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**An Information Technology Competency Framework for Entry Level  
Human Resource Strategic Partners**

by

**RENJINI MARY JOSEPH**

**Thesis**

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**Johannesburg Business School**

**College of Business and Economics**

**University of Johannesburg**

**Supervisor: Prof A Thomas**

**Co-Supervisor: Dr P Abbott**

**2019**

## Declaration of Adherence: Ethics in Research

### Statement

I certify that the thesis submitted by me for the degree Doctor Philosophiae (Human Resource Development) at the University of Johannesburg is my independent work and has not been submitted by me for a degree at another university.

**RENJINI MARY JOSEPH**

**JOHANNESBURG**

**PLACE**

**04.11.2019**

**DATE**



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## Abstract

The purpose of this study was to develop a framework of information technology competencies that will enable entry-level South African human resource professionals to be strategic business partners. Information technology has a key role to play in the evolution of human resource management, from an operational to a strategic function. The availability of information technology systems and the data obtained through such systems create an opportunity for human resource professionals to contribute strategically to business. Consequently, the role of human resource professionals must change, to adapt to advances in information technology. Additionally, the competencies that a human resource professional requires at different seniority levels are dissimilar.

In the first phase of this study, 25 experts contributed to a Delphi process in which 27 competencies were identified and categorised under the titles of data analysis, business process and leveraging technology competencies. In the second phase, the identified competencies were made known to human resource professionals in the form of a distributed survey. The qualitative and quantitative data analyses indicated that entry-level human resource professionals are expected to contribute towards technologising employee processes, processing data expertly and translating external trends, without losing the human perspective. The competency framework developed as a result of this study makes a direct contribution to the field of human resource competency, specifically considering entry-level human resource professionals. The implications of the findings for the human resource profession, higher education and organisations are also considered.

*Keywords:* entry-level human resource professionals, human resource competencies, human resource information systems, information technology

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## List of acronyms and abbreviations

AI	artificial intelligence
ANOVA	analysis of variance
CHRO	Chief Human Resource Officer
CIPD	Chartered Institute of Personnel and Development
e-HRM	electronic human resource management
ERIC	Education Resources Information Centre
ERP	enterprise resource planning
HCM	human capital management
HEI	higher education institution
HR	human resource(s)
HRCS	Human Resource Competency Study
HRIS	human resource information system
HRM	human resource management
ICT	information and communication technology
ISI	Institute for Scientific Information
IT	information technology
IVR	interactive voice response
KMO	Kaiser-Meyer-Olkin
MOOC	massive open online course
NRI	networked readiness index
PCMM®	People Capability Maturity Model
PG	post graduate
SABPP	South African Board for People Practices
SHRM	Society for Human Resource Management
SST	stratified systems theory
VIF	variation inflation factor

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## Chapter 1: Presenting the study

### 1.1. Introduction

This study identifies information technology (IT) competencies that entry-level human resource management (HRM) professionals must exhibit. Also examined here, is the role the identified competencies play in enabling entry-level HRM professionals to be strategic partners to business.

The HRM profession continues to evolve to accommodate environmental changes and the impact of such changes on organisational management. During the mid- and late-20<sup>th</sup> century, HRM professionals primarily played the role of administrative experts (Tyson & Fell, 1986; Yusoff, Yusliza, & Yusoff, 2012). Over time, by developing negotiating and planning expertise, HRM professionals added operational know-how to their skills repertoire (Ulrich, 2013; Yusliza & Yusoff, 2012). The advent of IT in the 21<sup>st</sup> century resulted in changes in the business environment and the management of organisations generally (Binuyo & Brevis-Landsberg, 2014; Butler & Butler, 2010; Markus & Robey, 1988; Samkarpad, 2013), and in HRM specifically (Gardner, Lepak, & Bartol, 2003; Hannon, Jelf, & Brandes, 1996; Marler & Fisher, 2013; Sadiq, Khan, & Ikhlaiq, 2012; Suen & Yang, 2013). The use of human resource (HR) technology has changed the way HRM professionals address their functions, by reducing HR transactional costs, increasing the capacity and flexibility of HR information, and improving the reach and richness of that information (Martin & Reddington, 2010).

The abovementioned shift implies that the HRM professional must have an understanding of the application of HR technology. Traditionally, however, HRM professionals have selected HRM as a career based on its emphasis on 'people skills' (Hempel, 2004). The introduction of technology has had an impact on the HR profession, which now calls for greater integration of HR and IT skills (Bondarouk, Ruël, & van der Heijden, 2009). To develop the specific skills required to utilise HR technology effectively (Bell, Lee, & Yeung, 2006; Kossek, Young, Gash, & Nichol, 1994), the competencies of current and future HR professionals must be revisited. Such competencies may differ from the traditional skills expected of an HRM professional.

Several competency frameworks have been developed to determine the new set of competencies that will be required of HRM professionals (Coetzer & Sitlington, 2014; Lee & Yu, 2013; Ozcelik & Ferman, 2006; Younger, Brockbank, & Ulrich, 2012). While those frameworks suggest which competencies HRM professionals require as a cohort, there has been limited research into IT competencies in the HRM field, especially in respect of linking them to HRM professionals' ability to strategically partner with business (Delorme & Arcand, 2010; Poba-Nzaou, Uwizeyemungu, & Stanate, 2016; Suen, Hsiao, & Yang, 2011; Suen & Yang, 2013).

Furthermore, existing competency frameworks indicate that each HRM professional must exhibit a large number of competencies independently (Strohmeier, 2007; Yusoff et al., 2012). This may impose onerous expectations on HRM professionals, in respect of their training and development activities. HRM professionals may play different roles within their organisation, depending on their seniority and position (Banerjee, Bandyopadhyay, & Acharya, 2013). It may therefore be necessary to categorise the competencies that HRM professionals at various experience levels must exhibit. An entry-level HRM professional may be described as a recent graduate of a people management or related discipline, with no or limited experience in the HRM field (Kryscynski, Reeves, Stice-Lusvardi, Ulrich, & Russell, 2018). Focusing on the requisite competencies may provide higher education institutions (HEIs), training providers and recruiting organisations valuable direction regarding what is expected of recent graduates.

This study therefore aims to develop a framework of IT competencies that will enable entry-level South African HRM professionals to function as strategic partners to business. There may be certain competencies, outside of the use of HR technology and information, which such professionals should develop, due to the evolution of HRM in organisations. Such competencies are excluded from this study, which focuses solely on IT competencies. The identification of IT competencies will guide the development of HRM curricula in HEIs that, in turn, will lead to better-equipped present and future workplace-ready HRM professionals. By improving the utilisation of HR information, such professionals will also aid organisations in South Africa by providing strategic solutions to business partners. Furthermore, the development of an IT

competency framework for entry-level HRM professionals will enable organisations to determine which skills sets professionals must bring to the organisation.

## **1.2. Background**

In this section, the setting of the study is detailed. First, the effect of HR technology on the HRM profession is explored, before considering strategic HR business partnering and the role of the entry-level HRM professional. Lastly, a brief examination of the competency frameworks developed for HRM professionals follows.

### **1.2.1. The role of HR technology in the HRM profession**

At a basic level, HR technology encompasses the use of integrated software and hardware for automating various HR tasks in organisations (Hawking, Stein, & Foster, 2004). The use of HR technology has enabled, and continues to enable, HRM professionals to reduce their administrative load, allowing them to focus on becoming strategic partners to business (Hussain & Prowse, 2004; Hussain, Wallace, & Cornelius, 2007). In addition, technology can be used to extract HR information which can subsequently be applied to make strategic HR decisions (Chauhan, Sharma, & Tyagi, 2011; Nagendra & Deshpande, 2014). Improved HR information analysis heightens the strategic contribution the HR function makes to organisational success (Kovach, Hughes, Fagan, & Maggitti, 2002). Thus, there is a need for HRM professionals to embrace not only technology, but also the information obtained by using such technology.

### **1.2.2. Strategic HR business partnering**

As an area, strategic HRM has grown considerably in the past decade (Kryscynski et al., 2018; Sadiq et al., 2012). Strategic business partners are expected to concentrate on business, as opposed to focusing only on employees (Ulrich, 2013). Some of the areas that strategically oriented HRM professionals focus on, include team-based job designs, flexible workforces, quality improvement practices and incentive-based compensation (Sadiq et al., 2012).

Although many organisations want to be strategic about managing their people, they may not be suitably prepared. Such a situation specifically applies to the HRM function, which is perceived to be less of a science, and more of an art (Vosburgh, 2007). Traditionally, organisational management and employees have viewed HRM as a support function which primarily focuses on employees (Kryscynski et al., 2018). Business partners must, however, be equipped with competencies associated with business, which include talent identification, critical position recognition, development planning and succession planning (Hutcheson, 2004). Such decisions need to be supported by a thorough analysis of available information.

### **1.2.3. The use of HR technology in strategic business partnering**

Many researchers view the use of HR information systems (HRISs) as an opportunity for organisations to ensure that their HR function participates more – both administratively and strategically – in the operations of the organisation (Barrett & Oborn, 2013; Huang & Martin-Taylor, 2013; Sadiq et al., 2012; Stone, Deadrick, Lukaszewski, & Johnson, 2015). While some organisations use HRISs to reduce costs, others use them to facilitate improved communication. A third group might use such systems to re-orient HR operations which, in turn, heightens the HR function's strategic contribution (Sadiq et al., 2012; Zhang & Wang, 2006).

Additionally, HR information and its proper monitoring and analysis can highlight areas of HR risk, prompting HRM professionals to take actions aimed at minimising negative risk and maximising positive risk (Farndale, Paauwe, & Boselie, 2010). In other words, by not using HR information, HRM professionals potentially expose themselves and their organisations to various forms of risk. The simple and rapid identification of negative and positive HR risks has been made possible with the advent of HR technology, thus enabling HRM professionals to contribute strategically to the organisation (Farndale, Paauwe, & Boselie, 2010). If strategy-oriented HR risk management systems are developed and implemented, they can facilitate the transition of HRM towards being more professional and strategic (Paul & Mitlacher, 2008). Thus, if done correctly, HRM professionals can use HRISs and HR information for strategic business partnering.

Studies indicate that, in many organisations, HRISs play more of an administrative and less of a strategic role (Barrett & Oborn, 2013; Sadiq et al., 2012). This may be because HRM professionals do not have the competencies necessary to work with either HRISs or the data obtained through such systems (Lawler III & Mohrman, 2003; Ulrich, Younger, Brockbank, & Ulrich, 2013). Entry-level HRM professionals must be given an opportunity to develop the relevant competencies that will enable them to use HRISs effectively. If they exhibit such competencies, organisations can obtain a return on investment on HRISs, and the HRM function can move from being solely administrative to being strategic.

#### **1.2.4. Entry-level HRM professionals**

When looking for HRM graduates, the Chief Human Resource Officers (CHROs) of Fortune 100 companies look not only for HR functional expertise, but also for “the ability to connect HR to business strategy” (Winn, 2015, p. 21). Entry-level HRM professionals are therefore expected to contribute strategically towards business partnering (Wimbush, 2008). Thus, an individual who completes an undergraduate degree in HRM must exhibit proof of having acquired strategic business partnering competencies – at least at a beginner’s level (McEvoy, Hayton, Warnick, Mumford, Hanks, & Blahna, 2005).

Irrespective of the organisational context in which entry-level HRM professionals work, they may play different roles within the organisation. A potential role is that of a generalist who, as a business partner, creates and maintains the relationship between the HRM function and other organisational functions (Kryscynski et al., 2018). Another role may be that of a specialist, where the individual operates specifically within a particular HRM sub-function, such as training and development or payroll. Entry-level HRM professionals who find themselves in small organisations may be expected to be functionally effective in various HR activities, but it is unclear whether strategic business partnering competencies will be necessary for the different roles they assume.

Cohen (2015) suggests that strategic thinking and the ability to apply information when making strategic decisions must be developed in HR higher education. If this were the

case, entry-level professionals with HRM qualifications would be equipped with specific competencies, which will enable them to act as strategic partners to business. Furthermore, equipping HRM professionals with the required competencies will address the lack of barriers to entry in the field, thereby improving the credibility of the function (Cohen, 2015; Lawler III & Mohrman, 2003).

### **1.2.5. Competency frameworks for HRM professionals**

Various changes in the field have prompted the need to revisit the competencies of HRM professionals: since they are expected to not only be administrative and operational but also strategic, many researchers and professional bodies have developed new, related competency frameworks. While competencies can be described as the knowledge, skills and attributes an individual needs to perform a particular task (McClelland, 1973; Ulrich, 1998b; Younger, Brockbank, & Ulrich, 2012), competency frameworks provide structure in terms of setting out and defining each unique competency required of the individuals working in an organisation (CIPD, 2014).

HRM practitioners use competency frameworks to focus on developing the right skills to enable them to contribute strategically, while businesses employ such frameworks to identify the right HRM professionals for certain roles in their organisations. The framework developed by the Society for Human Resource Management (SHRM), the competency model developed through the Human Resource Competency Study (HRCS) and the national competency framework developed by the South African Board for People Practices (SABPP) include HR analytics and measurement as competencies which they require of HRM professionals. However, these IT competencies are not elaborated on in detail in any of these frameworks.

The SHRM competency model does not specifically include any competencies unique to strategic business partnering. Business acumen and critical evaluation are, however, competencies that can be linked to business partnering. In the HRCS model, the strategic positioner competency domain points directly to strategic business partnering. The SABPP has included strategic HR management as a standard, and

features strategy, in addition to analytics and measurement, as two of the five capabilities which HRM professionals must possess.

On analysing the various competency models described briefly earlier, it is possible to deliberate whether too many competencies are expected of HRM professionals. First, expectations are high and varied. The identified competencies originate from diverse fields of business, including marketing, leadership, finance and strategy (Ulrich, Kryscynski, Ulrich, Brockbank, & Slade, 2016). The requisite level of expertise is also high. The competency descriptions indicate that HRM professionals are expected to exhibit top management expertise. While expecting an entire function to exhibit so many competencies is feasible, expecting one person to display all of the identified competencies is both unfair and unachievable. Arguably, many of these competencies are learnt or acquired through experience. If that is the case, the competencies to develop in an entry-level HRM professional are unclear.

#### **1.2.6. IT competencies of HRM professionals**

Competency frameworks developed internationally and in South Africa indicate that HRM professionals must be informed of the benefits of using technology, so that they are better prepared for the workplace. Besides the competency frameworks discussed earlier, several researchers have indicated the need for a new set of competencies to enable HRM professionals to add value to the business, in the form of strategic partnerships and functional expertise (Bell, Lee, & Yeung, 2006; Bondarouk et al., 2009; Hempel, 2004; Schramm, 2006; Suen & Yang, 2013).

Schramm (2006) notes that the use of technology has opened up the HR function to non-HRM professionals, whose entry into the HRM field could potentially challenge the profession in the years ahead, by them taking away HR jobs. Bondarouk et al. (2009) and Suen and Yang (2013) indicate that HRM professionals will require technical training and conceptual knowledge to select and manage new systems. Therefore, the aforementioned researchers include HRIS operational and application skills as components of future competencies. These technology-related competencies have not, however, been studied or structured, and especially not from an entry-level HRM professional's perspective.

### **1.3. Research problem**

In reviewing the extant literature across various local and international databases, it became evident that no study has been undertaken to determine what IT competencies are required of HRM professionals in South Africa, if they are to become strategic partners to business. Furthermore, no competency model exists which makes specific reference to entry-level HRM professionals. The IT competencies which entry-level South African HRM professionals require to partner strategically with business have not been identified, although the importance of such a competency framework has been established.

#### **1.3.1. Research question and sub-questions**

Through the study, the following overall research question will be examined:

What IT competency framework will promote strategic business partnering by entry-level South African HRM professionals?

The above research question can be further broken down into the following research sub-questions:

1. What IT competencies must entry-level South African HRM professionals possess to be strategic partners to business?
2. How can the identified competencies be categorised into a competency framework?
3. To what extent do the identified IT competencies enable entry-level South African HRM professionals to be strategic partners to business?

#### **1.3.2. Objectives of the study**

The overall objective of this study was to develop an IT competency framework that will enable entry-level South African HRM professionals to be strategic partners to business. The related objectives of this study were to



- identify and define the IT competencies that entry-level South African HRM professionals must possess, to be strategic business partners;
- develop a framework of the identified competencies for entry-level South African HRM professionals; and
- determine the extent to which the identified IT competencies enable entry-level South African HRM professionals to be strategic business partners.

#### **1.4. Research method**

The research problem is viewed from a dialectical pragmatic paradigm, which signifies that multiple viewpoints must be considered (Johnson & Gray, 2010). According to dialectical pragmatists, both quantitative and qualitative perspectives should receive due attention, and they recommend an integrated discourse between various perspectives. Thus, the current study consists of various phases, with an integrative analysis that ties together the findings of the different phases.

Here, the cycle of theory building, as suggested by Carlile and Christensen (2004), is employed as an approach. During the descriptive stage of theory building, researchers must proceed through the steps of observation, categorisation and association (Carlile & Christensen, 2004). As these steps call for both broad and deep perspectives, a sequential, exploratory, mixed-methods approach is used (Johnson, Onwuegbuzie, & Turner, 2007). Thus, in the first phase of this study, the Delphi technique was modified to incorporate an open-ended question, in order to accomplish the first two steps of observation and categorisation. The second phase of the study, in which a survey was employed, concluded the categorisation developed during the first phase, and served to associate the identified IT competencies with strategic business partnering. An inductive approach was followed, whereby specific experiences were used to develop a theory (Turner, Baker, & Kellner, 2018).

In the first phase, the modified Delphi technique was used to solicit the views of experts and gain consensus (Hsu & Sandford, 2007), in order to identify and rank the IT competencies that will enable entry-level HRM professionals to serve as strategic partners to business. From a grounded theory perspective, meanings were analysed, explained and interpreted using several rounds of coding (Cho & Lee, 2014) – a process which aligned well with the Delphi technique, as it seeks to answer ‘what

could/should be' questions. This was appropriate, as the first phase of the study endeavoured to extract themes and concepts. Notably, the Delphi technique is traditionally quantitatively analysed and interpreted, but, by contrast, the modified Delphi technique may utilise qualitative analysis during the various rounds comprising the process (Skulmoski, Hartman, & Krahn, 2007). In this study, the use of the modified Delphi technique incorporated an open-ended questionnaire in the first round. Feedback for Round I was obtained from 25 participants, all of who were considered experts in HR technology, and was used to develop 29 competencies. Round II had three purposes: first, to achieve consensus; second, to request participants to rank the identified 29 competencies in order of importance; and third, to have the participants classify the identified competencies as knowledge, skills or attributes. In the final round, Round III, the final IT competences and associated behavioural indicators with the participants are confirmed.

In the second phase of the study, a survey was developed which incorporated the competencies identified in the first phase. The survey was subsequently distributed to HRM professionals, to determine the extent to which they thought the identified competencies will enable entry-level HRM professionals to be strategic partners to business.

The data from the first phase were coded and analysed through three cycles of coding, whereby open coding was used to generate obvious codes, axial coding was used to extract categories and themes, and selective coding was used to integrate the codes to develop a theory. Descriptive and inferential statistics were used to analyse the data collected in Phase 2. Integrative analysis was also performed to assimilate the analyses done in both phases.

### **1.5. Motivation for the study**

The aim of this study was to develop a framework of IT competencies that will enable entry-level South African HRM professionals to be strategic business partners. This study took into consideration the unique needs of the South African market, in respect of HR technology utilisation. Thus, from a practical perspective, the findings of this study will contribute to the effective use of HR technology, thereby mitigating risk and

enriching the role of the HR function in local organisations. The adoption of the competency model could enhance the use of technology within the HRM function, leading to the improved use of data to make better people decisions. This could ultimately lead to the more effective use of resources, more satisfied employees and improved business.

Furthermore, guidelines may be developed to incorporate these competencies into the higher education curriculum. Currently, few HEIs, both in and outside of South Africa, incorporate the use of technology into the HRM curriculum (Jones & Hoell, 2005). The framework may be used as a basis for determining what must be covered at an undergraduate and/or postgraduate level, in order for entry-level HRM professionals to utilise IT in organisations, thus making them more employable. If graduates can be more efficiently used in organisations, such a practice could strengthen the reputation of the HRM profession, and improve business performance.

Theoretically, this study explores the relationship among various IT-related activities performed by entry-level HRM professionals and their contribution to strategic partnering. The study identifies that in order to be strategic partners to business, entry-level HRM professionals must be able to perform certain IT activities competently, while other IT activities may be inconsequential to strategic business partnering. The findings indicate that existing competency categories, IT competencies and strategic partnering competencies – which appear to be mutually exclusive in existing competency frameworks – may be, in fact, correlated. Correlations and patterns were identified to explain how the various factors identified, relate to one another. This also implies that the development of one competency category could lead to the greater probability of another category of competencies being exhibited. The practical contribution of this study is the development of a competency framework aimed at equipping HRM professionals with IT competencies which will enable them to act as strategic partners to business. The competency framework expands on existing generic frameworks and associated work. The relationship between various IT competencies and strategic business partnering capability will contribute to theoretical knowledge in the area.

