also supported the research question to be addressed as Chapter Five depicts. That centred on analysis of the primary date which also addressed the third research objective as shown in what follows.

6.2.3 Research Objective Three: To analyse the primary data to understand how Professional Business Sector organisations develop their competitive position in line with a focus on digital communication competence.

Chapter Five of the thesis offers a full analysis of the primary data which is summarised in Appendix Five and this serves to address the third research objective. As depicted in Chapter Two and also summarised using table 2.9 and figure 2.6 in section 2.8, the following theoretical constructs have been employed as frameworks for analysis:

- Asset positions, processes & paths (Teece, Pisano and Shuen, 1997)

- Sensing, seizing and transforming (Teece, 2007)
- Business Process Maturity (the Object Management Group, 2008)
- Digital communication competency framework (Ferrari, 2013)

These were applied to discussion detailed in section 5.2.2 of Chapter Five and to the summarised analysis of debate featuring in Appendix Five. Both indicate how online survey and interview data have been merged in this concluding stage using the crossover analysis method discussed in section 3.8 and reflecting the advice of Creswell (2014). Based on the analysis depicted in full in Chapter Five and in summary in Appendix Five, conclusions have been drawn and recommendations made which serve to address the final research objective.

6.2.4 Research Objective Four: To draw conclusions and make recommendations on how the Professional Business Sector can utilise digital communication competence to support their competitive advantage.

To address the final research objective, this section offers ultimate conclusions drawn from the study and proposes recommendations reflecting this. Using the framework offered by Teece, Pisano and Shuen (1997) and Teece (2007), it can be concluded that larger organisations and others with a digital transformation focus are largely dynamically capable as they are modifying and adapting to 'sense, seize and transform' opportunities with their focus on digital technologies. Larger organisations and all sizes of organisations reflecting strategic digital transformation generally indicate higher levels of business process maturity (the Object Management Group, 2008) and thus they create paths from assets (defined in these study as measures within the investigation) for Teece, Pisano and Shuen (1997). It can be concluded that all sizes of organisations are showing equifinality in their business product/line expansion, profitability, innovation and in their organisational change foci although how they achieve that is heterogeneous in approach in line with Teece, Pisano and Shuen (1997). Emerging from the investigation, response to change to support product/ service and market expansion through a focus on innovation and the outcome of profitability are all clearly "*dimension-related constructs"* or measures indicating the organisational *"propensity to change the resource base"* for Barreto (2010, p. 273).

Despite this, their dynamic capability is compromised by their strategic learning and knowledge transfer focus and this conflicts with their clear digital skill focus on digital communication competences and features. To fully reinforce that strategic learning, knowledge transfer and digital communication competence are a 'bundle' of "*dimension related constructs"* (Barreto (2010, p. 273) supporting innovation capability this is key to the recommendations which follow. Despite this, some talent management features and processes in some organisations are already in place to support a digital skills focused 'bundle.'

With consultancy, recruitment and digitally focused businesses requiring an advanced level of skill in this area for them to be a fully 'tech-led' workforce and digitally transformational, a learning and knowledge focus is key to this. In other less digitally focused parts of the sector a lack of focus on digital communication competence could impact ability to compete with larger and more digitally aligned competitors. The unease with older workers and their digital skills needs expressed by Age Concern and Help the Aged UK (2010) has been reinforced within this study. This needs addressing to align the entire workforce with a digital skills focus given that they are a part of the ageing workforce in the UK (ONS, 2019) who need to be engaged with the digital environment.

Emerging from these general conclusions, the subsequent recommendations suggest a re-energised strategic learning and knowledge transfer focus, driven through management commitment and enabled by carefully designed and evaluated employee development.

6.2.4.1 Recommendations: A Strategic Learning & Knowledge Transfer Focus

Appendix Six identifies the key areas of recommendation supported by detailed and evidence-based suggestions made as an outcome of this investigation. These are aimed at creating a strategic learning and knowledge transfer focus and enabling an organisational digital mind-set to drive competitive advantage and excel in dynamic capability. Recommendations emerge from conclusions reached in this section and centre on four key themes:

1) A Refreshed Business Model Alignment with a Learning/Knowledge Focus

2) Contingently Centred Senior Management and Management Commitment
3) Measurement through Analytics to Understand Outcomes
4) Digital Competence Development to Support the Digital Workplace in a Digital Economy

The following represents a summary of the key recommendations detailed in Appendix 6.

1. Business Model Alignment

As reinforced by Wang and Ahmed (2007) and Teece (2007, 2018), business model alignment is key in supporting the dynamic capability environment centred on creating an organisational digital mind-set. For Jacobs and Pretorius (2020) this is crucial in applying digital innovation within the fourth industrial revolution dynamic capability environment.

As an outcome of this study, it is suggested that a re-energised focus on learning and knowledge transfer driven through a re-examination of the organisations' business model would enable further dynamic capability to be achieved. This recommendation is made given that in larger organisations learning lacked transparency of support down the line and conversely in some smaller and medium sized organisations strategic alignment was less apparent with focus being on 'on the job' training as sections 4.5.5. and 5.6.4. explain.

For larger organisations this might involve a refreshed learning/knowledge focus with management contribution being mandated and measured given that these sections of the results and discussion also show that line management support for learning and knowledge transfer was unclear. Section 2.5.3 in the literature chapter explained that in a digital transformation environment, line managers make the connection between strategy, HR and the team to help both build on existing and also create new knowledge and skills to achieve a learning focus (Schuchmann and Seufert, 2015).

For smaller organisations, a STACKS business model design adapted from Bofarull (2019) and indicated in section 4.5.4 could be contingently modified to reflect their own organisational design, structure and approach and could create more strategic alignment although senior management commitment to that is vital as section 2.3.7 explains. The STACKS business model supports the organisation to continually modify and adapt their

focus and processes to respond to the changing needs of the customer. In this way asset positions (their organisational offering) become processes (adapted and modified to meet customer need) and emerge as 'paths' through senior management support supported dynamic capability for Teece, Pisano and Shuen (1997). The organisation can 'sense' through their offering, 'seize' through modification and adaptation of that offering and 'transform' through senior management workforce support for the delivery of the solution or product. In this way, they create dynamic capability for Teece (2007).

2. Contingently Centred Senior Management and Management Commitment

This is a vital component of the recommendations given that senior managers are the key agents in organisational decision making and serve to create paths for Teece, Pisano and Shuen (1997) when they 'sense and seize' opportunities for Teece (2007). They are also central in driving the focus on a digital mind-set as Singh and Hess (2017) advocate.

How this can be achieved is dependent on the contingent nature of the managerial body within organisations although senior managers must identify the desired learning culture for Sloman (2007) and as shown, Vey et al. (2017) also argue that in the fourth industrial revolution context a learning and knowledge focused culture supports change and innovation. They must employ the communication methodologies they view as being most effective to align employees with this focus and this recommendation is again aligned with the results and discussion shown in sections 4.5.5. and 5.6.4 whereby it was unclear how far line management support for learning and knowledge transfer transferred down the line in large organisations and conversely, in some smaller and medium sized organisations it lacked strategic focus. Section 2.3.6 of the literature chapter indicated how an organisational focus on learning and managing knowledge is linked to innovation capability (Du Plessis, 2007) although the contemporary organisational learning culture also requires a digital mind-set in the digital workplace (Kane et al., 2015). This was emphasised by larger interviewees was saw this as a key strategic focus as section 4.5.3 indicates.

In larger organisations, management focus on learning and knowledge is key whilst in most medium and smaller organisations a more strategic focus is needed. Measuring the impact of this learning and knowledge focus is essential to understand any required

modification and adaptation of the linked assets to enable them to become processes as defined by Teece, Pisano and Shuen (1997).

3. Measurement Using Analytics

Data analytics are a key feature in Internet of Things (IoT) debates (WEF, 2020a) although they can represent a threat to work in that they can replace human input (Mouedenne et al., 2019). Despite this, larger organisations use data as an innovation focus (as shown in section 4.5.2/3) which aligned them with 'sensing' debates proposed by Teece (2007). With larger organisations being able to extend their use of analytics they can ensure measurement of learning extends down the line given that it was unclear how transparent this was in larger organisations as sections 4.3.3 and 4.5.5 indicate. Whilst the European Commission (2020c) indicate that learning platforms are a crucial function in the digital economy with interviewees from all larger and some medium sized businesses employing these to support learning delivery and analytics, how far this was supported by line management was unclear thus necessitating a review and measurement of that practice being required.

Medium and smaller organisations who do not employ learning platforms could improve measurement of learning/knowledge outcomes by using the 'bundling' approach identified in large and medium sized interviews indicated in sections 5.6.2 and 5.6.4 and reflecting debates from Barney (1991) and Teece, Pisano and Shuen (1997). The STACKS business model approach (discussed in the first recommendation above) enables product/service offerings to be contingently aligned with organisational processes which could be modified and adapted into heterogeneous bundles centred on measurement of learning and knowledge outcomes. With a focus on learning metrics linked to performance reviews, this could go some way to unlocking the elusive 'black box' by identifying the processes which create dynamic capabilities (Sirmon, Hitt and Ireland, 2007 and Pavlou and El Sawy, 2011). Organisational performance review measures featured in debates in section 4.5.4 could be extended to assess managerial input into training/development reviews and evaluate talent management and succession plan outcomes to create organisational employee centred data which would support a strategic focus on learning and knowledge transfer. This bundle can enable their HR functions or professionals to support dynamic capability (Garavan et al., 2016).

4. Digital Competence Development

Throughout the literature review and as shown explicitly in section 2.5.3, the study indicated how digital skills training is vital. Indeed, findings in section 4.5.2 and 4.5.3 indicated how creating a digital mind-set is essential in supporting the contemporary workplace. Reflecting this, recommendations for a digital competence employee development focus feature in Appendix 6. Digital communication competence development was not as important in legal services organisations although they will lag large competitors if they do not pay attention to digital skills in employee development for Turner et al. (2017). Additionally, and in large organisations, a strategic approach to learning and knowledge transfer is evident although how far that transfers down the line can be improved, conflicting with the perspective of Sloman (2007). Conversely, some medium and smaller organisations lack a strategic focus with Almeida and Aterido (2015) arguing that organisations who approach learning in this way could lag in creating competitive advantage when formal systems are not in place.

In all sizes of organisations, management feedback and input are vital in the recommended strategic focus on measuring the impact of employee development advocated by Kirkpatrick (1994 cited by Harrison, 2005). Section 2.5.1 indicated how evaluating learning in this way creates competitive advantage. All the organisations could use their existing learning approaches although they must ensure these are linked to measurement of: reaction to learning; changes in learning and behaviours as an outcome of development and impact on organisational results as depicted in Appendix Six. In this way, and in all sizes of organisations, results can feed back into strategic C-Suite debates which in turn supports 'paths' to be created for Teece, Pisano and Shuen (1997).

Conclusions emerging from the study have contributed to strategic recommendations being made which centre on learning and knowledge transfer, link to the explicit focus on digital communication competence and explain the role of employee development in developing that and other digital competencies. These conclusions and subsequent recommendations have addressed the fourth and final research objective and are linked to the research themes, study findings and analyses debates emerging within previous chapters in the thesis. All serve to support the research contribution made through this investigation.

6.3 The Research Contribution

In meeting the aims and objectives of the study and addressing the research question, this research has enabled a conceptual, instrumental and symbolic contribution as Connelly et al. (2011) define.

6.3.1 Contribution to Theory

The research makes a unique conceptual contribution by examining the importance of digital communication competence in the UK Professional Business Sector context. In achieving this, measures involved in the investigation indicate the organisational *"propensity to change the resource base"* (Barreto, 2010, p. 273) with digital communication competence features and skills being key "*dimension related constructs*" supporting that 'resource base.' The investigation has also shown that strategic learning, knowledge transfer and wider talent management features (employee development, performance management, succession planning etc.) could support a 'strategic digital skills bundle' and reinforce higher innovative capacity to gain further competitive advantage. The original focus of the study linking digital communication competence measures to dynamic capabilities also extends contemporary contextual application of the concept and addresses how a digital skills 'bundle' can support dynamism and ensure the workforce in the UK 'tech-led' economy.

The study also provides an original contribution by employing the Business Process Maturity Model (Object Management Group, 2008) as a framework for analysis of how size of business impacts process maturity relating to dynamic capabilities. The model reinforces how quality management methodologies can be applied to knowledge work in the UK Professional Business context as applying the processual development levels to strategic innovation features can support the sector to enable knowledge transfer; agree contingently defined best practice; indicate wider opportunities and support continuous improvement by focusing on modification and adaptation. Ultimately, monitoring and reviewing processual maturity can highlight the success of their governance based innovation decisions.

In achieving the research aims and making an original contribution, the study also offers the researcher to make an empirical contribution to mixed methods methodological investigations.

6.3.2 Contribution to Methodology

The researcher applied their own pragmatist methodology to support investigation of the research aim as for Connelly et al. (2011), this could potentially enhance conceptual contribution by other researchers who might want to replicate aspects of the methodology strategy. The mixed method approach was enacted through concurrent triangulation sequencing to provide qualitative and quantitative data using different methods with methodological rigour being achieved. This has been achieved employing a whole study process depicted in a unique integrated framework (adapted and developed from Castro et al., 2011) which indicates the crossover thematic analysis approach employed to achieve mixing of data. This has enabled the research aim, objectives and questions to be fully addressed, recommendations to be made and full conclusions to be drawn, ultimately contributing to knowledge.

Student learning will be enhanced through the innovative approaches employed which centred on the successful use of social media to recruit a reliable sample. Students will gain a perspective of how to build networks, extend networks and utilise networks to create a viable sample given that the researcher is a Russell Group lecturer. The study will help them with their methodological choices with the researcher offering them a practical research understanding of the advantages and challenges involved in the options she chose.

6.3.3 Contribution to Knowledge

The instrumental contribution to knowledge for Connelly et. al (2011) applies to academia, to the sector the study focused on, to HR professionals in the UK and to specific professionals who participated in the study. They support how a symbolic contribution could also be made in that student learning will be enhanced through the academic researcher sharing aspects of their findings in teaching. Also, subsequent publications the researcher is successful in producing will support this to be achieved. The impact of the

2020 COVID-19 pandemic has impacted planned conference presentations in 2020 although it is anticipated that these will subsequently take place virtually. Additionally, a virtual paper has been presented to the 33RD EBES Conference based in Madrid in the autumn of 2020. Alongside this, the researcher is being mentored by the ex-Professorial Head of Department in her workplace to pursue journal publication during 2021. The new Professorial Head of Department has asked the researcher to contribute digital skills strategic perspectives to a forthcoming book publication he has agreed terms with Kogan Page to write and both the ex and current professors want the researcher to contribute strategic HRM learning to their Russell Group MBA students.