## 1.6. Conclusion

In conclusion, the aim of this research undertaking was to develop a framework of IT competencies that will enable entry-level South African HRM professionals to be strategic business partners. This study is important to HRM professionals, as they can no longer ignore the implications technology has for the profession or the impact HRM professionals can have on business. Also, the inability to utilise technology impedes HRM professionals from being strategic and contributing to business goals. To truly add value, HRM professionals must embrace both IT and their role as strategic business partners.

By identifying these skills and incorporating them into the curricula of South African universities, entry-level HRM professionals will enter the market better equipped to manage workplace issues, and will, therefore, be better prepared for the local work environment. Furthermore, by utilising the instrument developed in this study to evaluate the required competencies, organisations can identify and develop HRM professionals who are a good fit with their IT and strategic partnering needs.

If the questions this study seeks to answer remain unanswered, the HR function will continue its slow progress in adding value to business, without truly contributing to business. To be strategic partners to business, however, HR professionals must embrace information as well as the technology that enables accurate information management.

The thesis begins with an extensive literature review, followed by a detailing of the method used to address the research question of this study. Since this study employs a sequential mixed-methods approach, the findings of the qualitative phase and the results of the quantitative phase are reported separately, albeit in the same chapter. Next follows a discussion chapter which integrates the findings and results. Finally, in the concluding chapter, the contributions, strengths and limitations of the study are deliberated.

## Chapter 2: Literature review

### 2.1. Introduction

The context and background of the study and an overview of the various concepts used in this study were introduced in the first chapter of this thesis. The current chapter encompasses a review and a critique of the literature, for a clearer understanding of existing research and debates within the field of IT in HR, strategic business partnering, HR competency frameworks and the role of the entry-level HRM professional. The question that the researcher seeks to answer through this study is:

What IT competencies will enable entry-level South African HRM professionals to be strategic partners to business?

Regular reviews of the relevant literature in specific areas are necessary, because of the increasing number of scientific publications in the field of HRM. Such reviews also aid researchers in developing fresh insights (Rapple, 2011). In this instance, specialised database sources, namely EBSCOHost, Elsevier, ERIC (Education Resources Information Centre), the ISI Web of Knowledge, JSTOR, ProQuest, SAGE and Wiley were examined. In addition, searches were performed on Google Scholar and Google. Keywords used in the search included 'technology', 'information technology', 'information systems', 'HRIS', 'HR data', 'information management', 'e-HR', 'e-HRM', 'HR professional', 'HR graduate', 'entry-level HR', 'computer literacy', 'technology skills', 'competency frameworks', 'competencies', 'skill' and 'knowledge'. The search expanded to include relevant articles cited in recent works, and these were identified separately. Articles identified through these databases were stored and analysed in the library function of the Mendeley platform. A final source of literature was the Mendeley Suggest function, which provides recommended papers based on the author's library in Mendeley. The outcome of the abovementioned process was organised to form the literature review, which follows.

In this chapter, the literature concerning the influence of IT on HRM is reviewed. The reviewed literature is scrutinised to determine whether IT has indeed caused major changes in the external, business and HRM environments. The use of technology in

society at large, in business and, specifically, in the HRM function was also explored. In the next section, with the support of pertinent literature, the focus falls on how changes in the HRM environment are spread across various HRM activities, effecting changes in the profession. Given the increasing investments which organisations are making in HR technology, the reviewed literature will help to determine the extent to which using HR technology contributes to changes in the HRM function. In the subsequent section, the cited literature serves to support the view that strategic business partnering has become a possibility, owing to changes in HRM which can be attributed to technological advances. Also explored are views regarding how HRM professionals – and specifically entry-level HRM professionals – must be equipped to utilise IT as a strategic tool, taking into consideration the competencies they should have, if they are to use IT in their roles. Following this, the need to revisit the competence of entry-level HRM professionals to be strategic partners to business was deliberated. Having explored the competency-related literature to determine the role it plays in the selection, development and management of HRM professionals, the focus shifts to various competency frameworks within the HRM profession. After highlighting the gap in knowledge, which this thesis attempts to address, this chapter concludes by proposing an empirical exploration of the IT competencies that would enable entry-level HRM professionals to function as strategic partners to business.

## **2.2. Influence of IT**

The IT revolution has caused, and continues to cause, critical changes in the area of business generally, and in the area of HRM specifically (Bondarouk & Ruël, 2013; Fagan, 2014; Haines III & Lafleur, 2008; Hempel, 2004; Kaur, Sidhu, Sharma, & Narang, 2014; Marler, 2009). At the outset, the effects of IT in business and HR were experienced globally, with related research emerging from Canada, the United States of America, the Netherlands, Ghana, Nigeria, Turkey, India and China, to name but a few countries. Additionally, the IT revolution is relatively recent, yet the changes it has brought about in the field of business and HRM have been rapid, numerous and impactful. Systematic investigations as well as expert views and opinions in the subject area have been published over the past decade (Binuyo & Brevis-Landsberg, 2014; Haines III & Lafleur, 2008; Inbamuthiah, 2012; Pretorius, 2009). Many of these publications focus on the impact technology has had on the HRM profession, enabling

its transition into a strategic organisational function (Fagan, 2014; Kovach et al., 2002; Salma & Shaheen, 2013; Schalk, Timmerman, & van den Heuvel, 2013).

In the following section of the literature review, the role of IT in society in general is investigated, following which its role in business and HRM in particular are explored. The changes that have occurred in the field of HRM and, specifically, in the roles of HRM professionals due to the advent of technology, are subsequently deliberated.

### **2.2.1. IT in society**

In the past two decades, IT has had a substantial influence on both individuals and society (Bilbao-Osorio, Dutta, & Lanvin, 2014; Stone & Dulebohn, 2013). While personal computers and cellular phones were limited to the elite few in the late 1990s, perhaps only the poorest do not have access to a smart device today (Montealegre & Cascio, 2017). This phenomenon affects societal interactions and expectations, which have implications for how we live our lives and perform our jobs (Stone et al., 2015). Businesses and individuals alike appreciate and adapt to incorporate IT into how they purchase products, request and receive various services, communicate with others and increasingly, educate students (Stone et al., 2015). The effect of IT on society is so remarkable that it has even influenced our culture, our social lives and other diverse aspects of modern society (Sarwar & Soomro, 2013).

It is therefore meaningful to recognise the influence of external IT dynamics on the HRM function in organisations as no business function operates in isolation (Uti, 2016). In fact, Bersin (2016) implies that the HRM function may be one of the most inclusive functions of an organisation. As the activities of the HRM function are associated with people, HRM professionals must consider various matters that affect people, both outside and inside the organisation (Boudreau, 2014). To explore the broader effect of technology on the HRM function, wide-reaching phenomena which are directly associated with IT, namely globalisation and the fourth industrial revolution, are discussed in this section.

### 2.2.1.1. Globalisation

Globalisation, which refers to the growing interconnectedness of the world due to increased trade and cultural exchange, has caused rapid organisational change and heightened competition among business entities (Phelps, 2010). Globalisation has forced organisations, both globally and in South Africa, to improve their production techniques in order to remain competitive (Pauw, Oosthuizen, & van der Westhuizen, 2006). Additionally, external labour markets have become flexible and unpredictable, with internal labour markets experiencing greater insecurity, volatility, job change and non-standard work arrangements (Kock, Wallo, Nilsson, & Höglund, 2012).

Thus, globalisation has created both opportunities for, and complex challenges in, the workplace. On the one hand, employers can access labour and material from different parts of the world, more conveniently and more affordably (Phelps, 2010) while employees can work remotely, thanks to technological advances which have improved staff flexibility and staff results (Poisat & Mey, 2017). On the other hand, employers and employees are struggling to respond to certain of the changes wrought by globalisation (Kock et al., 2012). Globalisation and the global financial recession have prompted organisations to review their costs, forcing them to reduce their headcount and take other drastic measures (Phelps, 2010). Thus, globalisation has had a remarkable impact on organisations, employers and employees, at a general level.

In international organisations, globalisation has been identified as one of the driving forces behind the introduction of technology in the field of HRM (Poisat & Mey, 2017; Sparrow, 2006). Sparrow (2006) notes that organisations find themselves attempting to coordinate and control activities across borders. Technology plays an integral part in enabling and facilitating the globalised operations of organisations and their people processes (Poisat & Mey, 2017). In pursuit of efficiency, global HRM employs three key delivery mechanisms, namely shared service structures, the e-enablement of HR processes, and the use of global centres of excellence (Sparrow, 2006). All three delivery mechanisms are based on IT systems and an understanding of how IT can boost the effectiveness of the HR function, especially from an international perspective (Thite, Budhwar, & Wilkinson, 2014).



Some argue that HR functions and systems present barriers to globalisation, because they focus on ethnocentric HR systems that emphasise practices in their home countries (Jackson, 2002). Abbott (2011), however, argues that in a 2010 survey of 400 HR practitioners in South Africa, their priorities were found to be universal in nature, and not unique or different from those of HR practitioners in other countries. Thus, while globalisation has influenced the introduction of IT in the HRM function by delivering mostly positive outcomes, it may have altered the goals and outcomes expected of the HRM function (Sparrow, Farndale, & Scullion, 2013). These changes may have implications for the competencies required of HRM professionals, in that they may be different at different levels of experience.

#### **2.2.1.2. Fourth industrial revolution**

Following globalisation, a phenomenon that continues to overwhelm both organisations and governments is the fourth industrial revolution (Dombrowski & Wagner, 2014; De Ruyter, Brown, & Burgess, 2018). The Internet of Things and artificial intelligence (AI) are among the many complex combinations of technology powering the fourth industrial revolution (Hirschi, 2018). These technologies aim to connect physical objects or machines to enable them to behave contextually (Strohmeier, 2018). In other words, products and production processes will become more integrated, and more complex, as they bring about mass customisation (Dombrowski & Wagner, 2014). Thus, this phenomenon will attempt to augment the collaboration between machines, and between machines and humans (Strohmeier, 2018).

Historically, industrial revolutions have changed societies through the use of technology (Dombrowski & Wagner, 2014; De Ruyter et al., 2018). Such revolutions influence not only business, but also work psychology, academia, rural and urban planning, societal structures, and even culture (Dombrowski & Wagner, 2014). Pessimistic outlooks envisage jobs being replaced by complex technologies in the fourth industrial revolution, or imagine a future without jobs (Dundon & Rafferty, 2018). By contrast, there is an optimistic school of thought that the fourth industrial revolution does not aim to substitute people in factories, but to generate synergetic collaboration between man and machine through cyber-physical systems (Dombrowski & Wagner,

2014). Optimists further argue that the fourth industrial revolution will lead to changes in employees' job profiles, rather than necessarily removing jobs altogether or making them redundant (De Ruyter et al., 2018).

Emerging from the pessimistic view mentioned above, researchers are debating whether AI and the fourth industrial revolution will eliminate a large number of jobs (Hirschi, 2018). In fact, several discussants predict that the future of the workplace, jobs and employment may be very different from what they currently are (Dombrowski & Wagner, 2014; De Ruyter et al., 2018). This implies that if the number of jobs is set to decline, HRM may well become a redundant function within organisations (Dundon & Rafferty, 2018).

While a future without jobs is a possibility that cannot be ignored, it is only likely to occur in the distant future (Hirschi, 2018). AI and the Internet of Things are nascent fields, and while interventions in these areas are affecting organisations, jobs are being affected sporadically and irregularly (Ghislieri, Molino, & Cortese, 2018). While some job tasks are highly automatable, occupations, as a whole, are still fairly secure (Autor, 2015). Furthermore, new occupations and ways of work may emerge as a result of the fourth industrial revolution (Hirschi, 2018).

As a consequence, the HRM function of an organisation can potentially play a role in identifying, suggesting and implementing changes to the way employees or other stakeholders work for organisations (Ghislieri et al., 2018). This, in turn, implies that HRM professionals themselves may need to exhibit a different set of competencies, if they are to accommodate changes in both the external and internal environments of the organisation (De Ruyter et al., 2018).

The optimistic view is that the fourth industrial revolution will actually create a change in job profiles, not eliminate jobs, which means the HRM function will definitely contribute to organisational strategy (De Ruyter et al., 2018). When highly mechanised factories took over mechanical jobs, humans developed service jobs, thereby improving customer service and experience (Isson & Harriott, 2016). Similarly, now that the interaction between machines and humans is enhancing customer service and experience, organisations, governments and societies may create new sets of

jobs, which implies that new sets of competencies will also be created, both for employees and the HRM function (Ghislieri et al., 2018; De Ruyter et al., 2018).

Most studies related to the fourth industrial revolution are conceptual in nature, as the field is relatively new. Thus, it is impossible to state, with any level of certainty, what the workplace of the future will look like. What is certain is that the HRM function must evolve to help organisations navigate a wide array of changes (Ghislieri et al., 2018). While this function may support the organisation during periods of technological change (Hirschi, 2018), it will also be affected by the use of technology (Ghislieri et al., 2018; Strohmeier, 2009). In the next section, the impact IT has had on business in general, and HRM specifically, are examined.

### **2.2.2. IT in business**

Technology may be described as the application of scientific knowledge for practical purposes (Merriam-Webster, 2015). Technology, which is also referred to as applied science, is used to automate business processes so that “work is accomplished faster and at a much reduced cost” (Fagan, 2014, p. 320). IT refers to the application of computers for the preparation and analysis of information (Bassellier, Reich, & Benbasat, 2001). Through the use of IT systems, data are captured, stored, retrieved and analysed, to reveal useful information that can assist a business in developing its strategy (Han, Kamber, & Pei, 2011; Kernaghan, 2014).

The advent of IT has led to cost reductions and increased convenience in obtaining, processing, storing and transmitting information in all forms (Binuyo & Brevis-Landsberg, 2014; Han et al., 2011; Melville, Kraemer, & Gurbaxani, 2004). The business value or benefit of IT lies in automating business processes, providing information for making business decisions, connecting businesses and customers, and making available productivity tools to boost efficiency (Melville et al., 2004). Many organisations have embraced IT at different levels of complexity, so as to derive the abovementioned benefits (Mishra & Akman, 2010).

IT has been used in business to improve operations following rapid developments in the field during the early 1990s. In the first decade of related developments, operational activities were made simpler due to the introduction of technology, and IT

specifically. Then, complex multimedia products and enterprise resource planning (ERP) systems made organisational processes quicker, more efficient and more effective (Bedell, Floyd, Nicols, & Ellis, 2007). In recent times, organisations have begun to rely on their IT expertise to streamline products and services lifecycles, and improve customer satisfaction levels (Röglinger, Pöppelbuß, & Becker, 2012). Thus, over time, the use of IT in organisations has changed from contributing at an operational level to contributing more strategically.

In many organisations, IT not only supports but also shapes business strategies (Henderson & Venkatraman, 1999; Martin & Reddington, 2010; Saleem, 2014). For instance, recent technological advances have caused a shift from traditional service channels to self-service technologies (Kernaghan, 2014). The fourth industrial revolution, backed by the Internet of Things, has created an environment in which devices communicate with other devices, making the human interface with various platforms much simpler and more specific (Dombrowski & Wagner, 2014; Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). Thus, in many organisations and in society as a whole, advances in IT are driving organisations from a strategic perspective.

Since organisations started using IT for operational and strategic purposes, their IT function has predominantly been responsible for the planning and implementation of technological investments (Mishra & Akman, 2010). While the IT function usually leads strategic technological investments in organisations, other functions have also experienced the far-reaching impact of those investments (Cantrell, Benton, Laudal, & Thomas, 2006). An obvious implication is that the introduction of IT has modified the operations of various business functions (Chauhan et al., 2011). An implicit, and perhaps less obvious, effect of the introduction of IT is the change in expectations that a business has of its people (Carrol & Helfert, 2015; Cascio, 2005). In other words, organisations expect a change in the way their employees engage with IT, to achieve their tasks and goals. This may be the case with the HRM function as well.

Dutta, Geiger and Lanvin (2015) suggest that there are both promise and tension in the relationship between businesses and technology. There is promise because digitisation grants spectacular power and reach to organisations. Tension arises from the inherent nature of technology, which sees it changing rapidly, thus forcing organisations to adapt their plans and strategies at the same pace (Dutta et al., 2015).

Organisational strategies must, however, be tied to organisational identity to achieve success (Bilbao-Osorio et al., 2014; Dutta et al., 2015). To navigate both the inherent promise and tension, organisations need clarity on how the various functions in the organisation use IT – including the HRM function. The impact that the abovementioned changes have on the HRM function specifically, are discussed in the next section.

### **2.2.3. IT in the HR function**

Just as the use of IT enables organisations to improve their operations and drive them strategically, so it has transformed the HRM function (Mishra & Akman, 2010). Traditionally, HR service delivery was labour intensive. Recently, organisations have begun using a wide array of software and hardware systems to automate and off-load a large number of transactional HR activities (Florkowski & Olivas-Luján, 2006). Thus, the use of technology in HR service delivery has caused the function to potentially transition from being administrative to being strategic in nature. Therefore, IT has played a part in optimising potential by enabling employees of the HRM function to become strategic partners to business.

Before discussing the HRM function's use of IT to become strategic partners to business, it is vital to understand how the administrative tasks of that function are reduced through the use of IT. HRISs are increasingly used in electronic HRM (e-HRM), which is considered a broader concept. A brief discussion of these systems follows.

#### **2.2.3.1. HRIS**

An HRIS acquires, stores, manipulates, retrieves, analyses and distributes information which is relevant to the human resources, personnel activities and business units of an organisation (Ankrah & Sokro, 2012; Jones & Hoell, 2005). HRISs can serve as the backbone which maintains alignment and facilitates communication in an organisation (Hannon, Jelf, & Brandes, 1996). In smaller organisations, an HRIS can be as simple as payroll records and time cards (Kovach et al., 2002). HRISs promote HR efficiency and provide more detailed information for decision making purposes (Ankrah & Sokro, 2012; Hussain & Prowse, 2004; Teotia, 2012). While HRISs usually comprise software

that targets HR staff as end users, there are variations, which see the internal customers of the HRM function use the information obtained from HRISs.

Business process re-engineering and the advent of IT led to ERP systems becoming highly popular in organisations in the 1990s. Information from diverse applications was integrated, leading HRISs to become, and continue to be, part of such integration. Data obtained through HRISs can be either qualitative or quantitative. Such HR data, when analysed and examined, can be of strategic use to an organisation. Over time, the data obtained through HRISs has enabled HR managers and line managers to make better managerial decisions (Marler & Fisher, 2013). In addition, some ERP systems permit the use of the internet in their HRISs, to reduce transaction costs and save time (Mishra & Akman, 2010). This has led to accurate, time-effective HR information being delivered to managers.

To reduce the administrative workload of its HRM professionals and obtain better HR information, most organisations – irrespective of sector and size – purchase HR and payroll electronic/software modules (Ankrah & Sokro, 2012; Gardner et al., 2003; Kovach et al., 2002). There is, however, little clarity on the return on investment of these modules (Chauhan et al., 2011). One of the reasons for the poor utilisation of HRISs is that many HR professionals struggle to use them effectively and do not appreciate the advantages technology can offer (Hawking et al., 2004; Joseph, 2014). Although the technology is available, HRM professionals are often unable to utilise it effectively. In fact, while many researchers have pointed this out as part of their studies into the utilisation of HRISs and e-HRM, few empirical studies have attempted to address this problem.

#### **2.2.3.2. e-HRM**

e-HRM is described as “the planning, implementation and application of IT” for networking and support purposes (Strohmeier, 2007, p. 20). e-HRM may be viewed as a key element of e-business, with an internal focus, rather than the external focus which e-business usually has. Using e-HR activities, HRM professionals attempt to benefit the organisation through the effective flow of information regarding employees and people management. While HRISs and e-HRM both involve the application of

technology in HRM, there are differences between these applications: HRISs are used to automate HR processes and systems, while e-HRM relates to the application of technology to change the nature of interaction within and outside the organisation. HRISs ultimately benefit the HR function more so than they do other stakeholders. e-HRM, by contrast, relates to the interaction between employees, line managers and the HRM function (Martin & Reddington, 2010).

### **2.2.3.3. Categories of technology used in HRM**

The technology used in HRM can be broadly classified as software which targets HRM staff as primary end users, and applications directed at internal HR customers, namely employees, line managers and senior management (Florkowski & Olivas-Luján, 2006). Software, which targets HRM staff as end users, includes technological applications that assist these professionals with their roles and responsibilities. Employees or other internal customers of the organisation do not necessarily access or work on these applications.

Software targeting HRM staff as primary end users can be further categorised as HR functional applications and integrated HR suite applications (Florkowski & Olivas-Luján, 2006). The former enable the automation of isolated HR tasks and responsibilities, while the latter are complete and connected solutions for most activities in the HR department. While functional applications may provide excellent functionality within the HR activity they are used for, cross-application interfaces can be problematic, especially if no unifying standards apply across the applications. For example, if an organisation has an application for training and development, and another for absence management, the interface between them to determine absenteeism during training activities, may prove problematic. HR suite applications do not have this problem, as data can easily be shared across various applications in the suite (Florkowski & Olivas-Luján, 2006). Notably, such suite applications are more expensive and require high-level agreement among various internal customers to implement.

Software targeting internal customers as end users includes those systems that facilitate interactions between internal customers and the HR department, making the

process easier and more efficient. While such applications make activities more self-service oriented and efficient, they also reduce the costs of data entry for various administrative tasks associated with HRM. Florkowski and Olivas-Luján (2006) classify such software into five categories: interactive voice response (IVR) systems, HR intranet applications, self-service applications, HR extranet applications and HR portal applications. IVR systems facilitate the consumption of HR services, including benefits enrolment, training registration, work-related surveys and announcements, and employee information verification. Through HR intranet and self-service applications, employees can electronically update their databases and download the forms needed to complete various HR-related tasks (Huang & Martin-Taylor, 2013). These mechanisms also enable organisations to publish employee handbooks, work-related documents and information regarding operations, and to publicise the range of employee services available (Govender, 2010). HR extranet and portal applications enable interactions between organisations and external vendor organisations which offer outsourced HR support.

Thus, various forms of technology are available to HRM professionals, to improve the HR support they provide to other functions. These technologies are categorised based on who uses them and how (Florkowski & Olivas-Luján, 2006). An understanding of technology will enable HRM professionals to utilise such technology effectively. Furthermore, HRM professionals must be aware that they have to interact differently with different categories of technology. They must also be aware of the benefits of such interaction, and must be able to use technology to extract valuable information (Stone et al., 2015).

#### **2.2.4. Organisational factors affecting HR technology implementation**

Various organisational factors affect the implementation of HR technology (Campion et al., 2011; Curtis, Hefley, & Miller, 2009; Kernaghan, 2014; Schramm, 2006). These include the size of the organisation, the nature of business and the culture of the organisation. The effect of these organisational factors are discussed in the sections which follow.



#### **2.2.4.1. Size of the organisation**

Until recently, only larger organisations could afford the cost of a major investment in HR technology. With software-as-a-service and similar initiatives, smaller companies can now afford to use technology in their HR functions for short periods of time, and for smaller projects (Schramm, 2006). Software-based services and applications have thus enabled smaller companies to adopt HR technology.

Arguably, HR technology competencies are not a requirement for all HRM professionals, since smaller organisations do not necessarily use technology in their HR function. Their failure to use HR technology may be because it is only affordable for larger companies, or may not be used very effectively in smaller and medium-sized organisations due to smaller data sets. With software-as-a-service applications, however, small and medium-sized organisations can tap into the benefits of HR technology for internal workforce analytics and external benchmarking. Also, due to technological advances, labour market information is growing richer, enabling smaller companies to benefit from external benchmarking by using HR metrics to make a case, make decisions and show a return on investment (Schramm, 2006).

#### **2.2.4.2. Nature of business/business context**

Organisational context must be considered when implementing HR technology (Campion et al., 2011). A contextual factor that may be taken into account is the technological maturity of the people processes in the organisation (Isson & Harriott, 2016; Tursunbayeva, Di Lauro, & Pagliari, 2018; Vidgen, Shaw, & Grant, 2017). In many instances, while HRM professionals would like to introduce analytics in the workplace, they are likely to find that their people processes are either underdeveloped, from a technological perspective, or that the data collected are inaccurate or ineffectual (Isson & Harriott, 2016). Further, even though HRM professionals have access to various forms of data, they may not be asking the right questions, given their business context. Thus, consideration of the business context is important for implementing the appropriate HR technology and applying it to business-related problems and scenarios (Duffy, 2001).

### **2.2.4.3. Organisational culture**

The culture of an organisation plays an important role in the implementation of technology. High-performing organisations generally have high-performing HR functions which use their technological systems differently from poorly performing entities (Schramm, 2006). If an organisation is not open to the changes that can be made through technology, any technological initiative has the potential to fail (Kernaghan, 2014). Furthermore, effecting an improvement in an organisation's operating processes entails a distinct approach to changing the organisation's culture, which will cause changes in the roles of the people in the organisation (Curtis et al., 2009). A subset of this factor is leadership's perception of the use of IT in the various organisational functions.

While there are several factors that affect the use of IT in the HRM function, the discussions above clearly indicate that HRM functions, however small, cannot disregard the utilisation of IT in HRM. Various IT systems and applications are continuously entering the market, challenging HRM professionals to reassess the work that they do. The HRM profession must therefore take into consideration how IT is utilised to transition the profession from being administrative to being strategic.

To review this section, the advent of IT has caused fundamental changes in society, which in turn have effected changes in business. HRM, as a function of business, has also undergone a transformation in the way it functions. Changes in the HRM environment continue to affect the various functions and activities, concomitantly causing a transformation in the profession. These changes are discussed in the next section.

### **2.3. Changes in HRM due to IT**

In the preceding section, it was established that the advent of IT has influenced HRM. In this section, the effect which IT has on HRM is explored further, by analysing the changes IT has imposed on the HRM function, the HR profession, and the roles and responsibilities of HRM professionals.

### 2.3.1. Effect of IT on the HRM function

The HRM function has evolved over the past century, mostly by reacting to organisational change and changes in the external business environment (Vosburgh, 2007). From a titular perspective, the field that was initially termed 'labour relations' and 'industrial relations' evolved into 'personnel administration' and 'personnel management', which subsequently transitioned into HRM and people management. More recently, some organisations have referred to the field as 'human capital management' or 'organisational effectiveness' (Jamrog & Overholt, 2004; Vosburgh, 2007).

Most changes in the HRM field are responses to changes in the socioeconomic conditions of the external environment. The content in the role of the HR professional keeps expanding, as resources become increasingly restricted (Vosburgh, 2007). Such changes are not surprising, as the function deals with people. One such change that has had an effect on the function, is the advent of technology. In the next section, the impact of technology on the various elements of HR architecture is detailed.

Most organisations employ IT within the HR function, even if they only use word processing, spreadsheet tools and the internet. More importantly, HR functions either invest, or plan to invest, in HR-related technologies (Mishra & Akman, 2010). A large number of HR departments – especially in larger and medium-sized organisations – operate on some type of HR technology platform (Hannon et al., 1996). Most global organisations invest in a combination of ERP, HR service centres, employee portals, web applications, IVR and voice recognition systems (Mishra & Akman, 2010). Organisations use HR portal tools for company communication, access to employee-related policies, information regarding work and life, training, HR record keeping and recruitment.

The above section describes how the HRM function has evolved over the years. In the past few decades, IT has permeated the HRM function, changing the way its professionals perform their various duties. To appreciate how IT has permeated the HRM function, its use in certain sub-functions is described next.

### 2.3.1.1. IT and workforce planning

Workforce planning involves ensuring that the right number of people with the right competencies are in the right place at the right time, to deliver on the organisation's business strategy (Vosburgh, 2007). As early as 1985, Golden and Ramanujam identified that, without an information base of any consequence, the HR function cannot be involved in strategic planning for the organisation. This established the need for an IT system, either in the form of an ERP or a more basic option, to allow HR to perform effective workforce planning (Golden & Ramanujam, 1985). Thus, modern HRISs can help organisations by automating many HR planning functions (Nagendra & Deshpande, 2014).

With changes in the use of technology, and the effect IT has on the way people work, workforce planning – considered one of the more strategic functions of HRM – is now becoming more relevant (Vosburgh, 2007). Organisations should, therefore, identify the strategic value and competitive advantage they can gain by using technology when it comes to HR planning (Nagendra & Deshpande, 2014).

Workforce planning implies that existing structures and systems may need to change, and that new structures and systems may need to be introduced (Vosburgh, 2007). Technology can be used extensively in this aspect of business planning. The greatest contribution to the efficiency and effectiveness of HR planning is through the use of the skills inventory, training needs analyses, succession planning, and labour demand and supply analyses – all of which are developed using HR technology (Nagendra & Deshpande, 2014). The accurate identification of unfilled job positions is another HRIS feature which can assist in workforce planning (Nagendra & Deshpande, 2014).

Data obtained about existing employees and their competencies can help HRM professionals and senior management to identify both strengths and gaps that they must address. For instance, organisations use data to integrate talent assessments and organisational needs, to determine how their current workforce must be utilised and what additional competencies they require for the business to achieve its goals (Vosburgh, 2007).

In a study about the use of HRISs in HR planning, the former were deemed to play a key role in HRM planning (Nagendra & Deshpande, 2014). In fact, the majority of the

study participants in that case agreed that HRISs are used satisfactorily for HRM planning purposes (Nagendra & Deshpande, 2014). By contrast, the study also identified that, although HRISs are almost always implemented with strategic intent, they are eventually used predominantly for administrative purposes (Nagendra & Deshpande, 2014). Thus, while there is agreement that HR technology can facilitate strategic planning, HRM professionals mainly derive administrative value from it. Additionally, the HRM function can increase the efficiency of HR planning through HRIS, saving time and costs (Nagendra & Deshpande, 2014). In fact, Boudreau and Ramstad (2005) argue that HR must have a unique, talent-focused perspective for improving decisions, not only a process for implementing decisions, if it is to participate fully in strategic discussions. This implies that HRM professionals need a specific set of competencies if they are to utilise HR technology for HR planning purposes. However, it is not clear what those competencies must be.

#### **2.3.1.2. Use of IT in recruitment and selection**

Recruitment practices have changed due to the introduction of technology and social media. IT is used extensively in recruitment, in the form of social media applications, big data and gamification, amongst others (El Ouiridi, El Ouiridi, Segers, & Pais, 2016; van Esch, Black, & Ferolie, 2019). As an example, previously HRM professionals had to publish advertisements in a newspaper when a vacancy arose, sift through countless paper CVs, send registered mails to potential applicants and hope that they arrived for the interview. Now, interactive online video resumés and social media platforms, including LinkedIn, Facebook and Twitter, have made posting advertisements, attracting and recruiting job applicants, and pre-screening applicants faster, more efficient and highly flexible (El Ouiridi et al., 2016).

Due to the use of technology, the recruitment process has become more dynamic and authentic, and the employer's brand attractiveness has been enhanced. Also, the tasks associated with recruitment have changed. To keep abreast of the technological revolution, many organisations now opt to outsource their recruitment function, or part thereof, to recruiter organisations. Thus, HRM professionals working in an organisation perform a completely different set of activities now, compared to what their counterparts did a decade ago.

While most technological advances are viewed in a positive light, especially because they increase the efficiency and accuracy of processes, potential concerns arise with the use of technology, especially in recruitment. For instance, AI can be used to capture the behavioural and physiological characteristics of applicants, which can then be used to catalogue them (van Esch et al., 2019). Such use of technology raises ethical and privacy concerns, which HRM professionals need to address. Thus, while technology has changed the recruitment process, it has also changed the way HRM professionals use technology and data.

### **2.3.1.3. Applying IT to training and development**

The advent of IT has transformed, and continues to transform, training and development not just within the organisation, but also in other fields. Using IT for the distribution of learning content and/or for communication (which is referred to as e-learning) has proven to be more cost effective and learner-focused than traditional learning techniques (Strohmeier, 2007). While e-learning refers to all forms of learning enabled by technology, which may include schools and HEIs, e-training refers to the technology-based training which organisations offer (Stone et al., 2015).

E-training enables the active participation and interaction of both trainees and facilitators, taking into consideration individual needs, self-motivation and the support of management (Stone et al., 2015; Strohmeier, 2007). Also, employees are exposed to shorter and more focused learning opportunities through unconventional channels, including massive open online courses (MOOCs), short online training programmes and video-sharing websites such as YouTube. Thus, while training was previously conducted almost entirely on the job by supervisors, learning can now occur on demand, anywhere and at any time due to technological advances (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017).

Organisations that are exposed to e-training seem to appreciate the benefits that it offers, which include delivery and content flexibility: the former leads to employees spending less time away from work, and the latter enables the provision of highly customised material which is specific to the needs of the organisation and the employee (Harfoushi & Obiedat, 2011). Thus, e-training or a blended approach to

training, where a combination of online and contact mechanisms is employed, is becoming highly popular (Stone et al., 2015).

The abovementioned transformations in the training landscape have implications for HRM professionals' work. Traditionally, HRM professionals at entry level in particular, played more of an administrative role in training and development. Their responsibilities included scheduling training, arranging for trainees and facilitators to attend training, and obtaining feedback regarding the training. With technological advances in training and development, the responsibilities of these professionals are changing to include tasks such as determining the need for training, choosing appropriate methods and techniques to deliver various forms of content to employees, designing training systems to support the learning process and evaluating the effectiveness of various training interventions (Bell et al., 2017). Senior HR professionals or line managers who are heavily involved in the design and delivery of training content usually perform these tasks.

Entry-level HRM professionals cannot simply do what their senior counterparts and line managers did traditionally (Hussain et al., 2007). Designing and delivering content require experience, an advanced level of subject matter knowledge and an understanding of what delivery to different groups of people entails (Bell et al., 2006). Entry-level HRM professionals may, however, be able to assist senior managers with various tasks related to e-training. Identifying and elaborating on the competencies, which entry-level HRM professionals require in order to render assistance, will enable them to contribute to the training and development environment in organisations.

#### **2.3.1.4. IT in performance and remuneration management**

Payroll is one area of HRM which has been significantly influenced by technology. What used to be a highly administrative task within this function has been made quicker, simpler and more accurate with the use of payroll systems (Keegan & Francis, 2010). In fact, payroll may be the sub-function of HRM where IT has penetrated deepest (Chauhan et al., 2011). The extensive use of IT in payroll may be attributed to advances in the banking and payments environment. Using IT enables organisations to improve their efficiencies and reduce pay cycle times. Accurate, time-

effective information can be provided to line managers, thus enhancing the speed and quality of decision making, and controlling related costs (Mishra & Akman, 2010).

IT has also enabled better remuneration practices within organisations (Chauhan et al., 2011). Linking remuneration to performance, remuneration benchmarking, analysing costs associated with benefits, and providing customised remuneration and benefits solutions are all possible due to IT-related advances in the field of remuneration and benefits management (Chauhan et al., 2011).

While technological advances in the HR function are primarily driven by demands for enhanced speed, improved effectiveness and cost containment, Mishra and Akman (2010) found that, in most organisations, HR applications and the use of IT are not structured as a single HR portal or service. Kaur et al. (2014) also found that the use of IT in HR varies considerably among different sectors. Such inconsistencies have led to the improper functioning of the HRM function, emphasising its inability to meet the diverse expectations of various stakeholders. A structured approach to IT in the HRM function will benefit not only the function, but also the organisation as a whole.

#### **2.3.1.5. Tiers of IT influence on HRM**

When studying the application of IT in HRM, it may not be adequate to solely analyse the impact of technological practices. The effect of technology is much broader than the mere use of e-HRM (Hempel, 2004). IT influences society as a whole, and the workplace, at multiple levels. These influences have implications for the functional aspects of HRM, which are responsible for people in the organisation, who are in turn part of a larger society. The whole breadth of the influence IT exerts on the HRM function, is discussed in this section.



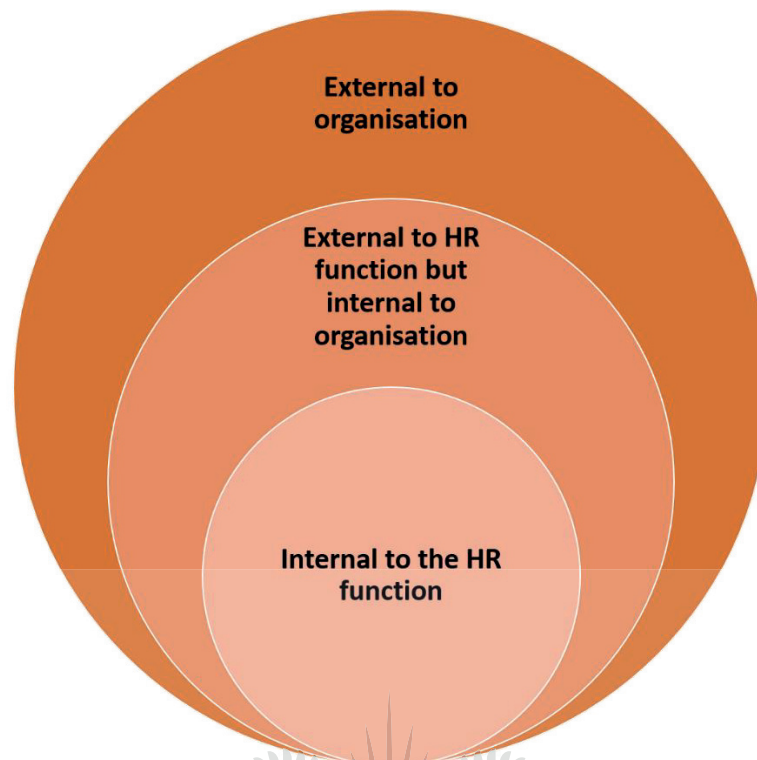


Figure 2.1. Tiers indicating the influence IT exerts on the HRM function

Source: Author's construction

IT's influence on the HRM function may be categorised into three tiers, as depicted in Figure 2.1. The first or outer tier signifies the effect IT has on the external environment in which the organisation operates, which has implications for the performance of the HRM function. The introduction of IT has significantly changed society and the workplace. In this regard, Bersin (2016) identifies several ways in which technology affects employees as a whole. The presence of technology creates an 'always-on' culture, which has implications for HR, as employees feel overwhelmed and companies are left unsure about how to deal with the situation (Bersin, 2016). Additionally, the advent of technology has facilitated the employment of more knowledge workers and fewer manual labourers (Mishra & Akman, 2010). As another example, employees who qualify as Generation Z, and, for that matter, other generations, have expectations regarding how the workplace must integrate technology, to make their work experience more fruitful and effective (Stone et al., 2015).

Changes in society at large, due to the advent of IT, have prompted changes to the management of organisations and work design, including organisational structures, work processes and job design (Stone, Lukaszewski, Stone-Romero, & Johnson, 2013). Such changes have initiated a re-engineering process in organisations. These changes in organisation and work design, and the management of knowledge workers, all point to a need for new HR practices (Hempel, 2004; Huang & Martin-Taylor, 2013; Strohmeier, 2007).

The second tier in Figure 2.1 refers to the effect IT has on the functioning of the organisation which, as indicated earlier, has direct and sometimes indirect implications for the operation of the HRM function. One such implication is that the processes and policies associated with various HRM activities have changed (Shrivastava & Shaw, 2003) (for more on this, see Section 2.3.1).

The third or internal tier refers to the effect of IT on the internal functioning of the HRM function. Due to technological advances, the area of performance and related feedback has opened up, leading to quicker and more thorough 360-degree feedback opportunities (Bersin, 2016). Predictive analytics enable organisations to find the right people, predict who is likely to leave and advise on what path to follow to develop leaders (Angrave, Charlwood, Kirkpatrick, Lawrence, & Stuart, 2016). Due to the availability of technology, employees demand greater flexibility and autonomy at work (Powell & Dent-Micallef, 1997). Even when it comes to learning, employees are taking ownership and choosing the path they want to take, irrespective of the instructor-delivered models their organisations design (Real, Leal, & Roldan, 2006). All these changes have longstanding implications not only for the HRM function, but also for the running of the organisation as a whole.

#### **2.3.1.6. Models of IT use in HRM**

Several scholars have suggested models to explain how IT may be used in HRM (Florkowski & Olivas-Luján, 2006; Lengnick-Hall & Lengnick-Hall, 2006; Martin & Reddington, 2010; Ruël, Bondarouk, & Looise, 2004; Shrivastava & Shaw, 2003; Strohmeier, 2013). In discussing the application of such models, the potential of the HRM function in utilising technology has been identified as a factor on which the

success of IT implementation depends. This section focuses on some of the models of use, to indicate what role the competencies of HRM professionals may play in the successful utilisation of IT in HR.

Martin and Reddington (2010) propose an e-HR model in which strategic drivers of e-HR flow from the HR strategies and policies of an organisation, which in turn interact with the external and internal strategic environments. This model is illustrated in Figure 2.2.