Again, although impacted by the global pandemic, the researcher is making a symbolic contribution to stakeholders for Connelly et al. (2011) by using the outcomes of their study to advise and be part of a professional HR team serving to consult CIPD leaders on creative organisational design and development. The researcher has also submitted a three-part HR Zone content series using the research themes although this has been delayed (at the time of this report) due to the professional focus being on addressing workplace issues relating to the pandemic impact. Despite this, a senior interview participant has agreed to write a white paper with the researcher and publicise that through a series of webinars. In time, the study will contribute to the HR professional and to UK Business Sector knowledge by promoting the professional publication of findings in this way.

At participant level, contribution of knowledge has been very successful with interview and survey respondents indicating their interest in the research findings. An executive summary has been prepared and distributed to all interview participants via LinkedIn. This enables key recommendations to be publicised and supports participants understanding of key research findings in terms of their own and others organisational context.

6.4 Future Research

The suggestions for future study broadly relate to extension of the debate emerging from this investigation including: a contextual focus on digital communication competence; a

theoretical focus on dynamic capabilities and a sub sectoral extension to build on the current study.

Firstly, as indicated in section 6.3.3, the global pandemic of 2020 has temporarily impacted and delayed the contribution to knowledge the study can make. As McKinsey (2021a) concur, the pandemic has presented many digital challenges to organisations, not least, a focus on the need for digital communication and other digital skills given that many workers are based at home. The digital skills theme of the current investigation could be investigated in a longitudinal study assessing the current level and future use of digital competence and factors impacting that. This potential study could consider in what ways organisations have responded to develop competence in this area. The sample focus could be extended to an industry where employees are now reliant on using digital communication skills but traditionally would not have been expected to use them.

The current 2020 pandemic is affecting all sectors and all industries in the UK in a variety of different ways. Pisano (2017) argues that further investigation of Dynamic Capability Theory is needed to understand how this applies within differing contexts and settings. Thus, a future study could revisit the dynamic capability themes and consider how the UK Professional Business Sector responded during and after the pandemic to maintain their competitive advantage. In this case, a multiple, in-depth case study methodology could support deeper exploration of the themes with case study organisations being representative of the sub sectors and national localities within the UK Professional Business Sector classification. This could extend the mixed methodology and use different methods within the case study organisations.

Additionally, section 4.2.1 indicated that only a snapshot depicting the sector could be achieved within the context of this study and in part, this was attributable to scientific research and development and other sub sector organisational contributions being limited. Additionally, chapters four, five and six have indicated how traditional legal services organisations were rather less focused on both dynamic capabilities and the need for digital communication skills to support them. As such, it is appropriate to suggest that a multiple case study examination of themes could extend the focus of this study on traditional sub sector businesses in order to examine the legal services context in greater detail and to extend the contribution from scientific research and development.

Whilst that would be interesting, the study emphasises that the focus was on a national sample and in that way, this investigation extended the research of Riley et al. (2020). It would be very interesting to align the focus of this research with a North/South/Scotland/ Wales/ Northern Ireland quantitative analysis given that there is an increasing move towards further devolution in the UK (BBC, 2021) although the external cost implications of that would require significant research funding.

6.5 Concluding Statement

The study has achieved all of the key aims of the investigation and ultimately shown the importance of digital communication competencies in the UK Professional Business Sector competitive advantage context. It extends debates offered by Riley et al. (2020) by employing a UK national sample and was also underpinned by a more rigorous methodological approach than that offered by the aforementioned writers**.** The study has served to make an original contextual contribution to dynamic capability debates and identify the processes which serve to support a contemporary digital skills bundle to contribute to competitive advantage. In uniquely employing the Business Process Maturity Model (the Object Management Group (2008), this has indicated how the UK Professional Business Sector is generally innovative regardless of size of business. Despite this and reflecting Teece (2012), larger organisations generally indicated slightly higher dynamic capability based on the measures employed within the study. Despite this, SME recruitment and consultancy services generally indicated dynamic capability and business process maturity through their digital transformation focus regardless of business size.

To develop their dynamism further recommendations reflect that the learning and knowledge transfer focus could be improved to create greater capability and to support their recognition that digital skills generally are very important to their organisations. This is vital in a digital transformational aligned business context where higher levels of those competencies are key. Revitalising the strategic learning and knowledge transfer focus could serve to be a key enabler in this digital era. It can reinforce a 'digital mind-set' to generate a fourth industrial revolution, dynamic innovation capability ability to drive the

organisation through the ongoing challenges within the turbulent political and economic UK business environment.

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Appendix 1: Literature Review: Supporting Information (Chapter 1)

Table 1: Digital Skills Framework Outlining Seven Levels of Capabilities.

	Managing information	Communicating	Transacting	Problem-solving	Creating
Description	Find, manage and store digital information and content.	Communicate, interact, collaborate, share and connect with others.	Purchase and sell goods and services, organise your finances and use digital Government services.	Increase independence and confidence by solving problems and finding solutions using digital tools.	Create basic digital content in order to engage with digital communities and organisations.
Safety	Assess the accuracy of sources of information; use security tools when browsing; regularly update and run virus-checking software; and manage parental controls.	Understand how to manage your identities; protect yourself from scams; use the right security settings (including parental controls); and protect your customer data.	Use secure websites for financial transactions; protect your personal data; and respect the privacy of others.	Use accurate sources of support; and avoid malicious websites, scams and pop-up windows.	Be aware of copyright law; protect your personal data; and respect the privacy of others.
Actions for Individuals	Use a search engine to find the information you need. Search for deals on comparison websites. Bookmark useful websites and services. Store data on a device or in the cloud.	Keep in touch using email, instant messaging, video calls and social media. Post on forums to connect with communities. Communicate with organisations about their products and services.	Understand and use marketplaces to buy and sell. Order your shopping. Book your travel. Manage your bank account. Set up and manage a Universal Credit account.	Teach yourself simple tasks using tutorials. Use feedback from other internet users to solve common problems. Access support services.	Create a social media post. Create a text document such as a CV. Create and share a photo album. Create and share feedback about products and services.

Actions for organisations	Store digital information on suppliers and customers. Search for new suppliers to find the best deals. Understand who uses your website. Discover potential growth opportunities for your business.	Maintain customer and client relationships. Use social media to promote your business and connect with new customers. Improve your customer service by providing accessible product information and answers to frequently asked questions.	Maximise your selling potential through a website. Save time by applying for Government business permits and licenses. Manage invoices and accounts. Receive payments or donations. Protect yourself from fraud or scams.	Save on business travel and be more efficient by using video conferencing. Quickly understand which products and services work based on online feedback. Interpret simple analytics to improve website performance. Get solutions to problems from safe, accurate sources.	Create an informational or e-commerce website. Create content (pictures, logos, text) to promote your organisation and reach customers. Use social media and create communities to engage with customers. Create resources to improve employee skill levels.

Source: Ipsos Mori writing for GO ON UK (2015)

Table 2: The Digital Competence Framework 2.0 (EU Science Hub, 2018 adapted from DIGCOMP's Framework for Developing and Understanding Digital Competence in Europe)

The Key Competencies	Overview
1) Information and data literacy: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.	*1.1 Browsing, searching and filtering data, information and digital content. To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.* *1.2 Evaluating data, information and digital content. To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.* *1.3 Managing data, information and digital content. To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment*
2) Communication and collaboration: To interact, communicate and collaborate through digital technologies	*2.1 Interacting through digital technologies. To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.*

while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.	*2.2 Sharing through digital technologies. To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.* *2.3 Engaging in citizenship through digital technologies. To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.* *2.4 Collaborating through digital technologies. To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge.* *2.5 Netiquette. To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.* *2.6 Managing digital identity. To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.*
3) Digital content creation: To create and edit digital content to improve and integrate information and content into	*3.1 Developing digital content. To create and edit digital content in different formats, to express oneself through digital means.*

an existing body of knowledge while understanding how copyright and licences are to be applied. To know how to give understandable instructions for a computer system.	*3.2 Integrating and re-elaborating digital content. To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.* *3.3 Copyright and licences. To understand how copyright and licences apply to data, information and digital content.* *3. 4 Programming. To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.*
4) Safety: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.	*4.1 Protecting devices. To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy.* *4.2 Protecting personal data and privacy. To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a "Privacy policy" to inform how personal data is used.* *4.3 Protecting health and well-being. To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.*

	4.4 Protecting the environment. To be aware of the environmental impact of digital technologies and their use.
5) Problem solving: To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.	*5.1 Solving technical problems. To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).* *5.2 Identifying needs and technological responses. To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).* *5.3 Creatively using digital technologies. To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.* *5.4 Identifying digital competence gaps. To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.*

Source: Ferrari (2013, p. 35)

Table 3: DIGCOM 2.1: Updated Proficiency Level Example: Sub Competency Level 2.1 (Interacting through technologies)

Competence area 2: Communication and collaboration 2.1 Interacting through digital technologies: to interact through a variety of digital technologies and to	Levels	Sub Levels	Descriptors
	Foundation	1	At basic level and with guidance, I can: • recognise simple appropriate digital technologies to share data, information and digital content. • identify simple referencing and attribution practice
		2	At basic level and with autonomy and appropriate guidance where needed, I can: • recognise simple appropriate digital technologies to share data, information and digital content. • identify simple referencing and attribution practices
	Intermediate	3	On my own and solving straightforward problems, I can: • select well-defined and routine appropriate digital technologies to share data, information and digital content. • explain how to act as an intermediary for sharing information and content through well-defined and routine digital technologies. • illustrate well-defined and routine referencing and attribution practice

understand appropriate digital communication means for a given context.		4	Independently, according to my own needs, and solving well-defined and non-routine problems, I can: • manipulate appropriate digital technologies to share data, information and digital content. • explain how to act as an intermediary for sharing information and content through digital technologies, • illustrate referencing and attribution practices.
	Advanced	5	As well as guiding others, I can: • share data, information and digital content through a variety of appropriate digital tools, • show others how to act as an intermediary for sharing information and content through digital technologies. • apply a variety of referencing and attribution practices
		6	At advanced level, according to my own needs and those of others, and in complex contexts, I can: • assess the most appropriate digital technologies to share information and content. • adapt my intermediation role, • vary the use of the more appropriate referencing and attribution practices.
	Highly Advanced	7	At highly specialised level, I can: • create solutions to complex problems with limited definition that are related to sharing through digital technologies.

			• integrate my knowledge to contribute to professional practices and knowledge and guide others in sharing through digital technologies
		8	At the most advanced and specialised level, I can: • create solutions to solve complex problems with many interacting factors that are related to sharing through digital technologies. • propose new ideas and processes to the field

Adapted from Carretero, Vuorikari & Punie, (2017, p. 28))

Appendix 2: Methodology: Online Survey & Semi Structured Interviews: Supportive Documentation (Chapter 3)

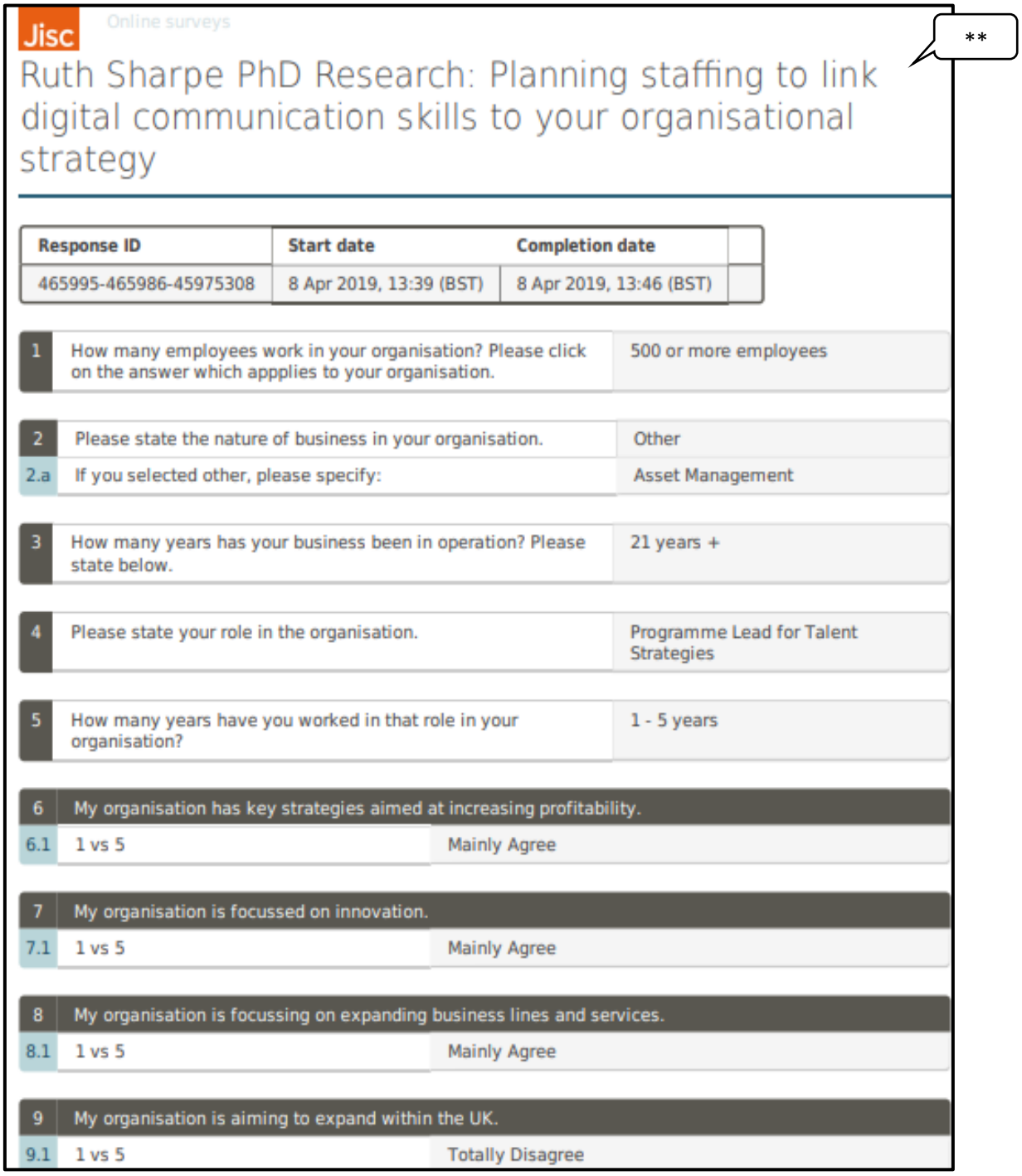
Page Number	Key Features of the Survey	Design Explanation	Literature Theme Alignment
Page 1	Title, Aim, Rationale*, Data Protection Guide and Contact Details for Enquiries * The rationale reinforced the reason for focusing on digital communication competence as a key contemporary skills set.	Information page with no response required. Participants click on the 'next' button.	Rationale discussed in: Introduction (section 1.2) Literature Chapter (sections: 2.4 & 2.6)
Page 2	General Questions: Role, number of years in role, type and size of organisation, number of employees	Mainly click on the answer which applies with one open question box regarding role type	As indicated in the Literature Chapter (section 2.3.3), Business Process Maturity (The Object Management Group, 2008) linked to organisational size defined by number of employees. Response to type of organisation required to ensure sectoral relevancy.
Page 3	Your Organisational Strategic Focus: question measures based on dynamic capability	5 point Likert type rating scales: totally disagree/mainly	Conceptual frameworks for Dynamic Capabilities: Volatile Change and linking Business Process Maturity to size: Teece, Pisano and Shuen (1997) and Teece (2007).