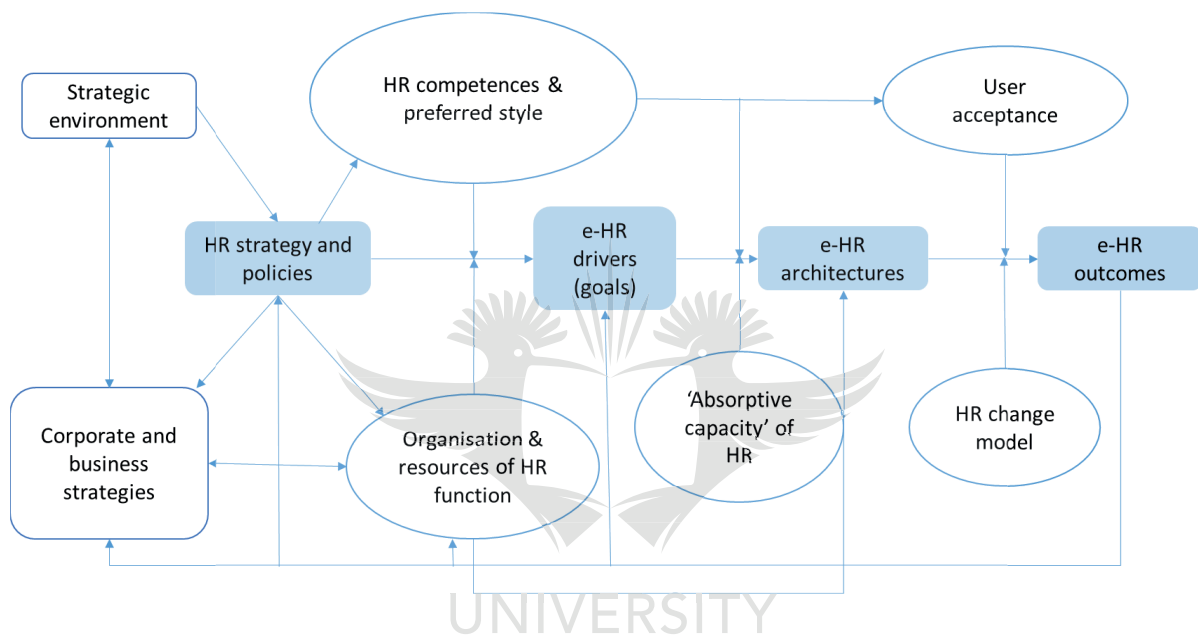


Figure 2.2. An e-HRM model incorporating the strategic drivers of e-HR  
Source: Martin and Reddington (2010, p. 1555)

Strategic e-HR drivers determine the e-HR architecture, which, in turn, determines the e-HR outcomes. In their model, Martin and Reddington (2010) discuss the absorptive capacity of the HR function, which is the potential for that function to acquire and assimilate knowledge related to e-HR technologies and their uses into their vision of the HR function. That function must be able to develop, and fuse e-HR technologies with, existing HR processes. The model implies that HRM professionals must exhibit competencies related to the application and utilisation of IT.

Ruël et al. (2004), in developing their e-HRM model, indicate that to start on the e-HRM journey, an organisation must already have certain HRM policy assumptions and practices in use. It is from this existing state that any choices regarding e-HRM are

made. Once this current state has been identified, goals must be determined, followed by the selection of the type of e-HRM practice to introduce. Once the practice is implemented, it must be evaluated to determine whether the outcomes were achieved. While the suggested e-HRM theory has change management principles associated with it, Ruël et al. (2004) imply that new competencies are required of HRM professionals, if the implementation of e-HRM is to be successful.

Shrivastava and Shaw (2004) developed an installation theory in which they divide HR technology installation into three phases, namely adoption, implementation and institutionalisation. While the terminology used is quite technical in nature and implies a more IT-focused approach, there are aspects to all three phases on which an HRM professional can work. These include determining the driving forces necessary for adopting e-HRM, deciding which firm-related variables to consider, clarifying expectations, and managing the change associated with the implementation and successful institutionalisation of the e-HRM practice (Shrivastava & Shaw, 2003).

In all the above theories, there is a common view that the use of IT in HR must follow a three-stage approach. Strohmeier (2007) developed a generic framework for structuring e-HRM research, whereby the context, configuration and consequences are differentiated, as indicated in Figure 2.3. Furthermore, the contextual factors precede the configuration which ultimately determines the consequences of e-HRM implementation. This seems to be an overarching framework that can be used to describe the successful implementation of e-HRM in an organisation.

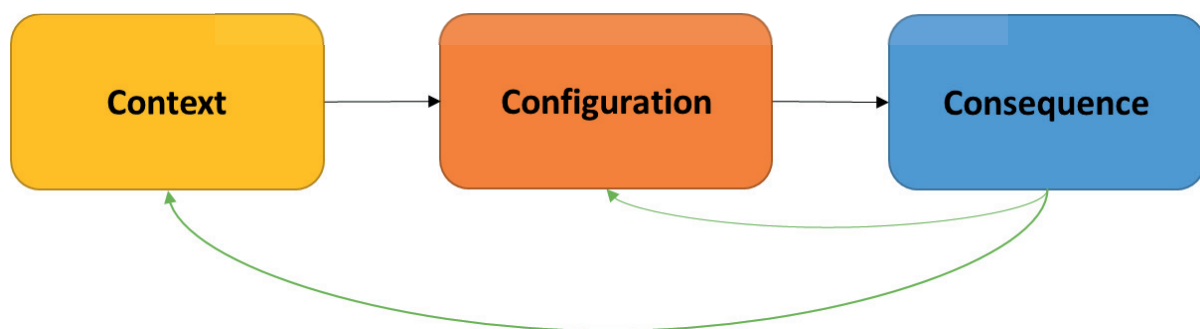


Figure 2.3. An e-HRM implementation model

Source: Author's own construction, based on Strohmeier (2007)

A concern about these theories is that the implementation of e-HRM is viewed as a project or change management activity. Due to the limited integration of e-HRM into the regular activities of the HRM function, many such implementation activities fail (Strohmeier, 2007). The strategic impact of the e-HRM implementation should be analysed in the consequence phase of the process. Notably, that phase and the feedback it provides for both the context and configuration phases may not be given due consideration, leading to either a partially successful or a failed e-HRM implementation.

Florkowski and Olivas-Luján (2006) propose that the use of IT in HR is fuelled by the interactions of potential adopters within the organisation, as opposed to the marketing efforts of external technology vendors and/or management consulting firms. In that context, HRM professionals with an awareness of the benefits of IT can be critical in rousing interest in using IT within the organisation's HR functions. It is therefore important to determine what competencies HRM professionals would need, if they are to use IT for various HRM activities.

Lengnick-Hall and Lengnick-Hall (2006) describe a paradox whereby HR functions that can acquire and assimilate e-HR knowledge through HRISs and ERP systems find it difficult to exploit such knowledge. Conversely, HR departments that have the skills to exploit knowledge regarding the people in the organisation probably do not have the routine and regulated competencies required to obtain such knowledge through IT systems (Martin & Reddington, 2010). In other words, HR departments that employ people who are skilled in routine work systems and administrative operations may be good at effectively applying e-HR. Nevertheless, learning and innovation are characteristic of HR departments that employ people with innovative and creative competencies. A dual-core structure that relies on a technical or operational core and a functional or administrative core, with different characteristics, is proposed to resolve this paradox (Lengnick-Hall & Lengnick-Hall, 2006). This may imply that an HR function must consist of two sub-functions that work in parallel. If so, understanding the IT competencies required of an entry-level HRM professional becomes even more pertinent.

### 2.3.2. Changes in the HRM profession

As indicated in the preceding section, changes in the business environment, including developments in IT, have affected the HRM function considerably. These changes have implications for the profession and the roles HRM professionals play in the organisation.

Over the past few decades, practitioners in the field have been (and continue to be) referred to as staff officers, personnel officers, HR administrators, HR business partners, human capital associates and people strategists (Hunter, 1999; Jamrog & Overholt, 2004; Yeung, Woolcock, & Sullivan, 1996). Notably, the HRM function is not run similarly across organisations: in some, it is run in the traditional administrative and policy-policing manner, while in others it is fully integrated into the strategy of the business (Vosburgh, 2007). Traditionally, the work associated with HRM included administrative tasks comprising records management, the recording of attendance and the processing of payroll (Saleem, 2012). Since the advent of technology, many of the administrative tasks included in an HRM professional's day-to-day work can be performed by technological systems.

All the abovementioned differences have led to varied perceptions of the role of HRM within the organisation, the profession and the larger community. To add to these inconsistencies, with advances in technology and other social changes, there has been a call for the HR profession to move from being administrative to operational (Keegan & Francis, 2010; Yusoff et al., 2012). More recently, there has been the further demand for the profession to be strategic (Pritchard, 2010; Uti, 2016). The HR professional therefore needs to be bold, innovative and experimental, willing to take risks, and able to design, test and iterate initiatives (Bersin, 2016), which will require using HR-related and other technology to support various people-related initiatives.

Lawler III and Mohrman (2003) state that it is unclear whether the HR function is capable of identifying and implementing the changes required to support innovations in business, due to the advent of technology. One of the reasons for such incapability may be that HRM professionals may not have the right competencies to use information systems or the information made available through these systems (Bell et al., 2006). The lack of such competencies may, in turn, render HRM professionals

unable to use these systems to contribute to business on a strategic level. Also, if they feel 'overwhelmed' by HR technology, they might not use it effectively (Bersin, 2016). A study conducted by the SABPP (2014) revealed that while HR professionals received high ratings from the board on the use of technology, they gave themselves low ratings in a self-rating exercise.

To appreciate the role of IT in the HRM profession, it is crucial to understand the various roles HRM professionals fulfil. Such an understanding can particularly aid in ascertaining the role of entry-level HRM professionals, from both the IT and the strategic partnering perspectives.

### **2.3.2.1. Differences in HRM roles**

As discussed in the preceding section, different HRM professionals are expected to perform at different levels. These expectations are dependent on several factors, including the size and structure of the organisation, its age, the nature of the business, its culture, the maturity of its operations, trade union presence and the involvement of line managers in HRM functions (Caia, Morris, & Chen, 2011; Kochan, 2004; Liu, Combs, Ketchen, & Ireland, 2007; Op de Beeck, Wynen, & Hondeghem, 2018).

According to Ulrich (2014), HRM functions must be designed in accordance with the organisational structure: for example, if the organisation has a matrix structure, the structure of the HRM function must be similar. Irrespective of the structure, HRM professionals perform diverse roles within their function. In a particular organisation, the HRM function may consist of specialists and generalists, while in another, it may consist of business partners and centralised support functions. A third organisation may include an HR function that distributes HR responsibilities by division or in accordance with geographical boundaries. More recently, HR self-service has distributed a major part of HR responsibilities to the end users, who include employees, line managers and, in some instances, senior management (Huang & Martin-Taylor, 2013). The self-service approach to traditional HR has thus reshaped the role of HRM professionals.

At a basic level, it is possible to categorise the roles of these professionals as functional, operational and strategic. In a functional role, an HRM professional works

specifically within one of several HRM functions in the organisation and focuses predominantly on activities within that particular function (Gardner et al., 2003). For example, a recruiter would only work within the recruitment function of the organisation, and not be involved in training and development, payroll or any other HRM functions.

In an operational role, the HRM professional takes into consideration the specific needs of business operations and provides people-related solutions for day-to-day business problems (Saleem, 2012). The competencies required in an operational role may be different from those required in a functional role. It may thus not be possible for an HRM professional to demonstrate functional and operational competencies at the same time. Within an HRM function, however, especially in a large organisation, if the cohort of HRM professionals demonstrates a combination of operational and functional expertise, they can be invaluable. In other words, to perform well operationally, the HRM function must exhibit functional excellence. While the same individual may not be a functional and an operational expert, employees with functional competencies can complement those with operational expertise.

In a strategic role, HRM professionals are involved in people-related planning and decision making aimed at meeting business goals and objectives (Ananthram & Nankervis, 2013). Strategic business partnering has become a prospect for the HRM profession due to advances in technology. The strategic role of HR, especially from a business partnering perspective, has been detailed in the literature, and is discussed in more detail in the next section.

#### **2.4. Strategic HR business partnering**

Strategic business partners are expected to focus on the business alongside employees (Ulrich, 2013). Ramlall (2006) remarks that HR professionals are now expected to do more than they used to, partly because HR is assuming a more critical role in the organisation. Previously viewed as an administrative role, HR professionals are now looked to for organisational design and systems, as well as their change management expertise (Ramlall, 2006). Business partners must therefore be equipped with competencies associated with business, which include talent



identification, critical position recognition, development planning and succession planning (Hutcheson, 2004). Such decisions need to be, and can be supported by, information analysis.

In the 1980s, the evolution of the HRM function from labour management to employee staffing was extended to include the role of strategic business partnering (Schramm, 2006), which is an expansion of the traditional HR function, rather than a replacement (Younger et al., 2012). This view has caused apprehension within the function, between practitioners' previous role as employee advocates and their new role as business partners (Ananthram & Nankervis, 2013). Ramlall (2006) suggests that an HRM professional is expected to show how s/he adds value to the organisation. Any apprehensions which these professionals might have, can be assuaged by having strategic business partners functioning concurrently with the traditional HRM function (Maugans, 2015). Despite this, the HRM function continues to be viewed as a cost centre, as opposed to a contributor which can help to formulate and implement a business strategy (Lawler III & Mohrman, 2003).

According to Colbert (2004), strategic HRM originates from two foundational assertions. Firstly, the human resources of an organisation are of strategic importance to the organisation's success in formulating and implementing strategy. The second assertion is that organisational HRM practices contribute to the development of strategic capability within its human resources pools. Thus, strategic HRM is closely affiliated to the resource-based view of competitive advantage in the organisation's resource base (Colbert, 2004). Thus, organisations need to study and optimise HRM practices and the use of technology in doing so, in order to develop its strategic capability.

#### **2.4.1. Strategy implementation**

HRM professionals are key stakeholders in strategy implementation, as human capital data are needed to feed that process (Schalk et al., 2013). Vosburgh (2007) mentions that when leaders and companies fully recognise the relationship between talent and results, the HRM function is involved in business strategy implementation. Haines III and Lafleur (2008) comment that there is a correlation between the use of IT-supported HR applications and the involvement of the HR function in supporting

strategy implementation and delivering tangible results. For Díaz-Fernandez, López-Cabrales and Valle-Cabrera (2014), depending on their business strategy, organisations need employees with diverse sets of competencies. The HRM function therefore plays a critical role in developing such competencies within any organisation.

#### 2.4.2. HR risk management

If HRM is utilised efficiently, it can contribute to strategic planning and implementation processes. In many organisations, HRM processes are integrated with strategy implementation processes (Bal, Bozkurt, & Ertemsir, 2014) through the implementation of HR plans derived from the HRM strategy which, in turn, is derived from the business strategy (Jun & Rowley, 2014) (see Figure 2.4).

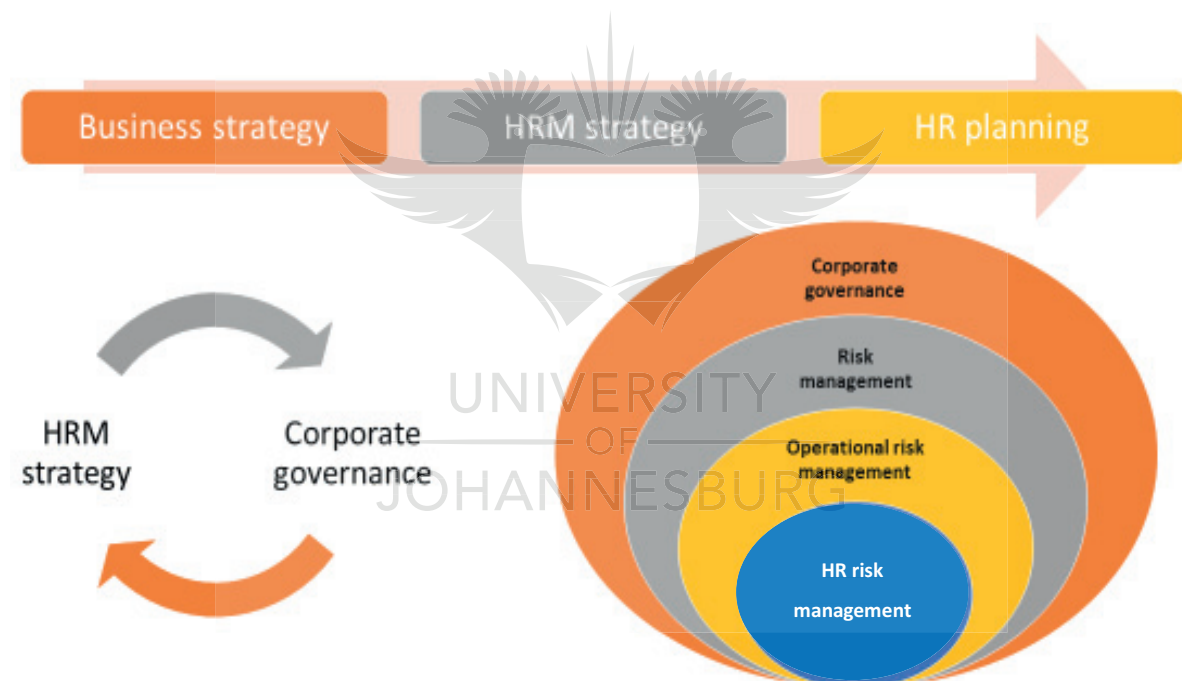


Figure 2.4. Linking HRM strategy, corporate governance and HR risk management  
Source: Author's construction

Business strategy, and, therefore, HRM strategy, is influenced by corporate governance, and vice versa (Shen & Gentry, 2014), as illustrated in Figure 2.4. Corporate governance, which is a function generally performed by the boards of directors in organisations, attempts to align the interests of managers with those of the shareholders and other stakeholders (Filatotchev & Nakajima, 2010). Thus,

organisational risk identification and management facilitate improved corporate governance. Also, improved strategic partnering on the part of HR can lead to improved corporate governance.

Organisational risk includes credit, market and operational risk (Global Association of Risk Professionals, 2012). Operational risk can be described as the danger of direct or indirect losses as a result of internal process or people failures, or as a result of external events (Paul & Mitlacher, 2008). HR risk, which falls under operational risk, includes poor internal processes, practices and principles, as well as weak recruitment processes, inadequate or inappropriate training, and unethical rewards and remuneration processes. Paul and Mitlacher (2008) further suggest that the impact external events have on the HR value chain must be considered, for the effective evaluation of HR risk. The links among corporate governance, risk management and HR risk specifically, are indicated in Figure 2.4.

Thus, the HRM function has a crucial role to play in improving corporate governance in organisations (Beatty, Ewing, & Tharp, 2003; Belloc, 2012; Core, Holthausen, & Larcker, 1999; Farndale, Paauwe, & Boselie, 2010; Martin, 2009) – a role which can be realised by using technology to access information which will enable HRM professionals to make strategic plans and decisions.

In addition, senior management in organisations have paid close attention to operational risk as a component of corporate governance, especially since the global economic downturn of 2008. Pirson and Turnbull (2011) argue that boards could have managed risk before and during the recession better, if they had access to the relevant information and had been able to process the limited information available to them. Similarly, if HRM professionals have access to relevant HR information and have the ability to process such information, it can reduce negative HR risk and leverage positive HR risk (Beatty et al., 2003; Joseph, 2014). The identification and management of HR risks will improve the strategic standing of the HRM function in organisations (Paul & Mitlacher, 2008). Thus, the use of proper information management systems can steer the profession towards being more strategic, thus enabling the HR function and the business to operate more effectively (Paul & Mitlacher, 2008).

### 2.4.3. Role of HR information in strategic business partnering

In 1997, Ulrich proposed that the future roles of HR would encompass those of strategic partner, administrative expert, change agent and employee champion. In the strategic partner role, HRM professionals would have to ensure that the systems and processes in the HR function complement the overall strategy of the organisation and aid effective corporate governance. While the role of the administrative expert would focus on process efficiency, an HRM professional in the role of change agent would facilitate and advocate change in the organisation (Yusoff et al., 2012). As an employee champion, the HRM professional would have to be aware of employees' concerns and be an effective communicator.

Almost two decades after Ulrich's proposal, HRM professionals across organisations are still struggling to be effective as strategic partners and change agents (Marler, 2009). The effective utilisation of HRISs can aid HR professionals in achieving excellence at being strategic partners in specific roles (and in all the above mentioned roles in general) (Younger et al., 2012).

In 2012, the four future roles were reconstructed into six competency domains, which were identified through the Human Resource Competency Study (HRCS). One of these competency domains is referred to as that of technology proponent. The other five domains include being a strategic positioner, credible activist, capability builder, change champion, and human resource innovator and integrator. These domains are illustrated in Figure 2.5.

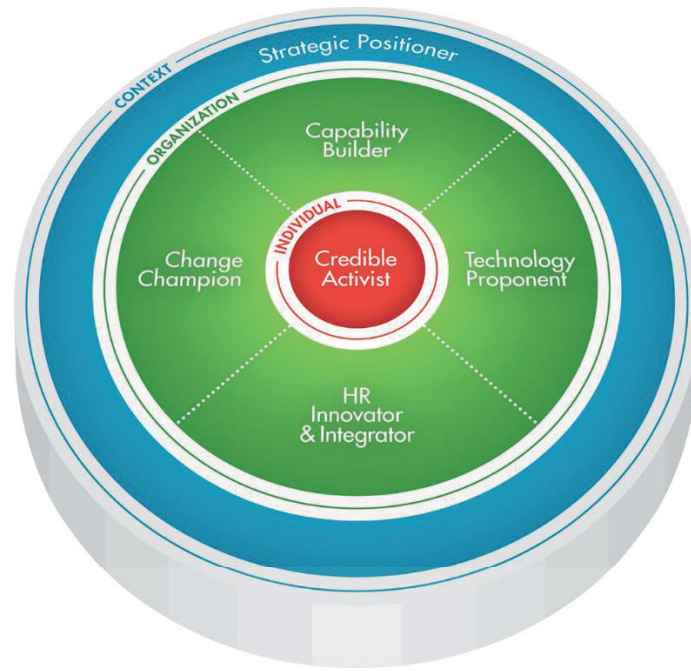


Figure 2.5. The 2012 HRCS Competency Model

Source: <http://hracs.rbl.net/hracs/index/history>

The strategic positioner domain describes the HRM professional as a link between the external context and the business. Technology proponent is a competence-related domain that describes the HRM professional as a user of technology aimed at efficiently delivering HR administration, improving customer and employee relationships, and facilitating the development of strategy. The HR technology component can be classified into three areas of contribution: at the lowest level, technology must be used to promote the achievement of the basic elements of HR and, hence, to perform HRM effectively. At the next level, HR information must be shared across the business, to enable decision making. At the final level, such information must be converted into knowledge and applied competence, which must be shared with employees and customers (Ulrich, Younger, Brockbank, & Ulrich, 2012). Thus, technology can produce valuable HR information which will, in turn, enable strategic decision making and promote strategic business partnering.

HR information and its proper monitoring and analysis can, for instance, highlight areas of HR risk, prompting HRM professionals to take action to minimise negative risk and maximise positive risk (Farndale, Paauwe, & Boselie, 2010). In other words,

by not using HR information, those professionals expose themselves and their organisations to various forms of risk. The simple and rapid identification of negative and positive HR risks is possible with the advent of HR technology, enabling HRM professionals to contribute strategically to the organisation (Farndale, Paauwe, & Boselie, 2010). If strategy-oriented HR risk management systems are developed and implemented, these can facilitate the transition of HRM towards being more professional and strategic (Paul & Mitlacher, 2008).

#### **2.4.4. Use of IT in strategic HRM**

A study conducted by Ankrah and Sokro (2012), in Ghana, concluded that the use of HRIS in organisations leads to improved strategic decision making. Using HRIS improves the quality of information, which enables fact-based decision making in the HR function. This improves the reliability of the HR function and, in turn, leads to a greater commitment to employee development in organisations. Although the study established that the use of HRIS leads to operational savings in terms of cost and time (Ankrah & Sokro, 2012), the authors note that organisations must carefully consider HRIS planning, implementation and longevity, if they are to maximise their return on investment.

Haines III and Lafleur (2008) note that HR functions are information-intensive. There are studies which report on the positive impact IT and HR practices have had on firms' performance (Huselid, 2018). The transformation of the HR function has been credited to the availability of IT and its use in streamlining and improving the efficiency of core and administrative services. Furthermore, with ERP, the HR function can improve its efficiency and become more involved, strategically speaking, in the organisation.

Contradicting the findings of the studies mentioned above, research by Quinn and Brockbank (2006) found that the effect of HR technology on business performance is not strategically significant. This is important, as it means that technology is not crucial in terms of curriculum and development opportunities, unless it can be linked to business performance. There may thus not be a need for complex technology, intricate service delivery and design models, or rigorous data analysis systems within HR functions (Quinn & Brockbank, 2006). Imposing such constraints is nonetheless

important, as having to deal with complex technology and analyses would overwhelm graduates unnecessarily. Quinn and Brockbank (2006), however, comment that while IT competencies may not directly relate to entry-level employees making a strategic contribution to business, it provides the foundation for them to do so.

#### **2.4.5. Use of IT in HR business partnering**

From a generic perspective, employees are the customers of HRM professionals in an organisation (Curtis et al., 2009). Taking into account the role of technology and data analysis in HRM, as well as the function of business partnering, line managers and executives are also the customers of HRM professionals (Bondarouk & Ruël, 2013; Ulrich, 1997). Line managers and executives expect their HRM business partners and other HRM professionals to provide factual and data-based input into people decisions (Martin & Reddington, 2010; Ulrich, 2013). By understanding the expectations of the former, both from an output and a competency perspective, HRM professionals can provide them the support they require. Hence, line managers and executives must be consulted in order to identify which IT competencies they expect HRM professionals to have. It is therefore necessary to identify the IT competencies that enable strategic partnering.

Where HRM professionals do not meet certain of the expectations of line managers, employees without HRM qualifications are used in the HRM function (Bondarouk & Ruël, 2013). This means that people without the right qualifications have begun entering the HRM profession (Cohen, 2015). Heneman (1999) remarks that it is the combination of people and analytical competencies that makes for a value-adding HR professional. For the same reason, graduates with unrelated qualifications are not well suited for jobs as HR professionals. Such appointments damage the credibility of the profession, heightening calls to identify what competencies HRM professionals should have, generally speaking, and what technological competencies they need in particular.

HR training in higher education has traditionally been psychologically and legally orientated (Hempel, 2004) – an orientation which has caused HR professionals to be perceived as poorly prepared for the technological changes affecting the function. The

need for a technological component in HR education has largely been overlooked (Cohen, 2015; Hempel, 2004).

#### **2.4.6. Developing a new set of competencies**

Currently, HRM professionals have access to training programmes offered by technology providers to appreciate the use of technology in HR. To understand how HR technology is implemented in the industry, and how training programmes relate to various HR and payroll electronic/software modules, organisations that develop such modules are brought in to train HRM professionals (Enterprise Management Training, 2014; Training and Certification Shop, 2014). However, these training interventions focus on specific aspects of the product, rather than identifying how HRM professionals can use these modules more effectively in their day-to-day activities and specifically, for strategic business partnering.

The other mechanism that HRM professionals could utilise to apply IT competencies to strategic business partnering is to work closely with the IT function or IT professionals insider or outside the organisation, to analyse HR information. Such interactions have several disadvantages: first, such activities are costly as they involve professionals from outside the function. Second, external interactions increase turnaround times and reduce decision making efficiencies (Suen & Yang, 2013). Third, because HRM professionals may not have the right skills to analyse information, the right questions may not be asked. This could lead to valuable data analyses not being performed, thereby exposing organisations to poor decision making and increased HR risk (Chauhan et al., 2011). Fourth, the HR function's dependency on the IT function increases and, more importantly, complicates the processing of information. Finally, such interactions limit the confidentiality and privacy of information (Fagan, 2014), especially where data are related to risk and corporate governance.

The HRM professional is therefore compelled to use such services only for limited purposes (Bondarouk et al., 2009). It would be beneficial for these professionals to develop relevant competencies to enable them to use IT as a delivery vehicle for HR services (Bell et al., 2006) at the lowest level. Furthermore, HRM professionals must be able to collect and transform data into strategically valuable information for the



business and its employees and, in the long run, its customers (Lawler III & Mohrman, 2003). To this end, HRM can employ IT for e-HRM service provision, systems maintenance, the development of new systems and applications, and the modification of existing systems and applications (Martin & Reddington, 2010).

As technology provides support and, in the process, frees up the HRM function from some of its routine tasks, there is the prospect for HRM professionals to move beyond administrative expertise, to become strategic business partners (Bell et al., 2006; Younger et al., 2012). Thus, the role of HRM professionals has changed, and will continue to evolve over time. At the current juncture, they must be able to utilise IT and systems to their full extent, if they are to develop into strategic business partners (Bell et al., 2006; Schramm, 2006; Suen & Yang, 2013).

The role of the HRM professional is not, however, evolving fast enough to meet the demands of business (Bell et al., 2006). This may be because of limited efforts going into identifying the IT and related competencies which HRM professionals require. Importantly, the levels and combinations of competencies required of HRM professionals at different levels have not been described. In other words, not all IT competencies are necessary for all levels of HRM professionals. Also, a certain set of IT competencies may be more relevant to strategic business partnering than other roles that HRM professionals play. Such lack of focus may cause the role of HRM professionals to be limited to that of a credible activist who listens and communicates (Suen & Yang, 2013), rather than that of a strategic partner or functional expert.

There is a demand for HR technology to be simplified and made more user-friendly, as HR professionals do not have the complex technological competencies needed to navigate such systems (Schramm, 2006). But, in order to maximise the benefits of using IT in HR, HRM professionals must develop certain competencies at a basic level. Cost benefits and improved performance are further reasons for ensuring that HRM professionals develop strong technological competencies to support this function (Schramm, 2006).

The introduction of HR technology implies that HR professionals have access to more detailed employment indicators, which should enable them to better forecast labour

trends and hiring needs. This change in itself indicates a need to revisit HRM professionals' competencies (Schramm, 2006).

Understanding technology enables HR professionals to speak the language of business, as technology is embedded in almost every aspect of business (Schramm, 2006). Also, a sound grasp of technology will enable HR professionals to collaborate, organise work, build teams and develop new knowledge and skills, which can help create organisational and human capital. Most importantly, HR processes can be streamlined, with the use of technology, to allow more resources to make a strategic contribution to the business (Schramm, 2006).

Johnson and King (2002) point out that it is critical to evaluate whether the educational qualifications developed for the profession sufficiently prepare graduates with the required competencies, especially given the number of changes HRM has undergone. Managing HR technology systems is complex and, therefore, HR professionals with strong IT competencies will be in demand for some time to come (Marler & Parry, 2016). Leading companies expect entry-level HRM professionals to be strategic business partners who can align themselves with other business functions, in order for the organisation to achieve success (Johnson & King, 2002). If technology causes fundamental changes to the HR function, then these must also be reflected in HR-related education (Hempel, 2004).

By contrast, as reported by Johnson and King (2002), while traditional HR and industrial relations (IR) competencies are incorporated into curricula, there is little intent to develop business-aligned competencies. If HRM students are not taught basic IT competencies at university level, a great deal of time and resources will have to be invested to make those graduates effective in the workplace (Autor, 2015). Additionally, organisations may not be willing to invest in what they perceive to be a support function (Mondore, Douthitt, & Carson, 2011). Addressing technology in professional education, and not just as an 'add-on' training course, will facilitate the development of an HR graduate who would expedite the transition of the role of the HR professional from the administrative to the more strategic (Lawler III, Levenson, & Boudreau, 2004).

Relatively few publications focus on the competencies HRM professionals require, to be able use IT effectively. Although a variety of competency frameworks have been developed to enable these professionals to become more strategic (Caldwell, 2008; Cohen, 2015; Lee & Yu, 2013; Thite et al., 2014; Younger et al., 2012), only one appears to be pertinent to the area of IT competencies (Poba-Nzaou et al., 2016). While all these competency frameworks suggest that IT competencies are necessary for HRM professionals to be strategic, only a few publications in this field describe what these actually entail.

While publications on the impact of IT as a whole on the HR function and its services to the organisation are both conceptual and empirical in nature, the literature on IT competencies has been predominantly conceptual (Hempel, 2004; Schramm, 2006). An empirical study in the area used competencies identified in the literature (both in the IT and HR fields), but the sample used in that instance was limited, consisting only of working students (Poba-Nzaou et al., 2016). The study also did not take into consideration the various levels of experience, which HRM professionals have. Thus, while the study contributes to the field, its limitations justify a need to review the literature, to determine which of the identified IT competencies HRM professionals require, given their levels of experience.

Increasingly, strategic business partnering is becoming a crucial aspect of the HRM function. Given the traditional competencies which HRM professionals display, they may not be able to strategically partner with business (Coetzer & Sitlington, 2014). HRM scholars have therefore identified the need for new competencies which will allow HRM professionals to adapt to recent changes and enable them to serve as strategic partners to business (Cascio, 2005; Levenson, 2018; Ulrich et al., 2013).

## **2.5. Competencies of HRM professionals**

Various recent changes, as discussed above, have necessitated the development of appropriate competency frameworks which take into consideration the new competencies required of HRM professionals. In other words, due to changes in business demands, there are concomitant changes in what the rest of the business expects of the HRM function (Ramlall, 2006). Research has been conducted to identify

updated competencies for HRM professionals (McEvoy et al., 2005; Suen & Yang, 2013; Younger et al., 2012). Specifically, there have been attempts to determine such competencies in the area of technological expertise (Poba-Nzaou et al., 2016). Generic competencies have been identified within the categories of business knowledge, HR practice delivery, change management and technological/IT expertise (Bell et al., 2006).

Before the competency frameworks are discussed in further detail, a more defined and detailed investigation into competencies follows.

### **2.5.1. Competencies**

There are several definitions for the term, but competencies are basically broad concepts that incorporate demonstrable performance outputs and behavioural inputs, and are variously categorised as behavioural or technical in nature (Chartered Institute of Personnel and Development, 2014). Spencer and Spencer (1993) describe competencies as underlying characteristics that have causal relationships to superior job or situational performance. Thus, if clearly defined, organisations and HEIs can focus on developing selected competencies in individuals, with a view to enabling them to achieve specific outcomes (Spencer & Spencer, 1993). Spencer and Spencer (1993) categorise competencies into five types, which include motives, traits, self-concept, knowledge and skill. Motives relate to what a person constantly thinks about or wants, which prompts action. In other words, motives ensure that a person's behaviour is driven and directed towards attaining certain goals. Traits refer to physical characteristics and consistent responses to situations or information. While motives are well engrained, traits may be changeable to suit a person's motives. Traits can be applied to predict how people will do their jobs in the long term, without close supervision (Spencer & Spencer, 1993). Self-concept relates to attitudes, values or self-image: what a person values will cause him/her to respond in a particular manner. While self-concept is linked to motive, it has more of a past perspective, while motive has more of a future perspective.

Competencies have also been described as the knowledge, skills and attributes an individual should have, to perform a particular task (McClelland, 1973; McEvoy et al.,

2005; Younger et al., 2012) – aspects which diverse scholars have been described differently. Knowledge may be explained as the “information one has in specific content areas” (Spencer & Spencer, 1993, p. 10) or as one’s theoretical and practical understanding of an area of expertise (Hansen, 2004). Skills may be described as the learned abilities which allow an individual to achieve a particular outcome (Bartram, 2012; Dreyfus & Dreyfus, 1980). Attributes encompass the personal characteristics which determine what behaviours an individual will employ, to achieve a particular outcome. Motives, traits and self-concept can be termed as attributes.

Knowledge and skill are people’s more visible and relatively ‘outward’ characteristics. Being relatively easier to develop, these can be secured through cost-effective training (Spencer & Spencer, 1993). Self-concept, trait and motive are more deep-seated and central to personality. When knowledge, skills and attributes are combined, the way in which an individual achieves a particular outcome or performs a particular task to achieve success, becomes clear (McLagan, 1997). While attributes are sometimes considered more appropriate indicators of competence, the same can be said for attitudes (CIPD, 2014).

The SHRM indicates that identifying competencies has emerged from being seen as having a specialised and narrow application, to being regarded as a leading method for diagnosing, framing and improving most aspects of HR (Ramlall, 2006). Further, Spencer and Spencer (1993) recommend that, since knowledge and skills are apparent and easy to develop, training is likely to be cost-effective in securing such competencies. By contrast, selecting candidates for specific attributes is more cost-effective than trying to develop these in incumbents. To an extent, self-concept can be changed through training, psychotherapy and positive developmental experiences, although such interventions take time and are difficult to carry out.

For the purpose of this study, the description and categorisation offered by McClelland (1973) is used. While McClelland describes competencies as knowledge, skills and attributes, it may not be possible to identify a particular competency as a knowledge, skill or attribute exclusively. In order for someone to display competence in a particular area, a combination of knowledge, skills and attributes relevant to a particular area must be exhibited. In such instances, isolating only the knowledge, skill or attribute associated with that area may be challenging.

### 2.5.1.1. Designing competencies

Organisations, professional bodies and educators design competencies for different purposes (Bell et al., 2006). In doing so, they usually go about it for the purposes of job analysis and development, performance management and remuneration determination (Caldwell, 2010; Human Resources Professionals Association, 2014; Lee & Yu, 2013). Many organisations use existing competency dictionaries (Spencer & Spencer, 1993). Some develop competencies from the start, taking into consideration their unique contexts (Caldwell, 2010). Also, some competencies are more generic and aligned to the organisational culture (Human Resources Professionals Association, 2014), while in other cases, the sought-after competencies are very specific and unique. Thus, the purpose for which competencies are designed will determine the method used to design them. In fact, competencies are socially constructed and hence, may have an element of subjectivity (Wiblen, 2016).

Education researchers, for example, design competencies to determine which of them must be developed in teaching and training the right type of professional, in order to make graduates employable (Hempel, 2004). Therefore, the processes followed differ when it comes to designing competencies for organisational and for educational purposes. Competencies designed for the former are mainly reflective, while those designed for the latter are formative in nature.

Competencies, or behavioural indicators that comprise competencies, can be written either formatively or reflectively. Reflective indicators enable an individual to reflect on whether a competency is indicated (Brinckmann, 2007). A reflective assessment might be relevant for organisations wishing to verify whether the training they offered in the area was useful for developing a sought-after set of competencies. Formative indicators enable an individual to improve at a selected competency. Formative competencies pinpoint what indicators people must possess, in order to be considered competent (Brinckmann, 2007).

Competencies associated with the use of technology may be considered as either formative or reflective. From a formative perspective, IT competencies may be viewed as enabling specific behaviours, while from a reflective perspective, they may be viewed as resulting from certain behaviours. Because the use of technology enables

strategic business partnering (Ankrah & Sokro, 2012), competencies associated with the use of technology should also be viewed as enabling strategic partnering. Hence, the IT competencies associated with strategic partnering may be viewed as formative in nature.

While identifying best practices in competency modelling, Campion et al. (2011) suggest that such practices can be categorised into three areas: analysing competency information or identifying competencies; organising that information; and using it. While all three areas are vital in competency modelling, arguably these steps are sequential in nature. In other words, competency information cannot be used before it is organised, and it cannot be organised without having been thoroughly analysed.

### **2.5.2. Competency frameworks for HRM professionals**

Given the need for updated HRM competencies, various researchers and professional bodies have begun developing competency frameworks for HRM professionals. In 2012, the SHRM (2014) undertook a competency study incorporating best practices related to competency development, and including the input of over 1 200 HR professionals. Although technology and IT-related competencies are not mentioned specifically in the framework developed in the course of that study, every competence which it identified has at least one technology-related sub-competence (SHRM, 2014). The same applies to business partnering-related competencies. Importantly, there are both technical and behavioural categories within the identified sub-competencies.

Some of the competency frameworks that have received international attention are those developed by the SHRM, the HRCS, developed by the RBL group in association with the University of Michigan, and the SABPP. While the SHRM model was developed in 2012 in a once-off exercise (SHRM, 2014), the RBL group has, since 1987, developed and updated competencies every four to five years, with the most current data set collected and analysed in 2016. The SABPP competency framework, which was initiated in 2012 and published in 2014, needs to be subjected to empirical research, as the organisation progresses in building HR standards.

In the aforementioned frameworks, IT-related competencies are identified as essential for HRM professionals, irrespective of the country where the framework was developed. According to the HRCS, being a technology proponent is one of the six HR competency domains that will enable HRM professionals to respond to business themes and create sustainable value.

The abovementioned competency frameworks are used by both HRM practitioners (to focus on developing the right skills to contribute strategically) and businesses (to identify the right HRM professionals for certain roles in their organisations) (Uti, 2016). Competency frameworks provide structure in terms of setting out and defining each individual competency required of the individuals working in an organisation (CIPD, 2014). A competency model can serve as an integrative framework for an organisation's entire HR system (Ramlall, 2006). According to Rothwell and Wellins (2004, as cited in Ramlall, 2006), a competency model can help to align the HR system vertically with the organisation's strategic objectives, or horizontally with other HR functions, to ensure harmony and consistency across the many facets of HR activities that impact human performance.

#### **2.5.2.1. The HRCS competency framework**

The RBL group, in association with the Ross School of Business at the University of Michigan, has also identified HR competencies through the HRCS, which has been running since 1987 (HRCS, 2014). In 2012, the HRCS completed the sixth round of the study and identified six competency domains, one of them being that of technology proponent. The other five identified domains include being a strategic positioner, a credible activist, a capability builder, a change champion, and an HR innovator and integrator.

The strategic positioner domain describes the HRM professional as a link between the external context and the business that takes place within the organisation. The technology proponent operates in a competence-based domain, that describes the HRM professional as a user of technology whose goal is to efficiently deliver HR administration, improve customer and employee relationships, and drive strategic development.



In 2016, the HRCS developed a new competency model (see Figure 2.6) in which two technology-related domains are identified. The first is referred to as the technology and media integrator, and the second as the analytics designer and interpreter. These competencies have been detached from the domain of strategic positioner, which is not linked to technology-related competencies. By separating the technology and analytics aspects of the competencies an HRM professional requires, this model may imply that IT competencies and the strategic involvement of the HRM professional are unrelated.