	features focussed on 'sensing, seizing and transforming'	disagree/ undecided/mainly agree/totally agree, supporting by open text boxes.	The Object Management Group (2008) and featured in the literature Chapter (sections: 2.3.1, 2.3.2 and 2.3.3). Reviewed in the Literature Chapter (sections: 2.3.4 & 2.3.7): Linking Innovation Capability, Organisational Learning, Knowledge Transfer and the Skills Focus to Dynamic Capabilities: Easterby-Smith, Lyles and Peteraf (2009) Easterby-Smith and Lyles (2003), Prieto and Easterby-Smith (2006).
Page 4	Aligning Strategy with Digital Communication Competence: Importance of this digital competence to their business	3-point Likert type rating scales: based on no importance to high importance measures	As discussed in the literature chapter, sections 2.4.3 (The Digital Workplace in the UK Tech Based Economy) and 2.4.4 (Supporting the Digital Workplace through Digital Communications).
	Aligning Strategy with Digital Communication Competence: Assessing how far basic, intermediate and advanced level digital communication competence applies to their staffing groups	Multiple Question options with 'go to' compulsory question options designed for certain responses	Focussing on Digital Communication Competence: DIGCOMP's detailed Competency Framework (Ferrari, 2013) & Carretero, Vuorikari and Punie, (2017). As explained in section 2.5.2, the survey employed the basic, intermediate and advanced levels defined by Ferrari (2013) which enabled an organisational analysis to be achievable. Featured in the Literature Chapter (indicated in section. 2.53).

Page 5	Final Page	Thanks the participant and offers a receipt which can be downloaded	NA

Source: Author Created with Teece, Pisano and Shuen (1997); Teece (2007) and Ferrari (2013)

Figure 2: A Completed Online Survey: Page 1*



Jisc Online surveys

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Ruth Sharpe PhD Research: Planning staffing to link digital communication skills to your organisational strategy

Response ID	Start date	Completion date
465995-465986-45975308	8 Apr 2019, 13:39 (BST)	8 Apr 2019, 13:46 (BST)

1	How many employees work in your organisation? Please click on the answer which appplies to your organisation.	500 or more employees
2	Please state the nature of business in your organisation.	Other
2.a	If you selected other, please specify:	Asset Management
3	How many years has your business been in operation? Please state below.	21 years +
4	Please state your role in the organisation.	Programme Lead for Talent Strategies
5	How many years have you worked in that role in your organisation?	1 - 5 years
6	My organisation has key strategies aimed at increasing profitability.	
6.1	1 vs 5	Mainly Agree
7	My organisation is focussed on innovation.	
7.1	1 vs 5	Mainly Agree
8	My organisation is focussing on expanding business lines and services.	
8.1	1 vs 5	Mainly Agree
9	My organisation is aiming to expand within the UK.	
9.1	1 vs 5	Totally Disagree

* This is the first completed page. JISC online surveys does not allow download of the first information page. That indicated the title, aim, rationale, Data Protection Guide and contact details for enquiries.

**This was the title at the survey was distributed. Iterative adaptation of the study aims and research question resulted in this later being remodelled resulting in some measures not being required. It is important to emphasise that all measures indicated in table 1 above and detailed in section 2.9 of the literature chapter were included in this survey.

A Completed Online Survey: Page 2

10	My organisation is aiming to expand into an international market.	
10.1	1 vs 5	Totally Agree
11	My organisation is constantly facing change.	
11.1	1 vs 5	Totally Agree
12	My organisation is currently restructuring.	
12.1	1 vs 5	Totally Agree
13	Senior managers are committed to learning in the organisation.	
13.1	1 vs 5	Mainly Disagree
14	Middle managers fully support learning in the organisation.	
14.1	1 vs 5	Mainly Disagree
15	Knowledge is transferred clearly among employees to help employees align their role with the strategy of the business.	
15.1	1 vs 5	Undecided
16	We have a formal talent management approach.	
16.1	1 vs 5	Totally Disagree
17	My organisation is addressing succession planning at board level.	
17.1	1 vs 5	Mainly Agree
18	Managers and employees are all aware of the organisation's succession plans.	
18.1	1 vs 5	Totally Disagree
19	The skills employees have make a vital contribution to our business.	
19.1	1 vs 5	Totally Agree
20	How important to the organisation is it for employees to interact through technologies? This involves being able to use various digital devices and applications to support the organisational internal and external communication.	
20.1	1 vs 3	very important

A Completed Online Survey: Page 3

21	How important to the organisation is sharing digital information and content? That is, being able to understand the importance of sharing digital and online content to contribute to organisational knowledge.	
21.1	1 vs 3	very important

22	How important to the organisation is engaging in online organisational citizenship: This involves the employee becoming part of an engaged workforce through their use of digital communications.	
22.1	1 vs 3	very important

23	How important to the organisation is employee online behaviour? This includes conforming to organisational policies and standards of IT usage, avoiding any discriminatory practices through online use at work and understanding online dangers.	
23.1	1 vs 3	very important

24	How important to the organisation is managing their own digital identity? This involves being able to protect the organisational reputation and to deal with the data that one produces through several accounts and applications.	
24.1	1 vs 3	very important

25	If employees have a basic level of digital communication competence this means they can use traditional technologies including mobile phones, skype, chat or emails to communicate inside and outside the organisation. They broadly understand the organisational standards and the risks involved in using these basic technologies. They can share files and contents online and access some digital online services. Please indicate which responses apply to your organisation. You can state more than one response.	Overall, we are happy that all staff have at least basic level digital communication skills
25.a	Is it a problem that basic level digital communication skills are only evident in some departments? Please respond yes or no.	
25.a.i	Please briefly explain your answer.	
25.b	If you answered basic level skills are a problem within some departments, please state which departments this relates to below.	
25.c	If you think digital communication skills are problematic for some staff members please explain why you think it is a problem for them below.	

A Completed Online Survey: Page 4

26	Employees with an intermediate level of digital communication competence can use more advanced features of communication tools. This goes beyond mobile phones, skype, chat, or emails and extends to online intranet use, engaging with LinkedIn and other professional networks, online phone or skype conferencing and online participation in discussion forums. They understand organisational I.T. policies in relation to their job role and how that relates to online security when they pass on and share information. They can activity use, manipulate, interpret and share data within online digital systems. Please indicate which responses apply to your organisation.	Most of the staff have intermediate levels of digital communication competence
26.a	If you feel you only need intermediate level digital communication skills in some departments please briefly explain why.	
26.b	If you indicated that your organisation, "needs to develop intermediate level digital communication skills within some departments" please explain which departments this relates to and why this is important for those staff.	

27	Advanced digital communication competence extends to use of a wide range of tools for online communication. This goes way beyond basic features of email, text and so on and extends to blogging, micro blogs and using innovative social media platforms on behalf of the organisation. Employees are digitally conversant and deeply reliable in terms of applying online safety and risk policies to their work. They can build content to tailor their use of advanced online communication tools to various audiences within and outside the organisation. They support other employees who might only have basic or intermediate digital communication skills. Please indicate which responses apply to your organisation.	Advanced level digital communication competence is evident in most staff departments
27.a	You said that advanced level digital communication skills are only needed in some departments. Can you briefly explain why?	
27.b	You said that you only need advanced level digital communication competence in certain job roles. Which roles does this apply to please?	

JISC does not allow researchers to download the final page in their online surveys as this includes confidential information. The researcher thanked the respondent and asked them to finally assess how important a digital communications skill set was to their organisation using a 3 point scale defined in table 1 of this appendix. This helped the researcher to reaffirm the aims of the researcher and this led them to explain how they could access information about the outcomes of the research.

Table 3: Semi Structured Interview Questions based on the Literature Themes.

Semi Structured Interview Questions Based on Literature Themes (Blue headlining indicates key thematic area and emboldened/italicised text indicates the researcher's explanations)

INTRODUCTION: Thank you for taking part in this interview. This interview will play a vital part in contributing to my Doctorate studies at the University of Salford. It should take no longer than an hour and is confidential and anonymous. I am recording this interview which you have consented to already. Are you still happy for that to happen? There are some general questions to start and then 3 themes which I will outline as we go through this. Are you comfortable with starting please?

General Questions:

What is your role within the organisation?

How many years have you worked in that role in your organisation?

How many employees work in your organisation in the UK?

How many years has your business been in operation?

THEME ONE: DYNAMIC CAPABILITIES (Conceptual Frameworks for Dynamic Capabilities: Volatile Change and linking Business Process Maturity to size: Teece, Pisano and Shuen (1997) and Teece (2007) and Linking Innovation Capability, Organisational Learning, Knowledge Transfer and the Skills Focus to Dynamic Capabilities: Easterby-Smith, Lyles and Peteraf (2009) Easterby-Smith and Lyles (2003), Prieto and Easterby-Smith (2006)

The next questions are based on the strategy of your business as I am researching how far your sector is aligned with dynamic capability theory as one of my key themes.

What key strategic changes are you facing in the organisation?

Can you tell me how you focus on profitability please?

In what ways are you focusing on expanding business lines and services? Are you expanding into markets within the UK or Internationally? How far does restructure feature in your current plans and activities?

In what way are you addressing innovation? In what ways does digitalisation impact your organisation currently?

How do you support learning throughout your organisation? How do managers support employee learning?

What strategies and processes do you have in place to support knowledge transfer in your company?

THEME 2: CHANGING WORK AND SKILLS PERSPECTIVES: Focusing on Digital Communication Competence: DIGCOMP's detailed Competency Framework (Ferrari,

2013) & Carretero, Vuorikari and Punie, (2017). As explained in section 2.5.2, the interviews employed the basic, intermediate and advanced levels defined by Ferrari (2013).

I am focusing on digital skills sets as the key skills sets underpinning my theoretical stance. The digital skills debate has been extended to understanding the competency sets which employees need and as such European Digital Competence Framework for Citizens (DIGCOMP) has been designed and supported by the European Commission. I am focusing on digital communication as a key are area of competency. I will give you a few minutes just to familiarise yourself with the EU levels of digital communication competence.

How important are digital skills in your workplace?

Generalising this to the whole organisation, at what level would you say your employees are when communicating digitally?

How important is:

- Sharing of Online Content/Information
- Digital Communication Interaction and Online Citizenship
- Online Safety and Managing Online Identity?

Are any job families/departments/job roles/employees in your organisation have only basic digital skills when communicating digitally? Does that pose any problems to your organisation?

Which job families/departments/job roles/employees in your organisation need advanced level digital communication competencies?

That's the end of the interview. Thank you so much and have you anything else you would like to add?

If you feel there is anything you would like to add then please just email me. Thank you so very much indeed. I can send you the transcript of the interview by September 2019 and I can share some findings by the autumn of 2019 if you are interested.

Figure 4: Transcript: Senior Director of HR Projects and Change Management Interview: Conducted March 2019 (Large Organisational Perspective).

Researcher: Thank you for taking part in this interview. This interview will play a vital part in contributing to my Doctorate studies at the University of Salford. It should take no longer than an hour and is confidential and anonymous. I am recording this interview which you have consented to already. Are you still happy for that to happen? There are some general questions to start and then 3 themes which I will outline as we go through this. Are you comfortable with starting please?

GENERAL QUESTIONS

Researcher: What is your role within the organisation?

Senior Director of HR projects and change management.

Researcher: How many years have you worked in that role within the organisation?

In this specific role 8 months. I was in a similar role before that for about a year but that was aligned specifically to talent acquisition- this role is part of corporate HR and it's getting involved with any projects from any of the HR functions so it's more of a generalist role. I've been with the company almost 8 years. Prior to the project roles I was in a HR business partner role, partnering one of the divisions partnering India so that was more a generalist business partner role.

Researcher: How many employees work in the organisation in the UK?

UK there are around 5,000 and globally there are about 75,000.

Researcher: How many years has the business been in operation?

It was created by a merger of two companies, one was XY Electron which was established in 1956. The other was YZ that was founded in 1902. They merged around the 1970's to create the company today.

THEME 1: DYNAMIC CAPABILITY THEORY AND FEATURES

Researcher: What key strategic changes are you facing in your organisation currently?

Where we think the business is going and this is globally really, so it would apply to the UK and any parts of the business. The vision is dramatic growth, so global revenues at the moment are around £21 billion and the vision is by 2030 the revenues will be £50 billion so more than double the growth. That is through a combination of organic growth so just expanding our customer base and selling more products but also by acquisitions so the way that X has grown over the years it's basically buying up other companies with similar capabilities and product range and adding those to our portfolios.

So I guess strategic challenge there is what companies we should buy, what's going to add to our portfolio and also what markets can we expand into. So a lot of focus at the minute is on-going into China and India to expand over there.

So that's the big, big focus on growth and I think the other is changing the digitalisation, so changing not only the way we engage with customers and suppliers but also internally with our systems for employees. So there's a real focus on IT and developing our systems there. A big challenge will be as we grow and increase those revenues, currently the headcount is around 75,000 globally as I've previously said 5,000 in the UK the plan is to grow that headcount to around 125,000 in the next 8-9 years. Some of those headcounts will come from acquisition but some will be us actually having to hire someone so hiring people is really difficult and a huge challenge to get the people with the right skillset and retain them. Ours is a really quite vibrant exciting business to work in so we can attract people but then we don't always retain them because they want to move onto somewhere else a lot of the millennials in our sector etc.

Researcher: What is that particular skillset which you find yourself struggling to retain?

There's a range of skillsets I'd say. We have different divisions so part is the actual research into Science so in there we're looking for PhD Scientists and researchers and we have parts of our business which are labs which are looking into genetics and working in partnerships with some of our customers who look for cures for all sorts of illnesses and diseases- so there's attracting the right kind of scientific calibre. Another part is actually manufacturing so we have a division which manufactures equipment for laboratories so anything from test tubes to X-ray machines to fridges you know anything you'd see within a laboratory or a research centre or a hospital then it's very likely that we make those products. So within that we've got a number of manufacturing facilities so there the demand is for engineers and not so much the manufacturing operatives it's more the engineering people who can prove our process. The third area which I'd say is the highest turnover is salespeople. Because of the nature of what we do and the way we do our customers are generally big global companies like Astra Zeneca, GSK, Bayer, Government hospitals etc. so it's very long term partnership arrangements so the type of people that we're looking at having as sales people need to be able to build strong partnerships, able to be very supportive and collaborative with the customers and build that long term relationship. So this is not just a selling skillset it's a real partnership building skillset and it's a real challenge in that area because once you build a partnership it's very destructive from a customer point of view if we lose that particular sales person and they move on and we've got to fill that gap and cause disruption. So that's a huge focus area I'd probably say the biggest because that's the customer facing end of our employee base- the customer sees their sales partner as us so we need to make sure that, that relationship is strong and that we look after our sales people is a big investment. Its high profile I'd say the commercial teams are probably the most important as they've got the most attention from senior management.

Researcher: How important are digital skills in these people's skillsets?

More and more so if we think about 10 years ago maybe before I was involved then the sales people would use spreadsheets or whatever to record their activity and what they needed to do and it would be email of what they needed to do but probably across the

organisation about 5 years ago we introduced salesforce.com which is an IT solution which does everything really so that was a huge investment which requires significant amount of training. So now when we're hiring or recruiting part of the job description would be they need to be familiar with sales force.

The other area is more and more we are changing, since I've been there, sales people would go and visit our customers and go to whichever hospital or university and get their catalogue or kit out and show them our latest products and give them a demo this very traditional type of selling and that's all changing really dramatically. Customers all want the Amazon experience they want to go onto a portal at ten O'clock at night and choose their products and have them there for the next day so that old traditional way of selling is changing. We did a big restructuring over the last 2 years in where one of the divisions we dramatically reduced the amount of salespeople in the field because they're not so needed. But we dramatically grew our virtual selling team which is a bit more like a call centre where the sales staff are not out there in the field they're in a room or working from home, still partnering with customers but in a very different way more providing technical advice and guidance but virtually not in the traditional way. It's also a key force for marketing as well being able to change our platforms and having leading edge e-commerce sites and maintaining those and making sure we've got a good customer experience. Behind that we've obviously IT- we've got a huge IT function globally and of the hundreds of projects globally at the moment with different parts of the business to improve our systems including internally, so the project I'm involved with at the moment is HR and IT service portal so we have got one version of it internally for employees if they want to ask basic questions internally, i.e. a problem with their pay they can ring and create a ticket to get support that way. We're upgrading now which will include a space in Portugal which will be really personalised like 'hi Ruth how are you how can I help today?' and you'll have your virtual chat and you'll be able to find out information, be able to see you've had an absence ask if you're feeling better, have you seen our wellbeing site that sort of thing. So I think the whole culture at the moment is moving towards digital experience. I think the other reasons for that and why there's such a push to move towards digital systems is because of the aggressive growth targets that we have and it's very hard for a company to grow quickly if you don't have standardised ways of doing things. By increasing the headcount from 75,000 to 125,000 we're not going to grow our HR function we're just going to get smarter dealing with employee's matters through the use of technology.

Researcher: What would you say is the biggest innovation you've got within the company at the moment?

The biggest innovation I'd say is in our research & development area. I could look into more detail on that if you needed but I don't know off the top of my head. It's got to be something to do with some of the products we're developing to deal with Omnia diagnostics or gene therapy something like that.

Researcher: What would you say the biggest innovation for yourself in HR is?

The new version of HR now is going to be a huge step forward, we're very excited about that. We have a lot of clunky systems now, we have 'iDay' we have 'Connect' for people to go and read documents and a portal which we call 'X University' which is like a learning

& development portal where people can go onto to read articles or check finance or book training courses. They're all individual separate things that you have to log onto separately and it's really difficult to navigate around so our 'service now' is going to join up all the dots and anything we do HR they will just go in through one portal so all the other bits will be invisible but they'll be able to access everything through 'service now' on a personalised page rather than go through anything.

I'd say one of the downsides from a global corporation from a HR point of view it may be less innovative than say a small company that's got more flexibility and agility and able to be a bit wackier. An example of that now is companies may personalise and edit the portal. We've had discussions internally, but they said we're corporate it's a bit too adventurous for us, so I think we're sticking with it's going to be called the 'peoples portal'. So in terms of your question for the most innovative thing there's not a lot, a lot of the focus is on what we're trying to do and if you had our global head of HR on the call she'd probably say her goal is to standardise our HR systems and processes to allow the growth to become better business partners and manage business talent better. There are other areas of HR, so I know TA are they're pretty leading edge in the use of social media and other engagement platforms to attract people from Universities and engage with people, proactive talent management.

Researcher: How strategic is learning in your organisation?

It's built into a system so we have a mandatory PMD system (personal management development system) that is a system which is now automated which will move into 'service now' and it will be compulsory for all employees to have review with their line manager per year. Because it is automated, and you'll get warnings if it's not done but they're generally always done because they have to be to evidence that. The quality of that discussion is dependent on that line manager but there is a section on this which focuses on personal development but the focus is with the employee to identify where they need to or like to develop or any training areas they think they have gaps and this will then be discussed with their manager and between them they'll identify some action plan to close that gap. The X University is a resource they can go to, that consists of reading articles, presentations watching videos on YouTube we use Harvard University a lot because that's in Boston and that's where our headquarters are I think.

There are also optional courses that have been developed by training and development and they're all categorised like leadership or diversity inclusion. But we do also have mandatory training and they're pushed out to employees from X University and these are monitored and tracked to make sure the employee has done it, one of these is company ethics which is mandatory but every year you have to do that and it's all about diversity inclusion, series of videos of inappropriate behaviour at work or with customers or suppliers, legislation relating to export law what you can and can't do. Then there's an exam at the end which you have to do and get so many percentage to pass or you have to do it again that is taking really seriously. Then there is other mandatory training which is built in so if someone becomes a manager then they have to have certain training which they have to complete which again is tracked. The other way we plan training and development is there's a talent profile for the individual, it's not mandatory it's just strongly encouraged that as an individual you fill in your talent profile and keep it up to date which is basically your talent CV. Also there's a section to set your targets and

aspirations whether you're mobile and if you are which countries you'd consider moving to and what role you see yourself in next. They're mainly the career driven the more they're filled in you probably wouldn't get them filled in by the more junior roles. The drive is on the employee to encourage their development, but the manager is there at assist and support that and we do have tools and mechanisms to help with that as well.

Researcher: Do you use those tools for succession planning?

Yes, so we have a corporate process which isn't open to employees, but it's called HRR (Human resource review) and each business unit once a year has to be completed by unit leaders. There is a banding structure so there's band 1 which is a very junior associate role to band 13 which is our Chief executive. So I think its band 8 which starts at senior manager, so anybody who's band 8 and above they are reviewed within the HRR process where we do a 9 box grid where we look at their current performance and what's their potential so really identifying who our top performers are and identifying who's ready for promotion or who is a blocker and stuck in the same position blocking the way for other people. So there's a real discussion into what changes are coming up in the business, organisation changes or restructuring changes or the need to move people around so succession planning and who is the first person to fill that gap. And we have targets for certain roles and is normally going back to the difficulties in filling commercial roles or RND roles or engineering roles. They're usually prioritised in planning as we need those positions now and particular when it comes to management. So each division would do this they don't look at the talent cards at that stage but then it's rolled up to a group level. So the way we're set is the have most of the group leaders in the US and then we have divisions set up around the world and they would feed in from their particular group in the UK like this is our assessment and then at higher level and together with global talent management they'd gather and do an overall summary for succession planning. And that's when you start pulling info from talent pods and some people have identified an interest in a certain role.

That process has been going for a number of years, it is still a bit clumpy there's lots of manual bits with lots of ways we could improve it, we don't usually cross fertilise those plans enough and we might have really strong people in one division and some gaps in another division and it's not always easy to visibly see what might help us from another area. It's just a huge organisation really and I know talent management one of their goals is how to improve that visibility of talent and talent aspirations to improve our success planning.

THEME 2: CHANGING WORK AND SKILLS PERSPECTIVES

Researcher: What level would you say your employees are when they're communicating digitally? In specific what are they and what do they need to be?

I'd say intermediate. If we were looking at the UK, then in our manufacturing then there's not really much of a need they're sort of doing their jobs they may have to use a printer to print out a label but that type of thing it's limited really. But if you wanted to narrow this down to the UK then we don't have the manufacturing processes in the UK, so in the UK I'd say it's intermediate from the definition that you've got there.

Researcher: Do you have any employees who need advanced level of digital communication skills?

I'm thinking of the like E-commerce roles and we do definitely within there. And we do have a high marketing presence in the UK as well. I don't know whether IT would be involved or whether you'd take it as a given they'd be advanced. Thinking about our communications teams we have teams that are outwardly facing and would do any PR work for us.

Then we have internal communications who are maintaining our 'iConnect' sites sending out messages and newsletters, keeping the Yammer up to date. I don't know whether you'd deem that as advanced level I see it as being good at writing content and messages and being able to get it into whatever system.

Researcher: Could you build or add anything to those competency frameworks?

Probably could in terms of being more creative, being able to look at outside companies and what they're doing. As I've said we're quite traditional in what we do we're quite corporate so maybe there is room or opportunity to push the boundaries. So someone who did Comms for Google would look very different to someone who does Comms for us.

Researcher: What does HR do to manage the online safety of employees and their online interactions?

Within the ethics training that has a section for GDPR which has a requirement and has sort of an exam at the end of it. In terms of online safety generally we have a corporate IT security team which push out Yammer feeds and communication feeds that remind about online safety of phishing and report opportunity.

They're often sending out dummy rogue messages I got one this week and I reported it straight away and I got pinged back saying well done you've picked up a rogue email. So they're quite proactive in making people smarter. The main thing is the annual ethics training it will give you scenarios of what to and not to do.

Researcher: How far ahead are you looking to plan staffing based on digital skills and competencies?

It's a high level global process so each business unit leader would do this activity on an annual basis this is what we call STRAP planning (strategic annual plan) which is a bit misleading as within that they're actually planning for the next 5 years. It's done every year on a rolling basis, so they state the rolling plan for the next 5 years and within that there is all the business changes and growth plans, new markets new products new technology that's coming in. It's a very high level plan and HR has a seat at the table in to plan through what that means in a talent perspective, from a consultation perspective, from a policy change to see what's needed in order to change it from a HR perspective. There's a section on workforce planning in what skills we'd need so something like language ability, we're centralising a call centre in Europe in Budapest so one of the things was how easy will it be to get people into Budapest who can speak 4 or 5 languages to be able to service the whole of Europe. This would then be shared with the people who need to enable that, so it's the business partner working with the business thinking of all the HR implications and for example if it was 3 years out and we knew we were going to be

introducing a new product then we might need some designers so then there would be a conversation with talent acquisition to build into their plan and anything they need to start pipelining or whatever skillset it is 3 years out. I'd say this process is quite robust now and equally IT would get involved if the business would want to do this then we need to sort this from an IT perspective or finance may need to inspect it.

Then on an annual basis each September or October time separate to STRAP planning there is annual operating planning which is led by finance and that is setting out the budget for the next financial year and that will be setting out all financial investments and also changes in headcount- that's increases or decreases in headcount or interims. That's what actually is then signed off and actually becomes the budget for the year but equally they get fed into each other as talent acquisition mainly need to make sure that they're aligned in allocating resources we need.

Researcher: What's the balance on the focus is it on bringing in new talent or more towards developing internal talent?

It depends so the annual plan will just say the roles we need and then outside of that the talent acquisition and HR partner and talent management will have offline conversations on how best to fill those roles if it's an increase in production and volume in a manufacturing site then that would generally be bringing in interims maybe through an agency. But new roles or managerial roles the focus would generally be can we fill that from within. The focus would always be try and find someone who's ready for a move or a promotion and try and fill that. So when we have an opening they're always advertised internally so we have a careers site internally and all positions are posted there before they go to an outside hire.

Even if we know we're going to hire externally we'll advertise internally for transparency.

Researcher: What skillset forces you to look outside the organisation?

From a HR perspective our biggest weakness is change management. So that is organisational development, so we are quite weak in those skills at the moment and the way we tend to do it is bring in consultants to help us with change management projects. The change management is recognised and known and we're trying to fill that gap. I'd say that the other areas are the researchers they spoke about back when I was in HR. I'd say RND roles and sales are always tricky but it's always easy finding the salespeople and we kind of struggle to hold onto them. I'd say RND roles and scientific roles are hard as you know the need for us as a company we're supposed to be the leading supplier in products and services so we're looking for the best and they're probably quite few and far between.

That's the end of the interview. Thank you so much and have you anything else you would like to add?

If you feel there is anything you would like to add then please just email me. Thank you so very much indeed. I can send you the transcript of the interview by September 2019 and I can share some findings by the end of 2019 if you are interested.

Figure 5: Transcript: CEO Medium Sized Recruitment Business Interview: Conducted March 2019

Researcher: Thank you for taking part in this interview. This interview will play a vital part in contributing to my Doctorate studies at the University of Salford. It should take no longer than an hour and is confidential and anonymous. I am recording this interview which you have consented to already. Are you still happy for that to happen? There are some general questions to start and then themes which I will outline as we go through this. Are you comfortable with starting please?

GENERAL QUESTIONS

Researcher: What is your role within the organisation?

Participant: CEO of XX. (not discussing current role as orgs in a state of change and flux, more value from looking back at role)

Researcher: How many years have you worked in that role in your organisation?

Participant: three years

Researcher: How many employees work in your organisation?

Participant: about 360.

Researcher: How many years has your business been in operation?

THEME 1: DYNAMIC CAPABILITY THEORY AND FEATURES

Researcher: The next questions are based on the strategy of your business as I am researching how far your sector is aligned with dynamic capability theory as one of my key themes

What key strategic changes are you facing in the organisation? What have been the key strategic changes you have faced in the last two years?

Participant: this was an organisation over a three-year period where we changed the business focus and the financial model. We started with a group that had been made up of three types of businesses as a result of a buy and build strategy. Poorly executed, bought 17 businesses in tele comms, an IT business and a media business. It was failing and it was losing 300k a month. We determined that the only business we were salvaging and could actually become a significant play was the IT infrastructure business. So we sold off the tele comms assets and we sold the media business and we took as many provisions as we could so we could stabilise the business and raised 2.1 million to sure up a balance sheet. We were then left with an IT services business with 350 people in it and making some money but not enough. We identified the changing focus and the changing financial model came about. So we identified a couple of things. First of all, the business was split into two, one part was projects and other was managed services. So where we had long term contracts to provide services to our customers. The value and quality of earnings was coming from managed services and in the projects business it had got itself into a market where the margins were extremely low.