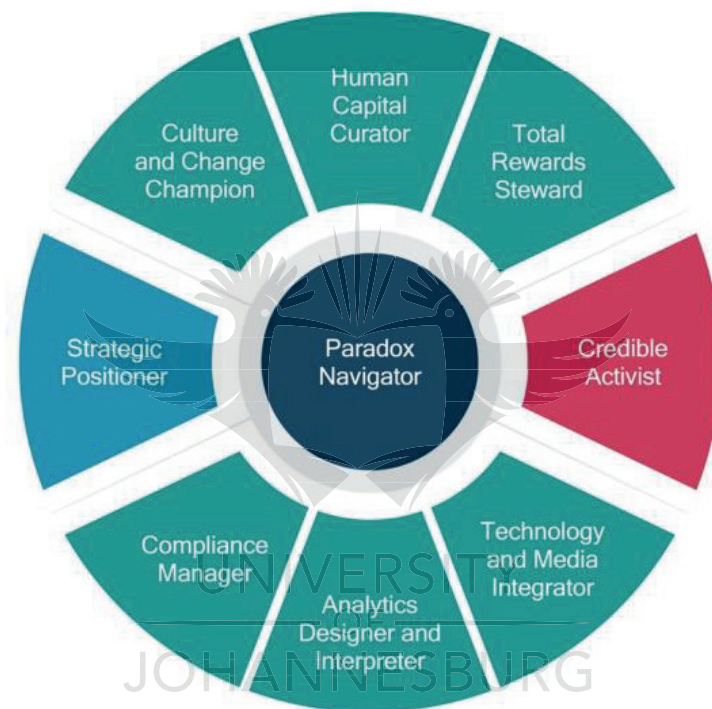


Figure 2.6. The 2016 HRCS Competency Model

Source: Ulrich et al. (2016), p.9

### 2.5.2.2. SHRM competency model

The SHRM competency model, shown in Figure 2.7, does not include any competencies which are specific to strategic business partnering. However, business acumen and critical evaluation are two competencies that can be linked to business partnering (SHRM, 2014). In the HRCS model, the strategic positioner competency domain points directly to strategic business partnering.



Figure 2.7. The SHRM Competency Model

Source: <http://www.shrm.org/hrcompetencies/pages/default.aspx>

### 2.5.2.3. The SABPP competency model

Competency frameworks developed in one country cannot be directly applied to another country, because they may not be suitable for different contexts (McEvoy et al., 2005). Any contextual differences may be due to the different levels of business maturity and general technological appreciation in different countries (Dutta et al., 2015).

In South Africa, the HR survey of 2011, conducted by Knowledge Resources and the SABPP (2014), identified that only 20 per cent of organisations in this country had competency frameworks. The study further indicated that many organisations adopted overseas competency models, without taking into consideration the local context and the specific needs of the South African environment. For instance, due to the skills shortage, HR development has become an important focus area for local HR professionals (Pauw, Bhorat, Goga, Ncube, & van der Westhuizen, 2006).

The Networked Readiness Index (NRI), developed as part of the *Global IT Report*, measures the extent to which countries are prepared to exploit information and communication technology (ICT) opportunities (Dutta et al., 2015). According to the 2015 report, South Africa came 75<sup>th</sup> out of the 143 countries evaluated. In other words,

almost 50 per cent of countries are better prepared to use technology than South Africa is. Thus, competencies developed in a global context – especially those related to IT – cannot be applied summarily or directly to the South African context.

The SABPP has in place a competency framework and standards to guide the performance of HR practitioners in this country, and to promote the creation of performance and developmental targets. The SABPP competency model (see Figure 2.8), launched in 2012, was developed because organisations were largely ignoring the local context. That model includes HR capabilities, the core competencies required of HRM professionals and the pillars of the profession. The SABPP has included strategic HR management as a standard, while naming HR analytics and measurement as two of the five capabilities required of HRM professionals. Notably, these competencies are not elaborated on in detail.

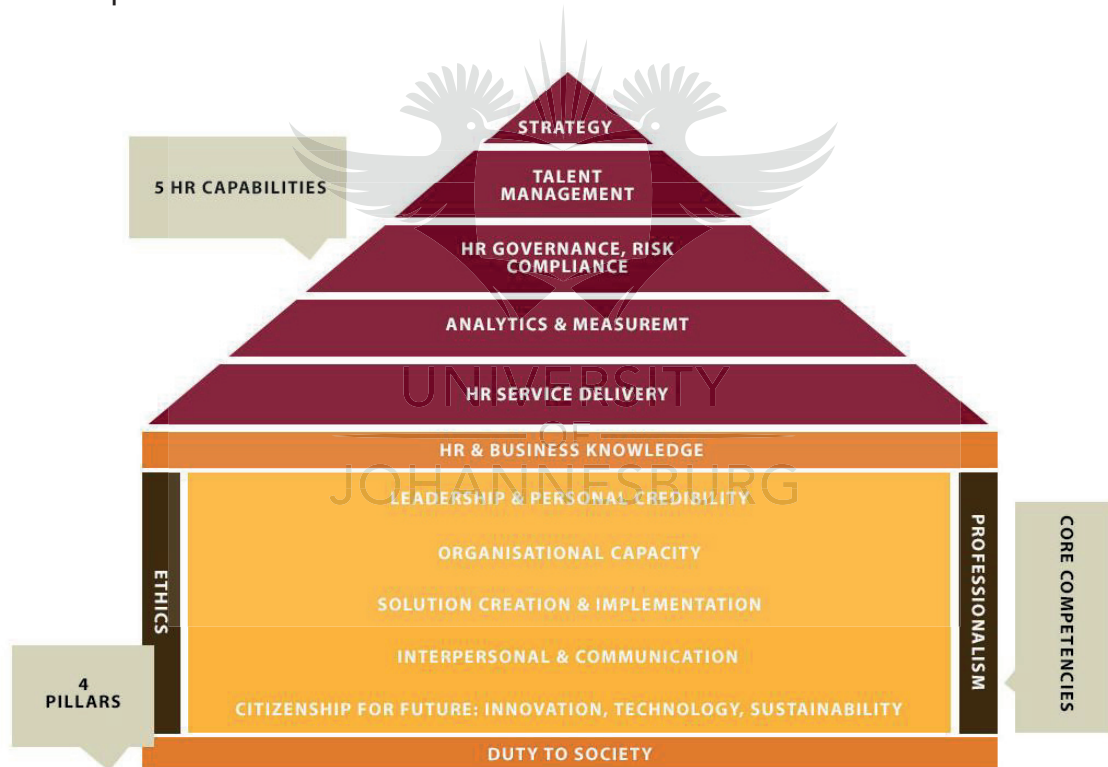


Figure 2.8. The SABPP HR Competency Model 2012

Source: <http://sabpp.co.za/hr-competencies/hr-competency-model/>

Along with the model, the SABPP developed a detailed competency library with behavioural indicators, listed in accordance with levels of work, which caters for both generalist and specialist roles. Analytics and measurement has been identified as one

of five HR capabilities. Also, as part of the larger 'citizenship for future' competency, technology is identified as a core competency required of local HR professionals.

Although HR technology is included as a standard in the SABPP competency framework, it does not define or detail the IT competencies which HRM professionals should have. The SABPP (2014) recognises that the HR technology standard element is the least well established subject within HRM in South Africa, and it therefore presents an opportunity for improved performance within the profession. Such recognition indicates that HR technology is an important component of the HR profession in South Africa. However, since the competency and standard have not been described in any detail, there is room for an in-depth study aimed at determining which competencies HR professionals should have, if they are to utilise HR technology to promote strategic business partnering.

In 2015, the HR functions in many South African organisations participated in a self-reporting exercise, run by the SABPP, to determine the extent to which they met HR standards. On average, all the participating organisations rated themselves at 4.9 out of 10 in respect of the technology standard (SABPP, 2015). Such low ratings indicate a lack of confidence in the ability of the HR functions to utilise technology.

The competency frameworks developed thus far and the competencies identified imply that HRM professionals must think differently about HR (Ramlall, 2006), if they wish to differentiate HRM from other business functions. HRM competency frameworks are often subjected to criticism: for instance, researchers have suggested that HRM professionals and general managers must exhibit similar competencies (Makulova et al., 2015), implying that there is no need for specific HRM competencies. McEvoy et al. (2005) indicate that the identified HRM competencies are generic and often ambiguous, which creates the perception that HRM professionals do not, or need not, exhibit specific competencies. These arguments merit a more thorough investigation.

### **2.5.3. IT competencies**

Lawler III & Mohrman (2003) found that although organisations are adopting fully integrated HRISs, the HR function is not viewed as a strategic function. In several articles exploring the future of HR, the authors discuss the need for HR to be more

strategic, and acknowledge that technology has a part to play (Baill, 1999; Bell et al., 2006; Cohen, 2015; Haines III & Lafleur, 2008; Hannon et al., 1996; Hempel, 2004; Hussain et al., 2007; Roehling et al., 2005; Schramm, 2006; Suen & Yang, 2013; Yeung et al., 1996; Yusoff et al., 2012). Only a few of those articles are, however, concerned directly with the influence IT has on HRM (Bell et al., 2006; Haines III & Lafleur, 2008; Hannon et al., 1996; Hempel, 2004; Hussain et al., 2007; Schramm, 2006). Some of these researchers state that technology can be the platform through which HR becomes a strategic partner to business. In fact, technology will change the way HR is administered in organisations around the world, if it has not done so yet. By using technology strategically, HR can do much more than merely reporting (Díaz-Fernandez et al., 2014; Kovach et al., 2002). To do that, however, HR professionals require certain competencies.

Schramm (2006) indicates that advances in HR technologies and workforce analytics have created new roles for HR professionals, and revealed the need to develop related competencies. The use of HRIS is impacted by changes in the HR function and, in response, changes in that function are impacted by the use of HRISs (Mishra & Akman, 2010).

From a technological perspective, the goal of an HR professional is to use technology so that it can be applied to make decisions in people-related activities within the organisation. The HR professional should be able to use technology to reduce administrative load, obtain and report information quickly and effectively to support business, and contribute strategically to business through accurate predictions. These three purposes are linked as levels: if technology does not reduce the administrative load, then it cannot be used to report accurately. Without accurate reporting, the HR function cannot use technology to contribute strategically to business through accurate predictions.

In fact, as discussed in the section on changes in the HRM profession due to technology, ICTs have affected the way many professionals work. Employees and managers are becoming more involved in HR activities, thanks to technological innovations. End users of technology can complete application forms and determine salary levels, among other things, prompting a higher degree of involvement on the part of employees and managers in HR activities (Hempel, 2004). Self-servicing

improves the accuracy of information for reporting purposes and reduces the amount of time HR professionals spend on administrative tasks.

The use of IT in learning and development allows for the customisation of the training experience, to suit different learning styles and individual needs. Simply transferring existing content online will not be sufficient. HR professionals in the area of learning and development must have a conceptual understanding of simulation and the use of technology in the field, to assist in creating effective training experiences for employees (Hempel, 2004).

The advent of technology has also caused a change in employee profiles (Chauhan et al., 2011). More knowledge workers are now being appointed, compared to the large number of semi-skilled and skilled workers employed previously (Green, 2017). A major management challenge is the improvement of knowledge-worker productivity, as opposed to semi-skilled- and skilled-worker productivity (Hempel, 2004). HR activities, including recruitment, performance management and remuneration practices, are impacted by this change (Kaur et al., 2014; Teotia, 2012; Yuvaraj, 2016). For example, narrow job descriptions that worked for semi-skilled and skilled workers would not be effective tools for knowledge workers, who have broader role profiles that are developed by taking into account team-based processes and projects (Hoch & Dulebohn, 2013).

Technology is the driving force behind the abovementioned changes in the workplace and in the HRM function more specifically (Wahyudi & Min, 2014). Yet, HRM professionals are unable to create tools that can support these changes (Uti, 2016). They must therefore not only understand, but also master, the diverse technologies that influence various HR activities (Hempel, 2004).

HR-related technological applications may also be more complex and may involve data that are more difficult to capture as they relate to human behaviour and interaction, compared to similar applications in other areas of business (Bassi & McMurrer, 2016; Green, 2017; van der Togt & Rasmussen, 2017). It is thus important that HRM professionals have a say in determining which HR technology applications to use and how. Schramm (2006) points out that falling back on the ERP systems

which finance or IT departments rely on, may constitute poor usage of technological applications for HR purposes.

### **2.5.3.1. IT competencies for HR professionals**

Many competency frameworks developed internationally and locally indicate that HRM professionals must be informed of the benefits of using technology, so that they are better prepared for the demands of the workplace. Besides the frameworks discussed earlier, several researchers have indicated the need for a new set of competencies, to enable HRM professionals to add value to the business in the form of strategic partnership and functional expertise (Bell, Lee, & Yeung, 2006; Bondarouk et al., 2009; Hempel, 2004.; Schramm, 2006; Suen & Yang, 2013). Bondarouk et al. (2009) and Suen and Yang (2013) indicate that HRM professionals will require technical training as well as conceptual knowledge in selecting and managing new systems, and they thus advocate the inclusion of HRIS operational and application skills as components of these new competencies.

Poba-Nzaou et al. (2016), who studied the IT competencies HR managers require from a working HR student's perspective, viewed competency as comprising both knowledge and experience, following the view of Bassellier et al. (2001). Knowledge refers to an understanding of the fundamentals of IT, while experience refers to a level of familiarity which comes from performing a job (Poba-Nzaou et al., 2016). Poba-Nzaou and colleagues adapted Bassellier's (2001) framework to incorporate recent changes in the HRIS field, including the growth of the packaged software industry and the increased use of social media – one of the few empirical studies undertaken in this area. Additional domains of competence, based on Younger et al. (2012), were included in the study, namely the leveraging of social media tools, connecting and motivating actors through IT, the use of IT to improve HR function effectiveness and HR management domain knowledge. The IT competencies identified in the Poba-Nzaou et al. (2016) study are indicated in Table 2.1.

Table 2.1.  
*IT competencies required by HR professionals*

Area of knowledge	Definition	Support
<i>IT knowledge</i>		
Knowledge about technology	Knowledge about the current application portfolio in the organisation and/or used by competitors	Bassellier et al. (2001); Marler (2009); Suen and Yang (2013)
Knowledge about basic software	Knowledge about basic software such as the internet, e-mail, productivity software packages	
Knowledge about business IT applications	Knowledge about business IT applications used by the organisation and/or its competitors	
Knowledge about IT adoption and selection for HR management	Knowledge about the process of adopting and selecting a software package for HR management (defining relevant selection criteria, etc.)	Marler and Fisher (2013); SHRM (2012)
Knowledge about IT implementation	Knowledge about the process of implementing an HR information system (defining implementation objectives, selecting team members, specifying a prototype, etc.)	
Access to IT knowledge	Knowing who to connect with, to obtain more information about IT – both inside and outside of the organisation and secondary sources of knowledge (e.g., libraries, the web)	Bassellier et al. (2001); Suen and Yang (2013)
<i>Knowledge of management of IT</i>		
Knowledge about the management of IT for HR management	Knowledge about the management of IT for HR management (allocation of financial and human resources for IT for HR management, setting IT budget, creating IT policies, planning, etc.)	Bassellier et al. (2001); Marler and Fisher (2013); SHRM (2012); Suen and Yang (2013)



Area of knowledge	Definition	Support
Knowledge about the evaluation of IT benefits for HR management	Knowledge about the measurement and evaluation of IT benefits in general, or for HR management in particular	
Knowledge about leveraging social media for HR management	Knowledge about how to leverage social media for business purposes	Ulrich, Younger, Brockbank and Ulrich (2012)
Knowledge about connecting and motivating actors through IT	Knowledge about how to use technology to motivate and help people stay connected with each other	
Vision of IT for HR management	Setting HR management technology strategy (e.g. see IT as a tool either to automate, innovate or transform the HR function)	Bassellier et al. (2001); SHRM (2012)
<i>HR management domain knowledge</i>		
HR management domain knowledge	Mastering of HR management specifically and activities within and outside the HR function, within and outside the organisation	Suen and Yang (2013); Ulrich et al. (2012)
<i>Area of IT experience</i>		
Experience of personal use of computer and productivity software	Experience of personal use of a computer and productivity software package	Bassellier et al. (2001); Marler and Fisher (2013); SHRM (2012); Suen and Yang (2013)
Experience in adoption, selection, implementation or outsourcing of IT for HR management	Experience of involvement in HRIS adoption, selection, implementation or outsourcing processes	
Experience in professional use of social media	Experience in the use of social media for professional purposes	Ulrich et al. (2012)
Experience in the management of IT for HR management	Experience of management of IT for HR management	Bassellier et al., (2001); Suen and Yang (2013)

Area of knowledge	Definition	Support
Experience in the use of IT to improve organisational or HR function effectiveness	Experience in improving the efficiency and effectiveness of HR management systems through technology	Suen and Yang (2013); Ulrich et al. (2012)
Experience in the evaluation of IT benefits	Experience in the measurement and evaluation of IT benefits in general, or for HR management	Bassellier et al., (2001); SHRM (2012); Suen and Yang (2013)

Source: Poba-Nzaou et al. (2016, p. 13)

Hempel (2004) identifies certain competencies that HRM professionals must possess at a minimum, namely an understanding of the relational database model underlying information systems, applied skills in using HRIS applications and the use of media (social and other applications in communication). Basic knowledge of the logic and techniques involved in simulation modelling and expert system design, as well as in-depth understanding of the difference between managing knowledge workers and manual workers will equip HRM professionals to be effective (Hempel, 2004).

The purpose of Hempel's study was to examine HR professional degree programmes to show that a traditional education poorly prepares the profession for modern-day challenges. To test the quality of such programmes, the study identified those competencies that students must possess on completing the programme.

Schramm (2006) elaborates on the various ways in which technology has permeated the field of HR. While it has helped reduce costs and improve the administrative capacity of HR professionals, it can further transform the role of the HRM professional and, in so doing, change the way HR is delivered in an organisation. In the process, Schramm (2006) does not attempt, empirically speaking, to identify what those competencies should be.

The Schramm, Hempel and Poba-Nzaou studies were undertaken in the United States and Canada. Given that there are differences in maturity levels, when it comes to the use of technology in HR in different countries (Quaasar, 2018; Tenhiala et al., 2016),

it is crucial to identify the specific technological competencies which HRM professionals in South Africa require.

Hempel's (2004) study also identified that few HRM programmes include HRIS-related topics in their curricula, and that technology-related topics are not a high priority in HR education. Furthermore, it was affirmed that HR degree programmes were not providing the skills and knowledge needed to satisfy the technology competence required of HRM professionals in the current world of work. Also, the courses that do offer some technology-related HRM only include e-HRM content, not other links.

According to Hempel (2004), HRM graduates are not prepared for the challenges related to using technology in HR. Without understanding the underlying information systems that drive e-HR, HR professionals cannot be expected to use related technologies in their efforts to become effective strategic partners (Hempel, 2004). Managing knowledge workers requires new approaches to skill and performance assessment, as well as leadership and motivational approaches (Hempel, 2004), which can be facilitated and, in many instances, expedited by the use of technology.

#### **2.5.3.2. IT competencies identified in other business fields**

IT is deeply embedded in many areas of commerce that speak the language of business, making it more and more difficult for someone who is not technologically competent to master (Schramm, 2006). In fact, researchers in various fields of business have attempted to identify the technological competencies required in their specific area (Bartram, 2012; Bassellier et al., 2001; Stevens, 2013). In this regard, Bowersox and Daugherty (1995) discuss the paradigm shifts required in the field of logistics due to the advent of IT. Leonard-Barton (1995) identifies four technological competencies that enable innovation in the field of knowledge management, namely an awareness of the firm's skill and knowledge bases, its physical technical systems, its managerial systems and its values and norms. From an organisational learning perspective, Leonard-Barton (1995) also suggests that certain activities can direct employees to develop core capabilities, which include problem solving, implementing internally developed methodology and formal and informal experimentation.

Competency studies – especially in the area of technology – are fairly advanced in the field of health management and nursing. While some researchers have attempted to identify and evaluate the IT competencies needed to work more effectively in nursing (Fetter, 2001, 2009), others have categorised competencies and evaluated curricula to interrogate the extent to which technology is being taught in that field (Fetter, 2001; McNeil et al., 2003). Fetter (2009) identifies and categorises IT competencies at different levels (basic, experienced and advanced) in nursing, while Yee (2002) differentiates between basic and work-related competencies. In the field of nursing education, McNeil et al. (2003) determined that the IT skills taught in nursing curricula differ, depending on the students' level. These studies indicate that developing a generic set of IT competencies will not be sufficient, and that, in the health management and nursing fields, competencies need to be categorised by levels and types. Such categorisation will be useful in health and nursing higher education, as it will facilitate an approach which focuses on those skills which are most appropriate to the level at which a graduate with a particular qualification will operate in the workplace. A similar approach may be effective when identifying and categorising IT competencies in the HRM field.