Because we pretty much had a me too offering, we identified we had the capability of working in an emerging area of the market called smart building technology and so we focused our energy there. We also acquired a small software business to help us on that journey. We focused on becoming the biggest player in the smart technology space and the financial model. So we had an increasing amount of revenue coming from recurring contracts and through software and consulting we built very high margins in the project business.

Researcher: In what ways are you focusing on expanding business lines and services? Are you expanding into markets within the UK or Internationally?

Participant: the answer is yes but in different product lines. Software was a global technology product and we had customers buying in Europe and north America. In consulting we were working in the UK and mainland Europe. On project it was mainly UK, but we did project manage in Europe. We did expand our international base, but it was more about meeting customer requirements without coming international for the sake of it.

Researcher: how did you support organisational learning?

Participant: if we're talking about skill based capabilities the company had a strong HR manager. A small hr team also, because in the past they'd done a lot of TUPE work and skills training for engineers. So there was already a decent programme that meant we could advance the skills of individuals at that level. However, the change occurred in the senior architecture systems individuals, there were some training capabilities that were deployed there but to be honest we hired fit for purpose. So went through hiring in new skills alongside focusing certain people and developing their skills base and driven by the HR department.

Researcher: Are you restructuring in any way at the moment? Have you restructured in the past two years?

Participant: well when we sold the telecoms business we sold all the assets and resources and for the media business too. so there was another component which was to take our headcount down to below 250 people and the reason being we wanted to meet the requirements to enable a share option scheme that could me EMI compliant. (tax benefit to employees who are able to benefit from share options). Through contract mgmt. we got it down below 250. The latter pieces of restructuring were all about building, we ended up with 360 in the end. As we acquired two businesses, one was a software business with about 28 people, and we acquired a managed service business with 18 people. We consolidated some of our resources into some of the higher skilled areas and we took out some that were less skilled.

Researcher: and what role did talent management play throughout that process?

Participant: to be honest I think it was more of administration and compliance in terms of restructuring. The requirements in terms of the capabilities that we needed would be driven by me. The HR department wasn't really involved within the senior team.

Researcher: what did succession planning involve at that time?

Participant: interestingly succession planning started at the top. I knew I needed to step away at some point.

Starting at the top we had 2 or 3 avenues, the CFO I worked with was a potential successor and therefore began to encourage him to go to meetings with me such as the investor meetings. I also encouraged him to join a training club, so that was me. We also had Rosie Clawson; she became the finance director, so she was in the succession plan for spencer. It's something that HR were mindful of but wasn't overly formalised. It was much more relevant down into the senior project designers, bid managers etc. that's where succession planning challenges were worked on. Which was all about building a scalable business where we actually had somebody who was coming through. So there was a plan but less formal.

Researcher: Knowledge management means the "strategies and processes of identifying, capturing, and leveraging knowledge to help the company compete." What strategies and processes do you have in place to support knowledge management in your company?

Participant: we had a series of regular operational meetings at all levels in the company. Because we're going through change communicating it was a feature in those meetings. Second is I would run a quarterly round table event; it became a town hall meeting. Every quarter I would walk through the strategy and a plan. Obviously with being a public company certain info we can't project but in terms of communicating change, where priorities were that was very much a key vehicle. That message was therefore carried into meetings. The final area was as we developed new products or homed existing ones into propositions, we started to do lunch n learn so the leaders of offerings would do those sessions throughout the period. There were external ones too such as press releases, statements in terms of formal announcements and social media content.

Did you support your organisation with R&D in any way?

Yes, there was a significant spend in two areas. Majority was in software, but we did have it in two areas of product development. One was in building cellular and the other was in the consultancy area of systems design.

How important were employee skills in underpinning these initiatives?

Very. Digital skills reinforce the UK focus on business success.

THEME 2: CHANGING WORK AND SKILLS PERSPECTIVES

Researcher: Employee Skills underpin the strategic theory I have just focused on. With the drive towards digitalisation and the focus on digital skills in the UK and Europe I am focusing on these digital skills as a drive towards the organisation's strategic focus. The digital skills debate has been extended to understanding the competency sets which employees need and as such European Digital Competence Framework for Citizens (DigComp) has been designed and supported by the European Commission. I am focusing on digital communication as a key are area of competency. This is assessed at three levels: basic, intermediate and advanced. I will show you what those differing levels include in terms of digital communication competence…

I am researching how far digital competencies underpin the strategic theory I am focusing on so now the questions are focused on understanding how digitalisation impacts your organisation and what level of communication digital competence your employees currently have: *I will have to give you an historical overview to explain this but currently I would say they are intermediate to basic level and beyond, being honest*.

Researcher: In what ways does digitalisation impact your organisation currently? How will this impact your organisation in the next two to three years? How important is it to your organisational growth? *Answered throughout the interview.*

Researcher: I will give you a few minutes just to familiarise yourself with the EU levels of digital communication competence. Generalising this to the whole organisation, at what level would you say your employees are when communicating digitally? (*This question was modified as the interviewee wanted to offer a background to the skills level*)

I think when we started we were at the basic level. I would say when I left we were at the intermediate level. There were some employees in there who were at the advance level (product marketing and digital marketing team) so their skill base helped educate some employees to participate more with digital communications and that's what helped us go from basic to intermediate. I think the definitions missed one small step, I think there's a step between basic and intermediate. I think that's a step where people might be on social media, but they don't know how to support a communication message. Meaning they've got a LinkedIn I' d but they don't know what to do with it to support the corporate message that might be being communicated.

Risk and compliance:

It already existed, so the original business that we kept had been there for 30 years which dealt with very high value clients for highly sensitive subjects. So the risks associated with contracts are significant so the risk mgmt. and project mgmt. team I have never seen better, and I've worked for IBM. Extremely strong skills so we didn't need to do anything really other than maintain those standards.

How did you ensure employees adhered to that?

Largely through a compliance manager, a health and safety manager and a project director. It was their task and role. As standards and/or legislation changed that was driven through those teams. They reported to the board on the status of those areas.

Why did you see that as being something you would bring from the US as key (analytics and dig comms)?

I was advising chairman (of X) while I was travelling the US, he asked me to come back as CEO and the company at that point was really in the toilet. He had a vision of a buy and build in recruitment. What he latched onto is that a public company gets rated in terms of value based on its future earnings potential and the bigger you are and the quicker you grow the more valuable you are. Now values are in PE ratios so if you earn 1 million a year and say you're rated at 8x earnings, that means your value is 8 million.

His idea was I can buy smaller companies at maybe 4/5x earnings. So that was the basis on which he was going to grow the company. He bought 17 businesses and ended up with 22, so during the recession the business tanked, as he had 22 companies all called something different which were overlapping in terms of what they were doing, and nobody had heard of them. Basically the recruitment business was below margin and had no distinct features so for me the major thing id identified throughout the recession was the skills that were in high demand but low supply. And these were analytics and digital so the strategy I came back with was to focus it away from being an IT recruiter to being focused and niche. So we broke it into five areas; one that would handle generic recruitment, then we had three key niche businesses. And we changed again the financial model and we called it IQ, what we also prioritised was communicating to candidates not customers. That brought about a proper digital communications strategy, so we brought an external to help us bring it out and launched it a year later. So it has to be a tool to achieve something but needs a business strategy with it. we had to establish a reason for them to work for us and that was through digital communications.

Researcher: This is my last set of questions. The research now aims to find out how far you are focusing on strategic planning for the future to address digital communication competence in your workforce.

Researcher: How far are you looking ahead to plan staffing based on digital skills and competencies? How important is it to your organisation to plan staffing based on digital communication competence?

It would be highlighting the one or two skills within the organisation and then what we needed to do to encourage and train people how to leverage it for us. In terms of other strategic skills, like HR components it was about bringing the right people into the company.

Researcher: Who is involved in decisions about any changes to your workforce? How is that communicated in the organisation?

Board level, me and the HR director. We went external to an agency to help us for one of the individuals, everybody else in the organisation were at a basic level and therefore weren't heavily involved.

Researcher: Have you anything else you would like to add? If you feel there is anything you would like to add then please just email me. Thank you so very much indeed. I can send you the transcript of the interview by June 2019 and I can share some initial findings by the end of 2019 if you are interested.

Figure 6: Transcript: CFO/O Small Management Consultancy: Interview Conducted March 2019

Researcher: Thank you for taking part in this interview. This interview will play a vital part in contributing to my Doctorate studies at the University of Salford. It should take no longer than an hour and is confidential and anonymous. I am recording this interview which you have consented to already. Are you still happy for that to happen? There are some general questions to start and then themes which I will outline as we go through this. Are you comfortable with starting please?

GENERAL QUESTIONS

Researcher: What is your role within the organisation?

Chief financial and operating officer of xxx consultancy.

How many years have you worked in that role in your organisation?

18 months.

How many years has your organisation been in operation?

10 years.

THEME 1: DYNAMIC CAPABILITY THEORY AND FEATURES

What key strategic changes are you facing in your organisation?

Our business is involved in the digital transformation of the NHS, so our challenges in our opportunities come from the Governments stated agenda to properly digitise the NHS in a way which was probably attempted too soon. They spent £10 billion of taxpayer money and didn't achieve anything. We are now picking up the pieces which we've done for 10 years of picking up the pieces of that failed implementation stopping the NHS from being the world's leading user of fax machines and get them onto a digital platform so that when you have an interaction with a mental health provider in your region or your GP or A&E, everyone can see what it is that you've got and what your medical history is. Right now that is impossible in most places so our digital strategy for the entire region is being around digitisation. Researcher: Does that include the extent of the remit of the medical records debacle and are you doing work in terms of that? *Yes. So we have recently dealt over 350,000 patients over a period of time who never got discharge note sent to their GP. Some of those patients were critically ill and needed follow up treatment and that treatment never happened because there was a failure in the electronic patient records. The way that, that trust was administering that, and people did die because they were meant to have follow up consultation within 2 weeks of leaving the hospital and it didn't happen.*

Researcher: With that strategic focus aligned with digitisation of the NHS, what form does that take in business and service expansion?

There's various digitisation in the NHS, there is the patient records, E-prescribing, it shouldn't be within someone's head how much of a certain medicine people get but that's how it operates at the moment. What it should be is in a digital environment that this person has this illness, this is their height, weight etc. and this would be consistent whether you walked into a hospital or when you're on holiday or whether you go into a local hospital you should be getting the same prescribed thing but you're not. So there's different facets of the NHS which we need to keep on top of and some of its supplier led so someone will create an E-prescribing system and we need to be ahead of that and be in a position to help our customers to implement that system so we're constantly on the leading edge of the digital innovation in the health service.

Researcher: Are you going to expand internationally or further into the UK?

We've been talking to some people about international expansion this week actually and whom we've spoken to previously the problems in the NHS exist everywhere- the way you treat people in hospitals around the world are more or less the same. Within the UK we have campaigns running at the moment around a particular GPR electronic patient record system and we will expand outside of our traditional territories due to that campaign. We're taking responsibility with the Welsh Government for transforming the Welsh NHS and we are constantly approached from emerging economies so India for example they have the opportunity to build an NHS without the baggage that our NHS has, so they can kind of start from scratch and not have some of the things that hold our NHS back and at some stage probably we will end up being led into India.

Researcher: If you could summarise the 3 key innovations your organisation is taking what would they be?

The biggest one we're doing at the moment is around running feasibility studies in one particular region on behalf of the NHS England around wearable technology. So people will wear a device, more or less like a Fitbit or an apple iWatch.

This will take basic statistics from that patient and we're helping to assess whether the data that you can download from that type of equipment could be used as a prediction for when someone will go and seek medical help before they have a heart attack or another acute illness. The NHS won't survive if they carry on being a reactive service it needs to be proactive so it needs to be much more engaged in what's termed population health and that is making people more accountable for their own health and making them understand where the warning signs are, that are ultimately over the course of 20 years which means you're going to have to spend a lot of time in hospital with some sort of heart disease and if we don't do that the NHS will consume all of our GDP. We get older and older and unhealthier and unhealthier and people who 20 years ago are living with long term chronic illness they would have just died. So the wearable tech is really at the forefront of what we're doing at the moment. So NHS-X has been created. So you have NHS-E which is NHS England, NHS-I is NHS improvement and NHS-D is NHS digital two of those are merging. And they're creating this thing called NHS-X and that is going to set in the same way that NICE sets clinical standards,

NHS-X is going to set digital standards and drive consistency through the NHS in terms of the way that data is stored and manipulated and handled. We need to be right at the forefront of that, we need to be advising them really on what that should look like. Mobile devices just become more and more capable, quicker and quicker the connectivity gets better and better and we need to make sure we keep on top of that. That's a challenge in the NHS being in a building that has been around over 100 years the walls are pretty thick and there's a whole load of technology which surgeons for example can use to have notes, they're data sources available to a surgeon if they're performing a surgery which they can relate to and sometimes the Wi-Fi in a theatre isn't good enough to allow them to do that. So part way through if they get lost with what they're doing they have to leave the theatre and walk up the corridor to get Wi-Fi connectivity so they can look on an iPad to see what they're meant to be doing and this means they then have to scrub up again. There's real digital innovation out there but the infrastructure isn't always there to support it. But staying in front of that is key to our business, our business will not survive if we don't stay at the forefront of digital technology in healthcare.

Researcher: How do you enable your business to adapt to that? Are you currently restructuring for example?

We did a restructure last year and brought people into a single consultant team and we've appointed a practice Director who has created a competency framework and we're mapping our staff against that competency framework, assessing skills gaps and making sure that where there are gaps we're getting the opportunity to address those. Yesterday we had a consulting team meeting and set up a lunch and learn programme for the remainder of the year. April was the first month of our financial year and we've got a curriculum for every month of the remainder of the year for people to come on and do some online learning around the hot topics in our industry.

Researcher: How does this then relate to succession planning?

It's key for succession planning, our business at the moment is about 30% performed by permanent employees and 70% is performed by associates. And what we need to do is swap that and take some associates onto our payroll and find some consultants in the marketplace and build a pyramid of professional services organisation where you have a big layer of 'doers' and then team leaders, directors and then strategy people. At the moment we're very top heavy, our pyramid has kind of inverted and we need to fix that because we won't have senior consulting partners for the future if we don't hire some junior consultants now.

Researcher: How are you currently sharing knowledge in a knowledge management framework and how do you aim to do that?

We've only been around about 10 years and about 4 years ago the company nearly went bust, there was a customer who didn't pay when they were meant to and we had a lot of infrastructure that had been invested in and then there was no one around to invest in it as everyone got made redundant. It's only in about the last 18 months that we've started to rebuild some of that, one of the things that we have done is implement our share point instance and share point is a document repository. A filing cabinet is only as good as the way that you use it and if you put things in into an index and a sensible way then they're

very powerful but if you pull out all the dividers and drop everything in it like it was a bin then you never find it again.

So we've spent a lot of money in the past 12 months into turning that into a proper searchable repository, you should be able to type in a window about a proposal and pull out something that was done months or years ago and be able to refer back to the customer what we were going to do and that might be because we were wanting to have a follow up conversation with the customer or might be because we want to pitch the similar sort of business to a different trust.

Researcher: How do you conduct research and development to enable business growth?

We have some smart people in our operation, some of them are ex-CIO of hospitals some of them are ex-CEO and HRD's of hospitals. Some have a background in product but they all come from a background in PhD or NBA's and they're naturally wanting to do that research in an opportunity to solve the NHS so we facilitate that by encouraging it but there's no formal we want you to go and do 3 R&D programmes this year and these are the topics; it's really down to the consultants and directing partners to define how they want to address the market and addressing the market by being at the forefront of those technologies.

Researcher: What analytics packages do you use? If any:

We don't have any RP systems as such we use a very basic level of SAGE for all of our finances. We use share point as our document repository. We use Microsoft dynamics as our CRM tool. We use something called time stamp for all our time reporting; our associates submit time reports so that they get paid.

Then we use a heck of a lot of Excel to glue it all together which isn't where we want to be but that's where we're at, at the moment. We wouldn't advise anyone to run their business as we run ours but we're too busy advising everyone else to deal with ours. We have a programme to do that but realistically with our ownership we're unlikely to do that in the short term, but we would like a Microsoft based PRP implementation that's what we want to try and get to.

THEME 2: CHANGING WORK AND SKILLS PERSPECTIVES

Researcher: Are there any job families, departments, job roles or employees in your organisation that only have basic digital skills when communicating? Following this would you say they're intermediate or advanced in their skills?

No, nobody has that. I think 90% of our people are in between intermediate and advanced.

Researcher: What would you say they were missing to become advanced?

It comes down to what you define as innovative. Using innovative social media platforms on behalf of the organisation. They'll write blogs and so on. I had a conversation with our Comms people and I think they're in the top end of it, they're probably in the 10% that are advanced but then again we have a conversation about how our social media is going and they say, 'yes it's going great we're sending one tweet a day' and I'm like that's hopeless, I follow about 1,500 people on Twitter if you don't tweet whilst I'm looking at it I will never

see it. They need to be sending it out every 2/3 hours with new content and they're just not quite there yet.

Researcher: If according to Comms definition of advanced levels of communication are that, then what do you consider advanced levels of communication?

I'm very aware that they're likely to be social media websites that I haven't even heard of and we don't do anything on Instagram or Facebook they're probably not that innovative these days anyway. We do a lot on Twitter and a bit on Linked In but probably not enough, I don't think any of those things are massively innovative, there's always something new around the corner- what that is I don't quite know.

Researcher: What departments have the high advanced digital skills?

Marketing and Comms people are closest to being that but equally some of the consulting partners are very active in blogging and getting their message out there as individuals and sometimes under our name but they're doing it off their own back because they know that will get us customers.

Researcher: How far are you looking ahead to plan staffing based on digital skills and competencies?

The NHS have just issued out a 10-year plan on how they're going to digitise the NHS and NHS-X which I referred to earlier is part of that agenda. So we need to be planning for that and we need to be ahead of that curve and be at the forefront of digital innovation that happens within our marketplace. So we're following the NHS in their 10-year plan as a business we have a 3-year plan and our competency framework is geared around creating that succession plan in the medium term of 3-5 years.

Researcher: What was the threat to your business in terms of the NHS gaining a strategic arm?

They referred to connect in for health which is kind of the nationwide programme that failed. Interestingly there was a take on that which I heard yesterday that it was ahead of its time, I'm not sure it was ahead of its time I just think it was done badly. The problem with how the NHS operates is it's not just one thing it's a bit like Spar. Every Spar is a franchise, but they're all run completely differently, and the NHS is like that, the NHS is set up as foundation trusts that they're all set up with their own authority to buy what they want and operate how they want. Very quickly North's staff went as financially very well managed Trust and then they went and killed lots of people and so the regulation was put in place around NICE around Clinical Excellence and that started to drive the standards in the NHS even though they work as their own individual standard. Digital is a long way away from being able to do that as that whole concept was poisoned by what happened, getting on for 20 years ago with Connecting for Health.

At some stage the right thing to do for the NHS is do a national health programme and when that happens we are far too small to get a meaningful share of that and the ability to pick off individual trusts in the way that we operate our business right now will go because they'll be told it will be other firms. At this point our position in the marketplace because untenable and we'll get sucked up into whoever wins that contract- so there's a real threat to us from that. Another threat at the moment is that they kind of have this

idea that there shouldn't be any consultants, as in IT consultants or management consultants working in the NHS and there are ways and means to get around that we operate in that regime right now. But that is under a Conservative Government who are a bit more business friendly than a Labour Government led by Mr Corbyn is likely to be and that's a real threat to our business.

Researcher: In that 3-year plan how far are you focusing on recruiting external talent to drive the digital competencies that you need?

We need to shift our reliance on contingent labour so throughout that 3-year plan there's an expectation. So if we were to go out and hire 70 consultants next month, we could do it, but they wouldn't be very good, so we've set our self that target of 70 consultants over the next 3 years. We'd hire them on full contractual term. A weakness in our business is that there's not actually that many employees as you'd like, as a business you'd buy 30 employees and employ a bunch of sub-contractors and we need to switch that round for cost reasons as much as trying to build a long term sustainable business.

Researcher: In terms of digital competence what are the key areas of digital skills and competence that you're focusing on in planning for staffing?

In terms of that framework we are looking at people that are very much closer to the advanced level rather than the intermediate level but the digital competencies that we are looking for are a track record of implementing and imbedding digital systems within the NHS so being at the forefront of EPR and starting to be population health- so the things like wearable technology. I think I've mentioned we've got an associate we have access to who has been out in the States and working with MIT on a load of really innovative stuff that was on computer based learning. So he had this app and the technology itself was an iPhone, but the app was built for autistic people and children who mature into autistic adults which was to try and simulate day to day interactions. It would start as simple as ordering a burger in a McDonald's but went all the way through to a job interview and how you cope with confrontation and it's kind of simulated that. So he'd done that but he'd also done some stuff around quadriplegics who have very limited ability to move anything and often people would use a straw which they could blow or suck in a certain way which enabled them to type and there were problems with that with infections it needs to be sterilised.

So his team that he was working with came up with a patch that could sense tiny, tiny movements in a face or a hand wherever they had some mobility and the way it worked went beyond my comprehension but it would enable them to type by almost flexing their skin.

We need to be at the forefront of stuff like this which we wouldn't even dream of, but people are out there thinking of it and we get access to this and people like that in order to do that.

Thanks so much xx. That's about it. If you feel there is anything you would like to add then please just email me. Thank you so very much indeed. I can send you the transcript of the interview by September 2019 and I can share some initial findings by the end of 2019 if you are interested.

Figure 7: Pilot Participation Contact (January 2019)

28th January 2019

Thank you very much for taking part in my pilot study. You are helping me to ensure I meet my study aims by gathering the data which relates to my academic debate. Thank you to the professionals who have agreed to pre-test the questionnaire following the table of specification exercise and to the managers who are helping me to review the interview questions next week. I will gather your feedback and link that to my table of specification exercise when we speak/message.

Within this pack I include:

- The abstract which summarises the research
- The study rationale
- The aims, objectives and research question
- A table of specification proforma

Please can I ask you as my professional helpers to review:

1) The abstract and then
2) Followed by the study rationale.
3) Then the research aim and research question
4) Finally, the online survey template
5) When you have completed this, will you please add an honest review of these using my table of specification measures below. Indicate the number which applies to your expert judgement as follows:

1 = Weakly conveys study aims/ content and the theory applied

2 = Adequately conveys study aims / content measures and the theory applied to an extent

3 = Conveys research aim /content although some confusion persists in relation to the theory which applies

4 = Research aims, and content are justified

Please would you kindly email me any comments to support your review? Any questions, please just ask. My mobile number is (x) or you can message me on LinkedIn/by email.

Best wishes

Ruth Sharpe

Table 8: Pilot Participants Table of Specification: Results: Amalgamated Scores

context	Concept: Strategic Competitive Advantage		1. Expert Judgement Rating	Concept: The Organisational Need for		2. Expert Judgement Rating
Evidence	Evidence			Evidence		
The Research Rationale (as of January 2019) in this pack	The strategic theory I am focussing on is called Dynamic Capabilities. This is linked with volatile change which is applied to the UK political and economic context and can result in restructure, extension of business lines and services/ locations.	Teece, Pisano and Scheun (1997) and Teece (2007)	3 4 3 3 4 4 4 2 Overall: 3	In the UK 'tech-led' economy new technologies are changing the way we work resulting in the need for digital skills being greater.	Servos (2019), Moueddene et al. (2019) Bakhshi et al. (2017) McKinsey (2019) PwC (2017) Hislop et al. (2017) Kispeter (2018) Ecrovs (2016) Kispeter (2018) And many others	4 4 4 4 4 4 4 4 Overall: 4
	Dynamic Capabilities are supported by innovation leading to a focus on profitability. Organisational Learning & Knowledge Transfer support organisational innovation ability.	Easterby-Smith, Lyles and Peteraf (2009) Easterby-Smith and Lyles (2003), Prieto and Easterby-Smith (2006)	3 3 4 3 4 4 4 4 Overall: 4	I focus on Digital Communication Competence as a key competence area of digital skills which supports workplace activities	DIGCOMP's detailed Competency Framework (Ferrari, 2013): Carretero, Vuorikari and Punie (2017) and Van Laar et al. (2017)	4 4 4 3 4 4 3 4 Overall 4
	Employee skills link to organisational learning, knowledge transfer & innovation ability & in the contemporary workplace the focus should be on digital skills	Key perspectives offered by: Teece and Lazonick (2002) Sousa and Rocha (2018)	3 4 4 4 4 4 4 4 Overall: 4	Any Comments? !		
For All Pilot Participants	Does the rationale I have provided clearly link to the aims and the research questions?					

Table 9: Pilot Participant's Table of Specification Results (Internal Recruitment Specialist).

Pilot Participants Table of Specification

context	Concept: Strategic Competitive Advantage		1. Expert Judgement Rating	Concept: The Organisational Need for		2. Expert Judgement Rating
Evidence	Evidence			Evidence		
The Research Rationale (as of January 2019) in this pack	The strategic theory I am focussing on is called Dynamic Capabilities. This is linked with volatile change which is applied to the UK political and economic context and can result in restructure, extension of business lines and services/ locations.	Teece, Pisano and Scheun (1997) and Teece (2007)	Ruth, this became clearer when I read through your stuff, but it had me dazed. You explain it well though, so it made sense in the end 3 (no offence, it is my lack of theory understanding)	In the UK 'tech-led' economy new technologies are changing the way we work resulting in the need for digital skills being greater.	Servoz (2019), Moueddene et al. (2019) Bakhshi et al. (2017) McKinsey (2019) PwC (2017) Hislop et al. (2017) Kispeter (2018) Ecrovs (2016) Kispeter (2018) And many others	Right, now I am starting to get the whole picture. This is more real world to me than the theory, but I am a pro not a teacher 4 here for sure
	Dynamic Capabilities are supported by innovation leading to a focus on profitability. Organisational Learning & Knowledge Transfer support organisational innovation ability.	Easterby-Smith, Lyles and Peteraf (2009) Easterby-Smith and Lyles (2003), Prieto and Easterby-Smith (2006)	I am getting it now as I read through and I can see why you think it is relevant to our business 4	I focus on Digital Communication Competence as a key competence area of digital skills which supports workplace activities	DIGCOMP's detailed Competency Framework (Ferrari, 2013); Carretero, Vuorikari and Punie, (2017) and Van Laar et al. (2017)	Yup, I see you here. This is a great focus because it means a lot to our company I would give this 5 if I could
	Employee skills link to organisational learning, knowledge transfer & innovation ability & in the contemporary workplace the focus should be on digital skills	Key perspectives offered by: Teece and Lazonick (2002) Sousa and Rocha (2018)	Yes, your linkage is clear 4	Any Comments? The aim is academic in wording, but I guess that fits? I knew what you meant though when I read your stuff. Best of luck Ruth!		
For All Pilot Participants	Does the rationale I have provided clearly link to the aims and the research questions?					

Appendix 3: PhD Process Information

Image 1: University of Salford: Ethical Research Approval

University of Salford MANCHESTER

Research, Innovation and Academic Engagement Ethical Approval Panel

Doctoral & Research Support
Research and Knowledge Exchange,
Room 827, Maxwell Building
University of Salford
Manchester
M5 4WT

T +44(0)161 295 7012

www.salford.ac.uk/

16 August 2018

Ruth Sharpe

Dear Ruth,

RE: ETHICS APPLICATION SBSR1718-25: The role of workforce forecasting in identifying employee digital skills in the Professional and Business Services sector.

Based on the information that you provided, I am pleased to inform you that your application SBSR1718-25 has been approved.

If there are any changes to the project or its methodology, please inform the Panel as soon as possible by contacting SBS-ResearchEthics@salford.ac.uk.

Yours sincerely,

Professor David F. Percy
Chair of the Staff and Postgraduate Research Ethics Panel
Salford Business School

Figure 2: Participant Information Pack: Approved by University of Salford Ethics Committee (accurate at January 2019)

University of Salford MANCHESTER

Accredited by Association of MBAs

Salford Business School

global thinking, sustainable practice, professional success

Research information Pack

This Research Investigation focusses the Importance of Digital Communication Competence in the Competitive Advantage Context of the UK Professional Business Sector

Thank you for agreeing to participate in this study.

Below are further details.

regarding the purpose of the study and also information regarding the ethical

process relating to the online survey and interviews. If you have any questions, please do not hesitate to

contact me on the following:

Name: Ruth Sharpe

Mobile No: 07939519613

Email: rpmsharpe@googlemail.com

Address: Maxwell Building University of Salford, Salford, Greater Manchester, M5 4WT

Before agreeing to participate in this research study, it is important that you read the following explanation of this study. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the programme. Also described are the alternative procedures available to you, as well as your right to withdraw from the study at any time. No guarantees or assurances can be made as to the results of the study.

Explanation of Procedures

This research study is designed to carry out an investigation of how important employee digital communication competence is the context of your business strategy. I am using a strategic theory as my framework for analysis which centres on how you adapt to macro changes through your focus on profitability, innovation, business expansion, learning and knowledge transfer. I am focusing on the Professional Business Sector because it plays a key role in UK productivity and economic growth.