Professionals in various business functions have realised that the acquisition of IT competencies is necessary for enabling them to contribute strategically to business (Hempel, 2004). For instance, data mining is new to HR, while it is a basic application of database technology that professionals in many business functions have already mastered (Roberts, 2008). Booth and Philip (1998) indicate that the use of IT enables the development of competencies that are essential for ensuring competitiveness, adding that IT can be used as a platform for developing competencies, rather than being regarded as a competency in itself. By contrast, Robey, Boudreau and Rose (2000) suggest that two streams of research must be investigated: the first pertains to the impact of learning on the use of technology, while the second focuses on the impact that the use of technology has on learning. They imply that enhanced technology use leads to improved learning, and that, in turn, improved learning benefits organisations by allowing them to perform better than their competitors (Robey et al., 2000). While some studies imply that technology enables the development of the competencies required for organisational success, it is important to understand which competencies are required to leverage technology, so that

individuals or functions can assist organisations in improving their performance and enhancing their competitiveness.

Business managers must realise that business strategy is the driver for any IT strategy implementation (Henderson & Venkatraman, 1999; Kashi & Friedrich, 2013; Melville et al., 2004). Thus, executing business strategy must be a priority for all functional managers, including HR managers. The competencies expected of top management differ from those demanded of middle and lower management (Kashi & Friedrich, 2013). Top management assumes the role of strategy formulator, while middle and lower management become strategy implementers – something which requires operational expertise. From another perspective, middle and lower management should be able to identify the best possible IT solutions for the function, by looking both externally (at what tools are available in the market and what competitors are using) and internally (at what the organisation requires and what skills the organisation has and must develop) (Hempel, 2004; Hutcheson, 2004). Thus, while there may be a set of general competencies that all managers must possess, many are associated with the level at which managers function in organisations.

As much as IT has an important role to play in organisations, there is increasing concern that the anticipated value is often not derived from an investment in IT (Berghel, 2005; Henderson & Venkatraman, 1999; Kim, Mithas, & Kimbrough, 2017). Henderson and Venkatraman (1999) argue that the lack of alignment between the business and IT strategies of organisations explains their failure to achieve a return on investment. Business managers are expected to share the load of managing IT within the organisation, as they are closer to their functions and can identify the most effective ways to utilise technology (Bassellier, Benbasat, & Reich, 2003; Bassellier et al., 2001). Exploring the IT competencies which business managers should possess at an individual level, has thus become crucial. Many functions in organisations have identified IT-related competencies that will enable them to use IT effectively to improve their offering to the organisation (Bartram, 2012; Kashi & Friedrich, 2013).

### 2.5.3.3. A maturity model of IT competencies

While there is a need for a generic set of IT competencies that must be inherent to all HR professionals, there is also a need for a set which is specific to the level at which an HR professional functions.

As mentioned before, an HRM professional can use technology for the following purposes:

1. To reduce administrative load (present);
2. To obtain and report information quickly and effectively, so as to support business (past); and
3. To strategically contribute to business through predictions (future).

This can be illustrated in the form of a maturity model, as shown in Figure 2.9. The model implies that an organisation cannot achieve level 2 without being successful in achieving level 1, and cannot achieve level 3 without succeeding in achieving level 2.

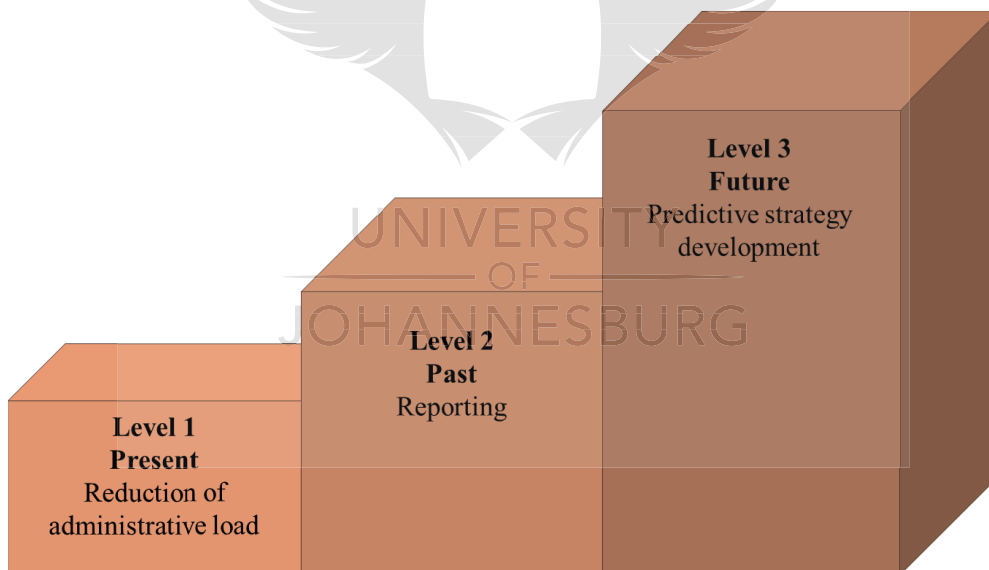


Figure 2.9. Maturity model of HR technology use in organisations

Source: Author's construction.

The different HR technology maturity levels in organisations link to diverse objectives for using technology in HR. For example, at Level 1, an organisation may only use technology for payroll (administration) and basic reporting. If not for any other reason, HR technology must be implemented for cost-reduction purposes and for improving administrative capacity. To achieve the associated benefits, HR professionals should

possess those HR technology competencies which will enable the organisation to move to the next level in the maturity model (Schramm, 2006).

At the second level, organisations use technology for legal reporting, for instance on black economic empowerment as well as strategic reporting. Technology can ensure compliance, especially when HR legislation is complex (Schramm, 2006). At this level, technology offers a means of helping to measure the effectiveness of human capital interventions (Schramm, 2006).

An organisation at maturity level 3 would use predictive analytics and other information for the purpose of making decisions and developing strategy. At this level, workforce analytics are used to make strategic decisions that will enable the business to function effectively, as improved decisions about the workforce will lead to improved resource deployment (Banerjee et al., 2013). At this level, technology becomes a driver of employee productivity.

#### **2.5.3.4. Use of technology across different levels of HR**

The ways in which technology is used at the different levels of HR (junior, middle, senior) are impacted by the maturity level of the organisation, from an HR IT perspective.

In general, the work level of the HR professional dictates use of IT (Haines III & Lafleur, 2008; Suen & Yang, 2013). As indicated in Figure 2.10, a junior- or entry-level HR professional would mainly use technology for administration and day-to-day management-related activities, less so for reporting and least of all for activities aimed at strategy development. A mid-level HR manager should be more involved in reporting than in administration or strategic development, while still understanding and appreciating what happens in those areas of HR technology use. A senior manager would mainly be involved in strategic development, more so than in reporting, and only minimally in administration.

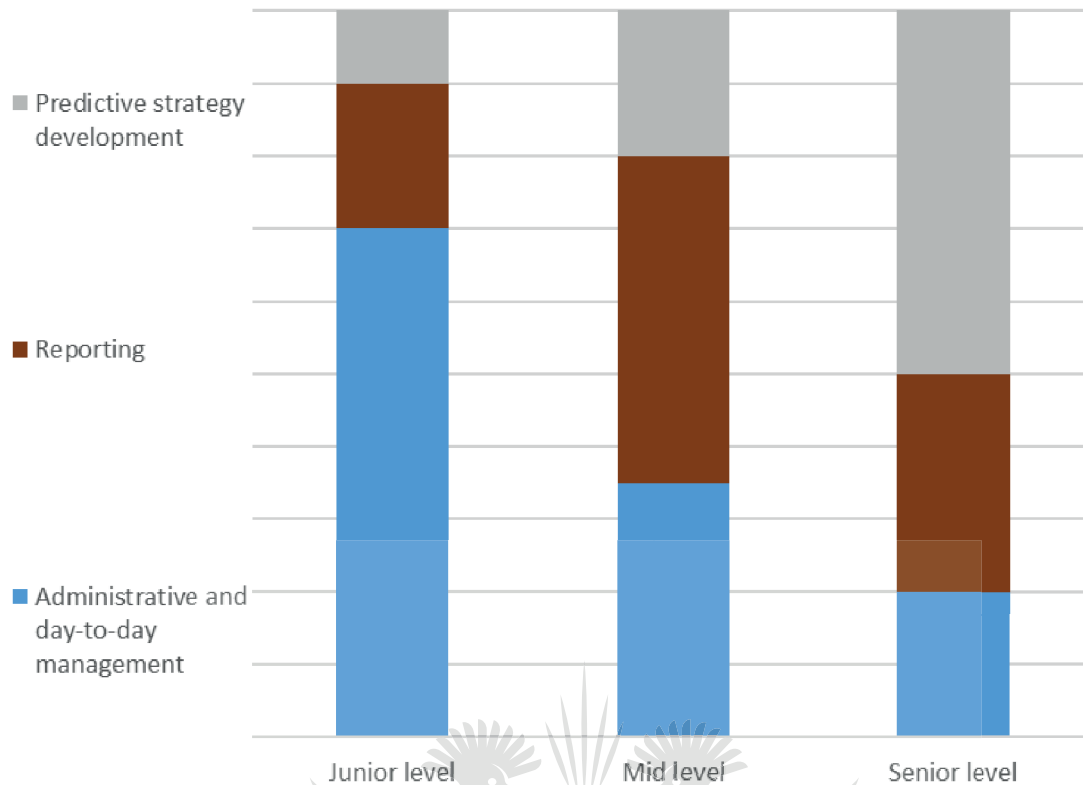


Figure 2.10. Use of technology with seniority in HR roles

Source: Author's construction

In this section, both the IT and non-IT competencies required of HRM professionals were discussed. Various competency frameworks have attempted to structure the diverse competencies expected of HRM professionals, but none of them differentiate based on the seniority of the HRM professional, despite the fact that it has been established that HRM professionals at different levels work differently and interact with IT differently (Poba-Nzaou, Uwizeyemungu, & Clarke, 2018). It is therefore important to consider the different levels of HRM professionals when identifying IT competencies. Specifically, entry-level HRM professionals must be given due consideration, as they can assist their senior colleagues and the organisation as a whole through strategic partnering.

## 2.6. The entry-level HRM professional

An entry-level HRM professional may be described as a recent graduate with limited work experience in the field or, in some instances, in related fields (Feffer, 2016). Because entry-level HRM professionals enter the corporate world with limited or no



experience, the competencies expected of them differ from those demanded of senior professionals (Johnson & King, 2002).

A senior HRM professional could potentially contribute directly to strategic partnering. Ramlall (2006) suggests that such a professional must become a master contributor to strategic HRM, by applying relevant knowledge to specific business settings. In other words, a strategic partner, especially at a senior level, is expected to exhibit a degree of knowledge about strategy, markets and the economy. Ramlall (2006) identifies business knowledge, HR delivery and strategic competencies as important – high expectations for entry-level HRM professionals. Heneman (1999) complements the discussion, stating that speaking the language of the business is an acquired skill which an employee only masters after being in the business for a while. If strategic collaboration is left to more senior strategic business partners, that leaves entry-level HRM professionals with an opportunity to develop competencies in other fields. As Sincoff and Owen (2004) argue, senior managers may be more aware of long-term and higher-level organisational needs than entry-level HRM professionals.

There are further indications that the competencies required of senior HRM professionals differ from those expected of their mid- and entry-level colleagues. Ramlall (2006) proposes that while the HR executive and/or senior professional provides input into the firm's strategy, the rest of the HR function needs to ensure that HR programmes and practices are in place to implement the strategy effectively. However, transactional issues continue to overwhelm the HRM function, preventing senior professionals from being the strategic partners they should be, especially at their level of seniority (Ramlall, 2006). Thus, it may be beneficial for senior HRM professionals if a competency framework is developed for their entry-level colleagues, as it will enable the separation of responsibilities among entry-, mid- and senior-level employees, thereby allowing the latter to concentrate on strategic partnering.

There have been limited attempts to differentiate between the competencies required of senior and entry-level HRM professionals. Sincoff and Owen (2004) point out that discussions in the literature focus predominantly on the challenges facing HR executives and senior managers, and place considerably less emphasis on the preparation of new HR job entrants. In fact, the few researchers who discuss curriculum matters prescribe curricula based on their knowledge of the field, rather

than on empirical evidence (Coetzer, Ryan, Susomrith, & Suseno, 2017; Heneman, 1999; Sincoff & Owen, 2004). Ramlall (2006) remarks that the majority of HRM professionals, irrespective of seniority, associate most strongly with operational competencies such as managing organisational change and demonstrating business knowledge. The lack of categorisation is all the more pertinent when it comes to IT competencies specifically: the competencies demanded of entry-level HRM professionals have not been empirically identified, particularly not in respect of linking them to strategic partnering with business. This gap is indicative of a lack of in-depth research in the area.

### **2.6.1. Strategic role of entry-level HRM professionals**

While the general narrative around HRM is that professionals must contribute strategically, it is possible to focus too much on being strategic, without realising that the function cannot be strategic unless it shows operational and functional excellence (Dulebohn & Johnson, 2013). An entry-level HRM professional can contribute towards achieving operational excellence, so that more senior HRM professionals can apply this excellence and the data obtained from such operational and functional activities to make strategic contributions to the business (Kochan, 2004; Nagendra & Deshpande, 2014). Therefore, while some may separate strategic partnering from operational excellence and championing for employees, as diverse competencies which make for a successful HRM professional, it may not be that simple to isolate them in reality.

Entry-level positions are becoming just as relevant as senior positions (Poba-Nzaou et al., 2016). Those entering the job market in recent times have an array of competencies to draw on, especially from a technological and techno-social perspective. It is therefore important that the HRM profession focus on entry-level HRM professionals and the role they must play upon entering the workplace (Cohen, 2015).

The reputation of the profession is at stake, if the roles of HRM professionals are not well defined and ideally suited to the needs of organisations (Cohen, 2015). If top management feel that the HR function is not adding internal strategic value, they will

select the cheaper option of outsourcing administrative activities, thereby reducing HRM to an administrative profession, as it was at the outset (Kock et al., 2012).

### 2.6.2. Entry-level HR business partnering competencies

Hunter (1999) acknowledges that different HR professionals have different IT abilities, given that IT systems are constantly evolving. Considering that HRM professionals at different levels utilise IT in different ways, the levels of work identified through Elliott Jaques' (1986) stratified systems theory can be used to categorise the IT competencies of entry-level HRM professionals. The competencies (knowledge, skills and attributes) required at the levels of work at which these professionals operate, need to be identified and classified according to the levels of work at which they operate, as indicated in

Table 2.2.

Table 2.2.  
*Time-spans and desired organisational layers*

Stratum	Time-span	Level	Convenient planning time-horizon
VII	20 years	CEO (Large corporate)	25 years
VI	10 years	Managing director	12 years
V	5 years	Director	7 years
IV	2 years	Departmental Manager	3 years
III	1 year	Unit Manager	1 year
II	3 months	Section Manager/ Supervisor	Quarterly
I	1 day	Clerical/ Operator	Assigned tasks

Source: Adapted from Jaques, Bygrave and Lee (2001)

While various studies indicate the need for a new set of competencies for HRM professionals, following changes in the field, most focus on senior and executive HRM professionals (Roehling, Boswell, Caliggiuri, Feldman, Graham, Guthrie, Morishima, & Tansky, 2005). The competencies expected of entry-level HRM professionals have rarely been discussed, although the need to identify such competencies has been endorsed (Yeung et al., 1996). Yeung et al. (1996) further suggest that universities must work with corporates to capacitate graduates with competencies that will help them succeed in the profession. Also, changes in higher education focus more on

entry-level and less on senior positions in HRM, as the more senior positions are influenced by context-specific factors and business operations (Caldwell, 2008). Specifically in South Africa, providing entry-level HRM professionals with the skills to use technology might improve the use of HR technology, especially considering that the implementation of technology has generally been poor and ineffective (Dutta et al., 2015).

### **2.6.3. Competencies for entry-level HRM professionals**

Bell et al. (2006) discuss the need for a competency framework that will improve the strategic effectiveness of HRM, while outlining the business knowledge and related competencies HRM professionals require. In an early attempt to emphasise the need for analytical skills in HR graduate education, Heneman (1999) suggests that the primary skill sets being developed should include analytical and leadership process skills. However, there has been limited discussion of the technological competencies entry-level HRM professionals require, if they are to become more effective business partners. Also, developing a competency framework will help to reveal what expectations those young professionals have.

### **2.7. Synopsis of literature**

As discussed in this chapter, IT has revolutionised society and business in general and the HRM function specifically. The role of IT in transforming HRM from an administrative function to a strategic function has also been deliberated in literature, considering HRISs, e-HRM and other forms of technology available to HRM professionals (Mishra & Akman, 2010; Nagendra & Deshpande, 2014; Vosburgh, 2007). Although there are several organisational factors that affect the use of HR information and HR technology, it was established that IT has influenced the HRM profession, irrespective of the various factors considered.

Subsequently, the effect of IT on the HRM function, profession, roles and responsibilities of HRM professionals was considered. Literature ascertains that varied use of IT in HRM functions in different organisations has led to inconsistencies in the delivery of various HR activities (Kaur et al., 2014). Furthermore, organisations are

expecting HRM professionals to contribute strategically through the use of HR technology available to them. But, HRM professionals may be uncertain about how to utilise such technology in a systematic and holistic manner. Thus, a methodical approach to the use of IT in HRM would benefit both HRM professionals and organisations. However, HRM professionals may need to use IT differently at different levels and for different purposes (Poba-Nzaou et al., 2018).

Thereafter, the role played by the use of HR technology in the strategic partnering capability of the HRM function was studied (Kryscynski et al., 2018; Lawler III & Mohrman, 2003). HR information, obtained through the use of HR technology, can be utilised by HRM professionals to contribute strategically to the organisation (Ankrah & Sokro, 2012; Farndale & Sanders, 2017). Quinn and Brockbank (2006) suggest that while entry-level HRM professionals may not be able to use HR technology to contribute strategically, IT competencies may provide them the foundation to do so later.

There is limited literature linking IT competencies to strategic business partnering, especially for entry-level HRM professionals. Thus, the first objective of this study is to identify and define the IT competencies that contribute to strategic business partnering, specific to entry-level HRM professionals. The second objective of this study is to structure these IT competencies into a framework that will enable organisations and higher education institutions to develop entry-level HRM competency. By achieving the third objective, which is to determine the extent to which each identified competency enables strategic business partnering, a hierarchy of competencies are suggested.

Competencies and competency frameworks are also explored in this chapter in order to appreciate the approach adopted in this study. Literature associated with the role of the entry-level HRM professional and associated competencies is also deliberated (Bell et al., 2006; D. J. Cohen, 2015; Poba-Nzaou et al., 2016).

Thus, while there is sufficient indication that the use of IT in HR can enable strategic business partnering, literature does not detail the IT competencies required of entry-level HRM professionals to be strategic business partners. Furthermore, the relationship between IT competencies and strategic business partnering has also not

been examined sufficiently in literature. The study aims to contribute practically by developing an IT competency framework for entry-level HRM professionals that will enable them to strategically partner with business. Theoretically, the study aims to contribute to the understanding of relationships between the identified IT competencies and strategic business partnering.

## **2.8. Conclusion**

The aim of this study is to develop a framework of IT competencies that will enable entry-level South African HRM professionals to contribute as strategic partners to business. Most of the literature focusing on the IT competencies of HRM professionals is conceptual, and a limited number of articles offer empirical evidence to support their claims. Furthermore, there has been no attempt to specify which IT competencies will enable entry-level HRM professionals to undertake strategic business partnering, thus clearly there is a need for empirical data and fieldwork in this area. Taking into consideration the specific context of South Africa, such empirical evidence will be of benefit to the field of HRM.

When one considers the maturity of technology-enabled people practices in South Africa (SABPP, 2014), a generic set of competencies becomes useful. Also, given the higher education needs of this country, the developed competencies would be a good starting point from which to build the curriculum, and identify appropriate teaching and learning methods.

## Chapter 3: Research method

### 3.1. Introduction

Research is based on certain underlying philosophical assumptions about what it entails, and what methods are appropriate for developing knowledge in a given field (Johnson et al., 2007). Determining and describing the research design and method are crucial for obtaining answers to the research questions posed (Saunders, Lewis, & Thornhill, 2016). In this chapter, how the research question of this study was answered is explained. One of the aims is to describe how this study was conducted in terms of the research philosophy subscribed to, the research approach taken and the methodologies chosen to address the stated objectives. In addition, the chapter outlines the research strategy employed, and the techniques and procedures used to collect data prior to their subsequent analysis. Also motivated are the choices made with regard to research philosophy, approach, methodology, strategy and techniques. In conclusion, the focus falls on the mechanisms employed to ensure quality and scientific rigour, and adherence to ethical considerations.