Participation in the study involves:

1. For those who have agreed to participate, completion of an online questionnaire survey.
2. For some senior professionals, undertaking a semi structured interview.

You have kindly agreed to one of these activities.

Participation in the online questionnaire survey

A sample of participants will be invited to complete an online questionnaire. An invitation will be sent to each participant and they will be given the opportunity to either participate or decline to participate by virtue of their completion of the survey. The online survey participants will be approached by email and using the LinkedIn professional networking social media site. Participants will be sent the link to the secure JISC online survey site when they agree to participate. The online survey will take no more than 15 minutes to complete.

The researcher will ensure that she sends personal messages to potential participants in her network using this social media site or her personal email address. Using LinkedIn messaging will ensure she limits personal information both from her own and that of participants with no public posting of private phone number, email or addresses. She is aware that social networking sites update their services and privacy settings and will ensure she checks her own privacy settings. She will not allow the data collected to be used for any other purpose than the research indicated. Communication will remain professional at all times relating only to the research.

This survey poses a minimal risk to participants thus a simple consent paragraph is included in place of the separate consent form. Participants will be given the same type of information (e.g. voluntary participation, risks, confidentiality/anonymity, right to withdraw). Whilst the participants are not signing a separate consent form, consent is obtained by virtue of completion.

Online surveys cannot normally be designated as being anonymous. Even where participants are not being asked to provide their name, other information, e.g. gender, department and IP address, can potentially be used to identify individuals. As such it is more accurate to describe the online survey data collection as 'confidential' in this case, meaning that the researcher will implement agreed procedures to maintain the confidentiality of participant data.

The secure JISC online survey system is compliant with all UK Data Protection Laws.

Participation in the semi structured interview

Participation in the study for some involves undertaking a semi-structured interview, which will last for approximately one hour. The interview will be recorded by the interviewer and later transcribed for the purpose of data analysis. The interview will be conducted at a setting that is mutually agreeable to the participant and the researcher.

Skype/Teams interviews will be offered to participants for convenience. Only the interviewer and transcriber will have access to the recordings which are stored securely on the researcher's laptop where passwords are changed regularly, data is backed up daily, the PC is locked when not in use and security software is installed to protect data.

Risks and Discomforts

There are no risks or discomforts that are anticipated from your participation in the study. Potential risks or discomforts include possible emotional feelings when asked questions during the interview although this is deemed to be unlikely.

Benefits

The anticipated benefit of participation is that participants will gain an insight into:

1. How their sector is gaining competitive advantage and how that might be improved through a focus on dynamic capability features
2. How maturity of business processes applies to sizes of organisations within their sector
3. How their digital and innovation focus compares with that of other organisations within their sector.
4. How digital competencies are currently defined and what the key features of those frameworks are?
5. What features of digital communication competence are applicable within their sector.
6. Which level of digital communication competency applies to their workforce and how that compares with other businesses within their sector

Online Survey Guide

Questionnaire type: Mixed method (quantitative focus with optional qualitative question options)

Completion time: 10 - 12 minutes

Online survey participants will be asked to respond to rating scales, tick box answers and will also be given the option of completing a limited number of open questions. The questions for interview reflect the themes which are covered in the questionnaire.

These relate to:

- General questions: Role, number of years in role, type and size of organisation, number of employees (no personal biographical information is required).
- Your organisational strategic focus: question measures based on the strategic theory features I am investigating relating to: change impact; expansion of business lines/services/localities; focus on innovation and profitability (no financial data is requested); business focus on learning and knowledge transfer.

Aligning Strategy with Digital Communication Competence: Importance of Digital Technology to their business

- Aligning Strategy with Digital Communication Competence: Assessing how far basic, intermediate and advanced level digital communication competence applies to their staffing groups.

Draft Interview Guide

QUESTION AREAS	QUESTION FEATURES
General Questions	Type of Business, years in operation, number of employees and number of years in position (no age/gender/disability/BAME questions)
THEME 1: DYNAMIC CAPABILITIES AND FEATURES	Change/restructure/ business expansion/innovation focus/learning and knowledge transfer approach (no financial success data questions)
THEME 2: CHANGING WORK AND SKILLS PERSPECTIVES	Importance of digital skills/ features of digital communication competence/ workforce level of digital communication competence/issues with teams/departments/employees in digital communication competence

Interview type: Semi-Structured

Length of interview: 1 hour

Interview questions: Can be emailed prior to the interview on request.

Confidentiality

The information gathered during this study will remain confidential in a locked filing system during this project. Only the interviewer will have access to the study data and information. There will not be any identification of names on the recordings and participant's names will not be available to any-one. The recordings will be destroyed at the completion of the study. The results of the research will be published in the form of a PhD thesis and may be published in a professional journal or presented at professional conference meetings.

Due to the confidential nature of the subject area, all participant comments will remain anonymised. The names of all participants will be listed within an appendix of the research to demonstrate a robust and authentic element to the data. If you would prefer your details to be omitted completely, please can you indicate this on the authorisation form at the back of this document.

Please note the authorisation form will be collected prior to the interview.

Withdrawal without Prejudice

Participation in this study is voluntary; refusal to participate will involve no penalty. Each participant is free to withdraw consent and discontinue participation in this study at any time without prejudice from this institution and would be understood fully by the interviewer. All data collected in relation to this participant will be immediately deleted, through both a manual shredding machine and also through electronic deletion. A list of documents will be sent to the participant indicating what details have been permanently deleted.

Purpose of the study

The purpose of the study is to provide a contemporary understanding of the importance of digital communication competence in the competitive advantage context of the UK Professional Business Sector. The nature of work and the skills required to do that work are constantly changing in the digital age and UK productivity and growth are dependent on employees having competence in digital skills. Despite this, a skills gap remains serving to impact on the ability of the UK to compete globally. For organisations to compete globally they must focus on creating competitive advantage. How important as aspect of digital competence is in this context is thus the focus of the research.

New Findings

Any significant new findings that develop during the course of the study, which may affect a participant's willingness to continue in the research, will be provided to each participant by the interviewer.

Cost and / or Payment to Subject for Participation in Research

There will be no cost for participation in the research. Also, participants will not be paid to participate in this research project.

Payment for Research Related Injuries

The University of Salford has made no provision for monetary compensation in the event of injury resulting from the research. In the event of such injury, assistance will be provided to access health care services.

Questions

Any questions concerning the study can contact:

The Research & Graduate College the University of Salford Faraday House Salford Greater Manchester M5 4WT

+ 44 (0)161 295 5000

Complaints

If you have any concerns regarding this study, please contact the following person at the University of Salford:

Matthew Stephenson Head of Information Governance Information & Learning Services Clifford Whitworth Building University of Salford Salford M5 4WT

Tel: 0161 295 3152 Email: m.stephenson@salford.ac.uk

If you have exhausted the university complaints procedure and you are still not satisfied with the outcome, you have the right to complain to the Information Commissioner, the independent body who oversees the Freedom of Information and Data Protection in the UK.

To complain to the Information Commissioner, please write to:

Information Commissioner's Office Wycliffe House Water Lane

Wilmslow Cheshire SK9 5AF

Tel: 01625 545 700 http://www.ico.gov.uk

Authorisation Form

Given that you have initially agreed to be interviewed and that we have agreed to conduct interviews via Skype then please could you copy and paste this box into your email, complete that and forward that by return of email to me? Thank you.

Full Name	
I am willing to be interviewed regarding my business strategy and am aware that my views and opinions may be made available in the public arena.	Yes
I understand that all comments will be anonymised and that no personal details will be released as part of this study.	Yes
Signature	

Many thanks

Ruth Sharpe MSc, MCIPD: Postgraduate Researcher and Lecturer in HRM

Appendix 4: Results: Supporting Information (Chapter 4)

Table 1: Online Survey Participant Unique Identification Number and Roles

Prefix OS added to IDs in Chapter 4	Unique Survey ID Number	Job Title
1.	461518-461509-45588353	Corporate Services, Manager
2.	461518-461509-45767714	Business Development Director x2
3.	461518-461509-45809328	
4.	465995-465986-45975308	Cash Management
5.	465995-465986-45975636	Chief HR Officer
6.	465995-465986-45977052	Consultant
7.	465995-465986-45976994	Contract Manager
8.	465995-465986-45979608	COO
9.	465995-465986-45980186	Director x4
10.	465995-465986-45984828	
11.	465995-465986-45989002	
12.	465995-465986-45990563	
13.	465995-465986-45994613	Director of Operations
14.	465995-465986-45997101	Director of Sales & Marketing
15.	465995-465986-46008279	EMEA HR Director
16.	465995-465986-46020871	Executive Management
17.	465995-465986-46051715	Export Control Manager (Saudi Arabia)
18.	465995-465986-46054792	Finance Director
19.	465995-465986-46126774	Financial Services Adviser
20.	465995-465986-46178025	Front line manager
21.	465995-465986-46183997	Hardware Technical Director
22.	465995-465986-46184609	Head of Client Relationship Management
23.	465995-465986-46198629	Head of Commercial
24.	465995-465986-46199137	Head of Compliance
25.	465995-465986-46207905	Head of CRM
26.	465995-465986-46230161	Head of Development
27.	465995-465986-46329808	Head of Global Sales
28.	465995-465986-46395912	Head of HR x4
29.	465995-465986-46404089	
30.	465995-465986-46399141	
31.	465995-465986-46422053	

32.	465995-465986-46472436	Head of HR (interim)
33.	465995-465986-46477925	Head of implementation
34.	465995-465986-46505596	Head of Internal Recruitment
35.	465995-465986-46507349	Head of Resourcing
36.	465995-465986-46523115	Head of Shared Services
37.	465995-465986-46552143	Head of Talent Acquisition
38.	465995-465986-46625780	Head of Talent and Performance
39.	465995-465986-46639412	HR Manager x 7
40.	465995-465986-46682702	
41.	465995-465986-46761389	
42.	465995-465986-46994725	
43.	465995-465986-46975934	
44.	465995-465986-46994725	
45.	465995-465986-47010907	
46.	465995-465986-46883063	HR & Recruitment Manager
47.	465995-465986-46885573	HR Advisor
48.	465995-465986-46912805	HR and Recruitment
49.	465995-465986-46923765	HR Consultant
50.	465995-465986-46931222	HR Director
51.	465995-465986-47043702	HR Manager (Divisional)
52.	465995-465986-47338755	HR Officer x 2
53.	465995-465986-47499844	
54.	465995-465986-47579975	HR Systems Admin
55.	465995-465986-47590986	HRD x 2
56.	465995-465986-47600515	
57.	465995-465986-47604120	IT Manager
58.	465995-465986-47618317	L&D Business Partner
59.	465995-465986-47696933	Lead management development coach
60.	465995-465986-47747447	Learning and Development
61.	465995-465986-47864916	Legal Executive
62.	465995-465986-47996859	Legal Team Manager
63.	465995-465986-48676801	Management
64.	527450-527441-51469444	Manager x 2
65.	527450-527441-51538076	
66.	527450-527441-51552429	Managing Director x 2
67.	527450-527441-51553347	
68.	527450-527441-51558296	Managing Director EMEA & APAC
69.	527450-527441-51566129	Marketing Manager x 2
70.	527450-527441-51569006	
71.	527450-527441-51574060	Marketing Director
72.	527450-527441-51575484	Partner x 3

73.	527450-527441-51580830	
74.	527450-527441-51579501	
75.	527450-527441-51603355	People Partner
76.	527450-527441-51615397	People Services Manager
77.	527450-527441-51624424	Product Director
78.	527450-527441-51699374	Programme Lead for Talent Strategies
79.	527450-527441-51699548	Property Consultant
80.	527450-527441-51699810	Quality Manager
81.	527450-527441-51702661	Recruitment Advisor x 2
82.	527450-527441-51839222	
83.	527450-527441-51900438	Recruitment Manager
84.	527450-527441-51903901	Recruitment Strategy Lead
85.	527450-527441-51904975	Research and Development Technician
86.	527450-527441-51905381	Responsible Business Manager
87.	527450-527441-51918407	Sector Managing Director
88.	527450-527441-51918842	Security & Export Control Manager
89.	527450-527441-51922887	Senior HR Advisor
90.	527450-527441-51946722	Senior HR Business Partner
91.	527450-527441-51960660	Senior HR Director (Productivity and Operations Projects & Change Management)
92.	527450-527441-51965384	Senior HR Manager
93.	527450-527441-51976120	Senior HR Officer
94.	527450-527441-51989592	Senior Project Manager
95.	527450-527441-51990129	Service Deliver Manager
96.	527450-527441-52001001	Strategy Director
97.	527450-527441-52078094	Senior Team Leader
98.	527450-527441-52176351	Technical Support Manager
99.	527450-527441-52252293	TM1/SQL/VBA Developer

Figure 1: Online Survey Respondents: Years the Business has been in Operation.

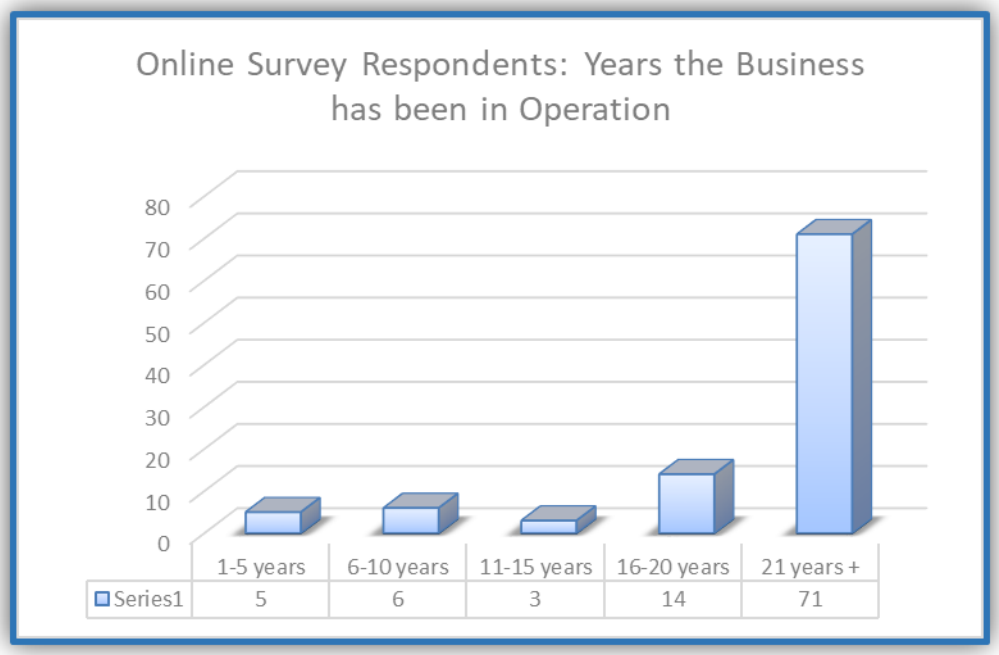

Table 3: Online Survey Respondents Size of Organisation Cross Tabulated with Years the Business has been in Operation.

How many years has your business been in operation?	How many employees work in your organisation?		
	10 - 249 employees	250 - 499 employees	500 or more employees
1-5 years	4	0	1
6-10 years	4	2	0
11-15 years	0	2	1
16-20 years	7	2	5
21 years +	11	10	50
Totals	26	16	57

Table 4: Online Survey Respondents: The Importance of Employee Skills in Digital Communications Cross Tableted with Size of Organisation.

	1 vs 3	How many employees work in your organisation?		
How Important is it that Employees have Skills in Digital Communications?		10 - 249 employees	250 - 499 employees	500 or more employees
	Unimportant	2	0	6
	moderately important	6	4	16
	very important	18	12	35
	Totals	26	16	57

Table 5: Semi Structured Interview Participant Profile

Code	Role	Home Location/ Office Location	Length of Time in the Role	Professional Business Sector Sub Sector	Size of Business	Years in Operation
Large Organisation Interviewees						
1.	Client Service Director EMEA Region	South-West based with UK/International Offices	2 and a half years	Management Consultancy	8600 Employees	Founded in 1969 in US
2.	Global Leader for Talent Initiatives	UK based in Hampshire but UK/Global offices	3 years	Management Consultancy: ICT and Technologies	8000 Employees	Founded in 1979
3.	Global People and Culture Director	Buckinghamshire based with UK/International offices	This role 2, in the Company for 6	Financial Services Organisation	12,000 in the UK	About 35 – 40 years
4.	Group Head of Resourcing	UK based in Birmingham but UK/global offices	18 months	Financial Management	50, 000 employees	25 – 30 years
5.	Group Sector Managing Director	Cheshire based with UK/International offices	In this role 12 months, overall 19	Management Consultancy and Recruitment Solutions	5,000 employees	24 years
6.	Global Head of Talent and Recruitment	Yorkshire based but with UK/ global offices	3 months but previously Head of UK Recruitment for 4 years	Engineering Services	33,000 UK employees	Since 1977 in current form/brand

7.	Head of Talent Acquisition	London based UK/International offices	4 months	Global Loyalty Benefits	12,000 UK employees	30-35 years
8.	HR Director for UK & Ireland and also Exec Business partner for consulting partners across North EMEA.	London based but with North EMEA and Ireland remit and offices throughout those regions	18 months	Financial Services	800 in the UK and Ireland	1960s
9.	HR Director	North East based but with UK/International Offices	1 year and 6 months	Management Consultancy: Financial Services	675 UK employees	Under the current brand 45 years
10.	HR Manager	Cumbria based but with a UK/ International locations	4 months	Engineering Services	33, 000 UK employees	Founded 1977
11.	Senior Director of HR Projects and Change Management.	Home base but with UK/International remit and offices around the world	4 months but in similar role before	Biotechnology Scientific Development	5,000 in the UK and about 75,000 globally	Xx was established in the 1950s and merged with a scientific development company which was founded in 1902 in the 1970s.
12.	Talent Director	Home based with UK/International offices	5 years and 5 months	Management Consultancy	2500 in the UK	Established 1936
Medium Sized Organisation Interviewees						
13.	Chief Executive Officer	City based but with UK / EU / U. S / Singapore sites	3 years	IT Specialist Recruitment	280 employees	Since 2009 in the current form
14.	Chief Operating Officer	City based but with UK / EU / U. S / Singapore sites	18 months as COO: overall, 7 years	IT Recruitment Services	280 employees and contractual permanent staff	Since 2009 under the current brand

15.	Head of HR	Cheshire based with UK wide operations and multiple sites	5 years	Scientific Research: Outsourcing Supplier	238 employees	Since 2007 under the current brand
16.	Head of HR	Lancashire with sites throughout the NW of England	2 and a half years	Legal Services	253 employees	Since 2012 under the current brand
17.	Head of HR	South Yorkshire with UK sites	18 months	Business and Digital Transformation Services	250 employees	2 years and 4 months
18.	Head of People	Merseyside and Manchester offices	2 years	Legal Services	435 employees	Since 1987
Small Organisation Interviewees						
19.	Chief Financial and Operating Officer	London with other national offices	18 months	Management Consultancy	About 100 FTEs	10 years
20.	Financial Services Management Consultant	Greater Manchester/London/Glasgow sites	7 months	Financial Services Consultancy	9 strategic leaders and a network of management consultants	Founded in 1991 in the US and sold as a xxx
21.	Managing Director	North East with Manchester and London Offices	3 years	SME Finance Consultancy Services	28 FTEs and around 30 sub-contractors	3 years
22.	Managing Director	Greater Manchester based but employees working across 2 other national locations	5 years	Recruitment Services	10 FTEs working with partner organisations.	Founded in 2014

23.	Owner and Chief Energy Officer	Norfolk based from home with consultants being internationally based	Just over 7 years	HR Consultancy Services	10 FTES (built from a micro business & now small)	Just over 7 years
24.	Senior Consultant	Bristol based from home with UK/International office space in Manchester and Birmingham	1 year	HR and Business Solution Consultancy Services	10 FTEs working with a wide client base.	2 years

Appendix 5: Summary of Analysis of Findings (Supporting Research Objective 3: Concluding Chapter)

Table 1: Addressing Research Objective 3: An analysis of the primary data aimed at understanding how Professional Business Sector organisations develop their competitive position in line with a focus on digital communication competence.

3. To analyse the primary data to understand how Professional Business Sector organisations develop their competitive position in line with a focus on digital communication competence.	
Research Question: How far is the UK Professional Business Sector dynamically capable and how important is digital communication competence in that context?	
Applied to Dynamic Capability Debates (Teece, Pisano and Shuen, 1997 and Teece (2007)	Applied to the Business Process Maturity Model (Object Management Group, 2008) to reflect the impact of organisational size
Larger organisations are largely aligned with all features of dynamic capabilities employed within the study aside from learning and knowledge transfer measures employed as measures within the study. **Medium sized organisations** responses varied. They are aligned with most features of dynamic capabilities employed within the study aside from international expansion and learning and knowledge transfer measures. There was some 'bundling' reflecting Barney (1991) and strategic digital transformation approaches which Kane et al. (2015) debate. Technology is an enabler for all except legal services who could be threatened by automation for some roles for Turner et al., (2017).	• In terms of the dynamic capability feature measures: Larger organisations are showing that they are being proactive to meet their business goals & their process maturity focus is *'innovating.'* Medium and smaller organisational are *'innovating'* in process maturity although they are '*predictable'* in that they have begun to exploit the capability of the 'process infrastructure & process assets' (Teece, Pisano and Shuen, 1997) although they are managing this rather than innovating through international expansion. • **In terms of strategic learning and supporting that with knowledge transfer to align employees with strategy**: In

Smaller organisations reflect dynamic capability features employed aside from international expansion. There is some evidence of innovation capability (Pisano and Teece, 1994), digital transformation and a dynamic capability centred business model design reflecting (Wang and Ahmed, 2007, Teece, 2007 & others).	Larger Organisations business process maturity is *'predictable'* as they are managing learning & knowledge transfer processes in largely a quantitative manner and standardising using online platforms. In Medium and Smaller Organisations & Learning, with no formal delivery in this on a spectrum between *'standardised and managed'* as there was a management foundation, although it is less strategic. In terms of knowledge transfer they exhibit *'managed'* levels of process maturity indicating satisfactory commitment to this dynamic capability feature. Some organisations have achieved '*standardised' levels* of maturity by using effective automation and productivity growth through knowledge transfer.
Learning & knowledge transfer could improve their dynamic capability & business process maturity	
Research Question: How far is the UK Professional Business Sector dynamically capable and how important is digital communication competence in that context?	
Digital communication competence is important for nearly all organisations reflecting debates in section 2.5.3 & defending why digital competency frameworks feature digital communication skills (Kispeter, 2018).	Both online survey & all the interviewees are *'innovating'* in business process maturity through their focus on digital skills and digital communication competence.

The five key features/ areas defined by Ferrari (2013) & linked to digital communication competence are all important to some degree. Citizenship and safety features were of higher importance reflecting wide debates on cybersecurity, the role of social media and the impact of GDPR (2018) (CIPD, 2018 & ACAS, 2020).	Legal services are *'managed'* in business maturity in that they have repeatable, traditional processes to enable work to be stable and to meet client commitment.
Digital skills and digital communication competence are important for nearly all of this UK Professional Business Sector Sample	
Intermediate digital communication skills is the overall workforce level. For some, an intermediate to advance level is needed. This applies to the level differentiators defined by Carretero, Vuorikari and Punie, (2017). Digitally focused organisations applied intermediate to advanced scales & potentially reflect the tech-led economy debates by Deloitte (2015), Moudenne at al. (2019) and the digital transformation debate proposed by Kane et al. (2015). Manual and operational workers do not need digital communication competence leaving these roles at risk from automation in the future (Kispeter, 2018). This also applies to some senior legal professionals. Age impacts use of digital communications reflecting research from Age Concern and Help the Aged UK (2010). Specialist IT roles require advanced level competence reflecting Ferrari (2013) and Carretero, Vuorikari and Punie, (2017).	
Features of digital communication competence are important to nearly all of this UK Professional Business Sector Intermediate levels of digital communication competency are the norm although intermediate to advanced level is needed by some. Manual, operational & some legal roles could be automated. Age impacts ability, skill and motivation to learn digital skills	

Appendix 6: Recommendation Plan (Chapter 6: Concluding Chapter)

Key Area of Recommendation	Business Size	Recommendation
A re-energised focus on learning and knowledge transfer driven through a re-examination of their business model would enable further dynamic capability to be achieved.	Large	Sections 4.5.2, 4.5.4 and 4.6.3: Larger organisational interviewees indicated that they are already using experts and employing knowledge management software although it is vital that line managers and the workforce can be further engaged though: re-sharing, crowdsourcing content, and curating. Empowering and engaging managers to drive this strategy is vital and this serves as an enabler for platforms they already employed to be more effective. Whilst these included self-service, resource-based modules, organisations should ensure personalised managerial content is featured, feedback methods are clear and management review and sign off is standardised and mandatory. Managerial support for learning can be measured.
	Medium & Smaller	Section 4.5.4: Identified a digital transformation business model which centred on learning, knowledge transfer and digitalisation. For some smaller and medium sized organisations who lack a strategic focus on learning and knowledge it is recommended that they could consider adopting their own contingent business model aligned with the STACKS approach which will allow re-energised and refocused C-suite level focus centred on the vision, values, mission and strategy of the organisation. They could employ a learning/knowledge transfer focus in their STACKS business model and in that way they could contingently consider which stakeholders in the business are

		responsible for designing, delivering, monitoring and reviewing the systems, processes and features which apply to learning and knowledge transfer features in the defined stack.
Contingently focused Senior Management & Management Commitment	Large	In global organisations this undisputedly will link to enabling and employing digital technologies as Prasad and Akhilesh (2002, p. 103) discuss as indicated in section 5.10. Larger organisations with a manufacturing base should consider how they strategically capture and transfer knowledge when the workforce does not have access to digital communication tools within their daily roles. In this case, the managerial role in the re-energised learning and knowledge strategy is even more vital. The acquisition of employee knowledge through working cohesively with staff and utilising their skills helps create successful innovation capability and supports dynamic capability (Du Plessis, 2007).
	Medium and Smaller	As sections 4.3.3 and 4.5.5 indicate, in medium and smaller organisations, line management support is for learning is evident although strategic drive for learning is less apparent for some. When learning does not have a strategic focus the business is not achieving full dynamic capability. Measuring of learning and understanding the cost-benefits might help senior managers to commit to it.
Analytic Focused Measurement	Large	In section 4.5.2 to 4.5.4 within chapter 4, it was evident that larger organisations were using analytics as a feature of their technological innovation which indicates they are 'sensing and seizing' opportunities through their capture and analysis of data. It was also clear within these sections that larger organisations employing digital learning and knowledge transfer platforms. It is recommended that they review their use of digital analytics to measure and evaluate the outcomes of learning programmes to ensure they develop the workforce implicit knowledge base. Within this review, they could also evaluate how far management development programmes

		and performance measures explicitly link to their role in monitoring and reviewing learning. In this way, organisational development professionals could take these diagnostic actions which are needed to transfer learning and knowledge down the line through the support of their managers.
	Medium and Small	Whilst some medium and smaller organisations were creating 'bundles' of organisational practice as sections 4.5.4 and 4.5.5 report, organisational knowledge linked to learning was not linked to employee performance metrics for some although it was a feature of balance sheet debates. It is recommended that employee development is linked to performance review measures. At individual employee level this is not too onerous although organisations should take care when measuring at organisational level (Kirkpatrick, 1994 cited by Harrison, 2005).
Digital Competence Development	All sizes of business	EMPLOYEE DEVELOPMENT: DESIGN • Digital skills development should be focused on through learning plans and using digital experts to support training, modular design and to coach and mentor colleagues. • The nature of the training must on cybersecurity and online safety risk must be mandatory reflecting debates presented in section 2.5.3 and reflected in findings in section 4.6.2. Cost can be minimised by employing digital specialists as mentors, accessing online content to design training features and sharing online content to reduce expenditure. • All are important features of digital communication competence for this sample as sections 4.4.1 and 4.6.2 indicate although care should be taken to meet the learning needs of older workers as shown in sections

		4.4.2 and 4.6.3. The recommended mandatory management feedback through online platforms would enable this in larger organisations whilst smaller organisations can employ the line management support which was evident in their responses. EMPLOYEE DEVELOPMENT: MEASUREMENT In all sizes of organizations this is linked to measurement of: Reaction to Learning: Larger organisations achieve this as part of their online platform delivery whilst medium and smaller organisational managers support this. This can be extended through online interactions, content and information sharing features of digital communication competencies reflecting Ferrari (2013). Learning and Changes in Behaviour Emerging from Training: Larger organisations should ensure consistency in managerial review with their feedback being mandatory, measured and linked to performance review processes and measures. The 'bundles' approach is already being evident in some participant organisations although it is advocated that performance management is linked to identifying changes in behaviour in all sizes of organisations. Digital specialists can help the organisation to define learning assessment measures whilst HR/OD personnel can link this to behavioural requirements. Results: At employee level this can be linked to the advocated 'bundle' with a focus on managing talent for succession. At organisational level, the contingent approach of the organisation may link to financial calculation of the return on investment or measurement can be linked to an evaluation of the organisational benefits of development which can be aligned with employee retention and succession success.