### 3.2. Research objectives and key concepts

The aim of this study was to develop a framework of IT competencies that will enable entry-level South African HRM professionals to be strategic partners to business. Developing such a framework first required that the competencies be identified and verified, before ascertaining additional competencies, taking into consideration context-specific factors. Once the competencies had been developed, a framework was constructed. Following this, the competency framework was verified within the work environment, to confirm whether HRM professionals identify with those competencies and agree that their development in entry-level HRM professionals will enable the latter to contribute as strategic partners to business. The description of the research objectives and process suggest a phased approach to the method applied in this study. Accordingly, the study is broken down into two phases, described later.

### **3.3. Research philosophy**

The descriptions of the research objectives and concepts involved in the study, suggest a pragmatic research paradigm and an associated mixed-methods approach. Therefore, in this section, the choice of the dialectical pragmatic research paradigm, and the epistemology, ontology and axiology of the researcher are discussed (Saunders et al., 2016).

#### **3.3.1. Research paradigm**

While Kuhn (1962) discusses research paradigms as worldviews that reflect a researcher's assumptions about reality (ontology) and methodology, Guba and Lincoln (1994) state that paradigms must also reflect the researcher's assumptions of ethics and epistemology. Guba and Lincoln (1994) reject Kuhn's (1962) view that the scientific community only experiences paradigm shifts when a phenomenon cannot be further explained according to its current research paradigm: rather, in their view, different paradigms lead to diverse assumptions about the nature of systematic inquiry. Thus, Guba and Lincoln (1994) allow for the recognition of different paradigms that start with divergent philosophical assumptions as valid ways of conducting research.

The research paradigm adopted in this study is that of pragmatism and, more specifically, dialectical pragmatism (Johnson & Gray, 2010). To review the case for pragmatism, it is important to first clarify the concepts comprising the philosophical dimensions of social and behavioural research. As opposed to other research paradigms (such as positivism and interpretivism), pragmatism should be understood not as a philosophical position, but as a set of philosophical tools that can be used to address problems (Biesta, 2010; Creswell, 2003). In fact, pragmatism is better suited to certain research questions than other philosophical approaches are (Biesta, 2010).

Researchers who adopt the interpretivist philosophy consider reality to be socially constructed (Saunders et al., 2016). The meaning they attach to reality is affected by their values, the way they see the world, other people's meaning, and the compromises and agreements that flow from negotiations (Fisher, 2007). According to interpretive researchers, one cannot understand how others make sense of things,



without a deep knowledge of one's own values and thinking processes (Saunders et al., 2016). By contrast, according to Goldkhul (2012, p. 137), "pragmatism is concerned with action and change and the interplay between knowledge and action", which makes it appropriate for research approaches that intervene rather than observe. While qualitative research is associated with the interpretivist paradigm, Goldkhul (2012) highlights the need for more open and detailed ways of studying various complexities. In the present study, an element of interpretivism comes into play, as axiological views and how they may have affected the research are clarified. This is expected when using a dialectical pragmatic paradigm, as indicated below (Johnson & Gray, 2010).

While positivism uses experiences to verify statements, pragmatism uses them to verify worldviews or theories (Creswell, 2003). A central idea of pragmatism is that engaging in philosophical activity serves to address a problem which needs to be solved, rather than building systems (Biesta, 2010). The purpose of this particular study is to identify the technological competencies, which entry-level South African HRM professionals require, to become strategic business partners.

Furthermore, a pragmatic paradigm assumes that research occurs within specific social, political and other contexts (Creswell, 2003). Technology is dynamic, as is strategy (Rasmussen & Ulrich, 2015). HRM professionals are also dynamic and flexible, adapting to changes in the external world (Op de Beeck et al., 2018). While both technology and the HRM professionals adapt to change, the HRM environment demands processes that are clear and robust (Mamman & Al Kulaiby, 2014). Thus, the stated problem is current as much as it is futuristic, and attempts to resolve it may reveal further problems (Biesta, 2010). If this question remains unanswered, the profession may be at a loss as to why HRM professionals are not proving to be strategic (Lawler III & Mohrman, 2003).

Dialectical pragmatism was developed for mixed-methods research (Johnson & Gray, 2010). Especially in the social sciences, dialectical pragmatism points to multiple viewpoints, all of which require listening and careful consideration on the part of the researcher (Johnson, 2009; Johnson & Gray, 2010). The term 'dialectical' emphasises that both qualitative and quantitative perspectives require careful listening to, consideration of, and dialogue reflecting, both approaches, so that participants can

learn from the natural tensions between these perspectives. To answer the research question posed in this study, multiple perspectives were considered, including the qualitative and quantitative.

### 3.3.2. Ontology

Ontology refers to the assumptions and beliefs that we hold about the reality that is the object of research (Saunders et al., 2016). A researcher's ontological assumptions determine the kind of knowledge the researcher is looking for (Creswell, 2003).

Through a social ontological assumption, the world is viewed as one of meaning and interpretation (Biesta, 2010). In making a case for social ontology, the existence of mechanistic ontology, whereby the world is viewed as comprising causes and effects, is not denied. In fact, the development of a competency framework, which is an objective of this study, will lead to improved curricula and selection (and other HR) processes which will result in improved HR practices. The development of the competency framework itself is an outcome of a cause-and-effect scenario. The advent of technology and the transition of HR from an administrative to a strategic function have highlighted the need for a new framework of competencies. Only looking at what caused this need would not help to generate meaning about what has happened or how it can be used to benefit the profession. Thus, to understand individual and social action meaningfully – not just as cause and effect – a social ontological assumption must be introduced (Johnson & Gray, 2010; Krauss, 2005).

This study seeks to understand, whereas interpretative research attempts to generate understanding by articulating the intentions and reasons for action (Biesta, 2010). Interpretative research differs from explanatory research, which attempts to identify causes, factors or correlations, and, in doing so, to create knowledge which can be used to influence future events (Davidsen, 2013; Lopez & Willis, 2004). In some ways, human action is caused, therefore one must look at the causes of action. In other ways, human action is motivated, therefore one must look for the intentions and reasons behind actions. The business world is an open system, hence interactions between factors tend to become more complex and less predictable. In the second phase of this study, factors or correlations are identified, thus the study has elements

of explanatory research. But the connections that are identified are originally achieved through interpretative acts in the earlier phases. Thus, the ontology incorporated in this study is social, as opposed to mechanistic (Biesta, 2010).

### **3.3.3. Epistemology**

Epistemology refers to the philosophy of knowledge or how we come to know (Krauss, 2005). The epistemological belief that the researcher used in this study to design and justify the methods applied, is constructivist. All knowledge contains subjective elements. Taking into consideration the research question and the field of study, it is not possible to gain information about this subject which is independent from the knowers (Biesta, 2010; Mills, Bonner, & Francis, 2006).

The epistemological position of dialectical pragmatism is that there are multiple routes to knowledge (Mertens, 2012). Researchers can make 'warranted assertions', not claims of unvarying truth (Johnson & Gray, 2010). Likewise, modern epistemology must answer the question of how the mind interacts with the external world. In this study, the researcher sought to understand the views of experts and practitioners in the field, regarding the IT competencies expected of entry-level HRM professionals. Those activities in which both experts and practitioners were involved, which they could not execute, enabled them to recognise which competencies an entry-level HRM professional must exhibit, in order to act as a strategic partner to business.

In following the constructivist approach, the best way to understand a phenomenon is to immerse oneself in it (Krauss, 2005). However, the researcher also recognises that a model may be constructed using the findings of such an immersion. Thus, utilising several methods enabled an appreciation of a phenomenon from different perspectives and, as a result, produce models that may be of practical use to stakeholders in the field.

### **3.3.4. Axiology**

Axiology relates to the role of values and ethics in the research process (Saunders et al., 2016). Values guide all human action (Heron, 1999, as cited in Saunders et al.,

2016). Therefore, by clarifying the values used to make judgements about the purpose of the study, and how it was executed, axiological skill may be demonstrated (Heron, 1999, as cited in Saunders et al., 2016).

In light of the various changes occurring due to the advent of technology in business and society, the researcher participated in numerous debates on the future of organisations and work. Many of the administrative and repetitive tasks which employees traditionally performed have since been automated, leading to job losses (Shava & Hofisi, 2017). However, employees can continue to be strategic assets to an organisation's success, if companies identify and develop the competencies employees must exhibit to ensure organisational success. Therefore, organisations require a function that manages their employees, mindful of innovations that are occurring in the field. This calls for a change in the functioning of the HRM department within organisations. Therefore, the evolution of HRM is at a crucial juncture, where professionals are presented with an opportunity to elevate their profession.

The researcher views technology (and IT specifically) as an enabler that can enrich the lives of employees, rather than substituting them. Specifically, in the case of HRM, the use of IT can enhance the profession, by enabling professionals to provide reports and recommendations to decision makers. However, because IT is not being afforded careful consideration in HRM under- and postgraduate curricula, academics in the field may be doing a disservice to the profession, which could lose credibility as a result.

With this study, the researcher sought to understand what expectations there are of HRM professionals, with regard to the use of IT in strategic business partnering. Once such an understanding had been developed, it would be possible to create a competency framework, guiding entry-level HRM professionals on how to utilise IT as they fulfil their role as strategic partners to business. In turn, that would also clarify how entry-level HRM professionals can develop themselves.

The principles of constant improvement and continuous learning are valued in this study. Furthermore, while some competencies come naturally to individuals, others can, and have to be developed. Organisations can therefore identify and develop employees with the required competencies, once such competencies have been identified.

The problem that this study tries to address is viewed as current and immediate, since the proper functioning of the HRM profession is important to the wellbeing of employees within an organisation. Thus, a pragmatic paradigm was adopted in this study. Additionally, multiple perspectives from different angles enrich a situation. Thus, dialectical pragmatism was deemed an appropriate choice for the research philosophy of this study.

Finally, the researcher is fully aware that her personal values might have influenced the findings of this study. However, being aware of such potential influence, various mechanisms to safeguard the study were adopted. All such mechanisms are discussed in the upcoming sections, starting with the research approach.

### **3.4. Research approach**

The dialectical pragmatic paradigm adopted in this study emerged from John Dewey's theory of knowing (Dewey, 1906). Theories are instrumental, not fully true or false (Carlile & Christensen, 2004). They are useful for predicting, explaining and influencing desired change. Dewey's theory of knowledge (or theory of knowing) rejects dichotomous 'either-or' thinking (Johnson & Gray, 2010; Johnson & Onwuegbuzie, 2004), as does classical pragmatism.

According to Dewey's theory of knowing, knowledge comes from person-environment interaction (Biesta, 2010; Dewey, 1906). Moreover, knowledge is both constructed and empirically discovered. Values are incorporated directly into inquiry, endorsing equality, freedom and democracy. "Knowing is always a result of our actions, and hence, knowledge can only provide us with information about connections between actions and consequences, not with once-and-for-all truths about a world independent from our lived lives" (Biesta, 2010, p. 96).

To answer the research question of this study, Dewey's (1906) theory of knowing was adopted. Knowledge of which IT competencies HRM professionals require, can be gleaned from their interactions with their environment, be it from a technological or a partnering perspective. Also, such knowledge is constructed and, on occasion, emerges from empirical discoveries made by diverse stakeholders in the field. Thus, the disparate viewpoints related to this problem must be carefully considered. Such a

view points to dialectical pragmatism, where both qualitative and quantitative perspectives are considered (Goldkhul, 2012; Guetterman, Babchuk, Smith, & Stevens, 2019).

### 3.4.1. Theory-building approach

The theory-building approach incorporated in this study has been adopted from Carlile and Christensen's (2004) cycle of theory building in management research. According to this approach, theory building occurs in two major iterative stages, namely the descriptive and the normative. Carlile and Christensen (2004) view theory as a body of knowledge constructed cumulatively as researchers go through the various steps in the descriptive and normative stages of theory building. Before researchers can develop normative theory, however, they must work through the preliminary descriptive stage (Carlile & Christensen, 2004) (see Figure 3.1).

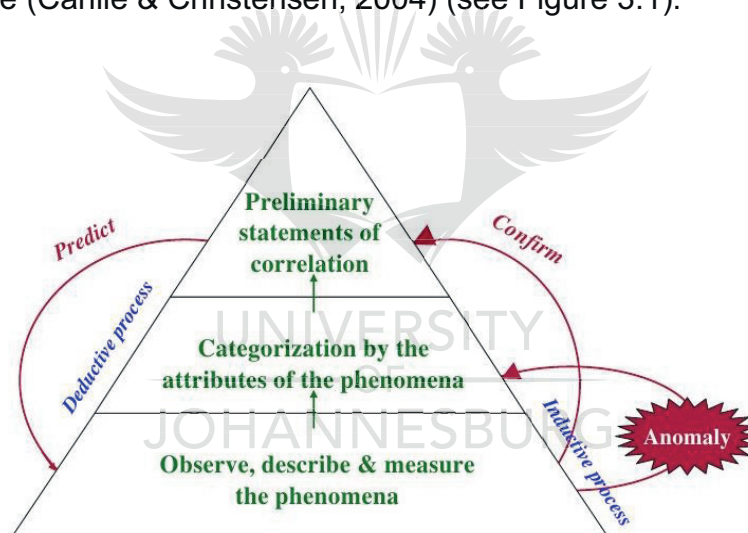


Figure 3.1. The process of building theory

Source: Carlile and Christensen (2004, p. 5)

During the descriptive stage of theory building, researchers proceed through three steps: observation, categorisation and association (Carlile & Christensen, 2004). Observation sees researchers observing, describing and measuring various phenomena. This foundational work is important and should be done carefully, as any further work on theory will be based on the outcomes of this step. Abstractions (termed

'constructs') are often developed during this step (Carlile & Christensen, 2004; Krauss, 2005).

Once observation is complete, researchers arrange the phenomena into categories during the second step, which is classification. Classification schemes are usually defined by the attributes of the phenomena under study. This step attempts to simplify and organise, therefore classification schemes (known as frameworks or typologies) ultimately highlight the possibly consequential relationships between phenomena and outcomes (Carlile & Christensen, 2004).

In the third step, researchers explore, recognise and define the relationship between the observed attributes and outcomes, as any identified correlations will enable them to develop models. Carlile and Christensen (2004) note that, in descriptive theory building, one can only make probabilistic statements of associations based on the degree of correlation between attributes and outcomes of interest. To know what attributes will deliver the desired outputs, normative theory must be developed in the field (Carlile & Christensen, 2004).

In the first phase of this study, a modified Delphi technique helped to achieve the first two steps of developmental theory building, namely observation and categorisation. This technique, which is used to obtain convergence on real-world issues, has been modified here to incorporate open-ended questions (Hsu & Sandford, 2007). First, the IT competencies which will enable entry-level South African HRM professionals to be strategic partners to business, based on the responses obtained from the participants, are described. These responses were analysed, with a view to classifying the identified IT competencies. The second phase of this study – a survey distributed among HRM professionals – served two purposes: to classify the identified IT competencies in relation to strategic business partnering, and to determine the relationship between the identified competencies and strategic business partnering.

Carlile and Christensen (2004) further suggest that the theory-building process is both inductive and deductive. They view the deductive approach as complementing and completing the inductive approach, instead of viewing both approaches as dichotomous. As researchers progress from the base of the pyramid to its top, as indicated in Figure 3.1, they are following an inductive research approach. By contrast,

a deductive approach moves in the inverse direction – a process which involves starting with a hypothesis which, consciously or unconsciously, is derived from an inductive process (Carlile & Christensen, 2004; Turner et al., 2018). Thus, before following a deductive approach, an inductive approach is recommended. The research process moved from the base of the pyramid to its top, following an inductive approach.

### **3.5. Mixed-methods research**

Mixed methods are used when there is a need for “breadth and depth of understanding and corroboration” (Johnson et al., 2007, p. 123). The immediate goal in using mixed methods is to make warranted assertions and produce workable ‘solutions’ for valued ends. According to Johnson and Onwuegbuzie (2004), a combination of methods that will work best for answering the research question should be chosen. The fact that the research question is given primary importance points to a pragmatic worldview. Ultimately, the creativity in social inquiry lies in how different approaches can be combined to yield the most fruitful results (Johnson & Gray, 2010).

This study intends to have practical significance for human action and to be transformational (Greene & Caracelli, 1997). When analysing the objectives of a study, the relationship between research and practice must be looked into. Biesta (2010) distinguishes two ways in which research connects with practice, namely by performing a technical and a cultural role.

In its technical role, research provides means and techniques which practitioners can use to achieve certain ends. Through this study, the researcher intended to develop a competency framework to serve as a tool which organisations and practitioners can use for improved recruitment, development and performance management. Further, the competency framework will also enable novice HRM professionals to serve as effective strategic partners. This reflects the technical role of the study. In respect of its cultural role, research offers practitioners different ways of looking at and understanding their practice. Biesta (2010) argues that although the technical and cultural roles of research are distinct, they do intersect.



Here, the technical role of the study supports its cultural role, by enabling HRM professionals and other stakeholders to view and appreciate HRM as a practice. If HRM professionals use the competency framework as a tool to work better with business, both they and business managers will view the profession and its relationship with business in a different light. Thus, the cultural role of the study will be achieved by putting forward guidelines for doing exactly that.

Conversely, if the study provides HRM professionals and business managers with new ways of understanding practice and their role as strategic business partners, it could create a situation where the technical tools developed here are used effectively and productively. Thus, the practical intention behind this study is deemed to be both technical and cultural in nature (Biesta, 2010).

Induction refers to reasoning which progresses from the particular to the general, while deduction refers to reasoning which moves from the general to the particular (Johnson & Gray, 2010). This study is inductive in nature, as opposed to deductive. The first phase of this study, which incorporates qualitative aspects, indicates the exploratory nature of an opaque field of study, from which new generalisations are likely to emerge. The second phase, which is quantitative in nature, involves the testing and reinterpretation of the knowledge derived from the qualitative phase.

Here, the traditional dichotomy of qualitative method versus quantitative is rejected (Plowright, 2011). A mixed-methods approach is adopted, because attempting to answer the research question using only one of these methods would impose limitations on the study.

A framework is, however, necessary to structure the study, and to indicate which processes and activities will be undertaken (at least in a conceptual manner). Such a framework enables those involved to integrate the different aspects of the study into a coherent whole, ensuring the effective investigation of the phenomenon under scrutiny (Plowright, 2011).

According to the framework for integrated methodology which Plowright (2011) proposes, the research question is the starting point of the research process. When developing the question, the professional, organisational, policy, national and

theoretical contexts must be considered. In the current study, the context was considered in chapters 1 and 2, while the contributions this study makes to those contexts, is discussed in Chapter 5.

Departing from a pragmatic paradigm, the researcher attempted to find the most appropriate and best suited answers to the research questions. For this reason, different methods for answering the sub-questions that feed into the main research question were identified. The need for multiple research methods to optimise data collection, explore the breadth and depth of data collection, and ultimately better understand the topic was realised (Krauss, 2005). Table 3.1 indicates the sub-questions and methods used to answer them.

Table 3.1.  
*Relating the methods used to the research sub-questions*

Sub-question	Method	Purpose	Stage of theory building
What IT competencies must entry-level South African HRM professionals possess to be strategic partners to business?	Phase 1: Modified Delphi technique	To determine competencies that may not previously have been identified	Observation
How can the identified competencies be categorised into a competency framework?	Phase 1: Modified Delphi technique Phase 2: Survey among HRM professionals	To establish their importance and rank identified competencies in context	Categorisation
To what extent do the identified IT competencies enable entry-level South African HRM professionals to be strategic partners to business?	Phase 2: Survey among HRM professionals	To verify the relevance of all identified competencies in the working environment and test the competency framework	Association

As indicated in Table 3.1, the research strategy employed to achieve the aim of this study was organised into two phases, encompassing two research methods.

From a design perspective, Creswell (2003) distinguishes mixed-methods research designs as sequential exploratory, sequential explanatory, sequential transformatory, concurrent triangulation, concurrent nested and concurrent transformative design (see also Biesta, 2010). By categorising mixed methods into these different types, various

aspects of research design are addressed. First, it outlines the implementation of the research study, which indicates the sequence of data collection. Another aspect that is prioritised is the balance between the qualitative and quantitative perspectives. The different types of mixed methods also differentiate the stage of integration, and at what stage of the study integration takes place. Lastly, it reveals the theoretical perspective of the study.

An exploratory sequential design was adopted (Creswell, 2010), whereby an exploration is first performed qualitatively, and then verified and followed up quantitatively. Data were initially collected through the modified Delphi technique. Qualitative data were prioritised, with quantitative data verifying and following up the data obtained during the qualitative phase. Through this process, a verified framework of IT competencies that will enable HRM professionals to be strategic partners to business was developed. Each phase of the study is described below, in order to appreciate the process followed.

Exploratory research is appropriate for a problem that has not yet been studied fully, so that priorities can be established and operational definitions developed (Stebbins, 2001). Prior to this study, theories regarding the implementation of IT within the HRM function of the organisation were developed, while other aspects related to the use of technology were explored before the study was designed (Marler & Parry, 2016; Poba-Nzaou et al., 2016). However, as the IT competencies that will enable HRM professionals to become strategic business partners may not have been studied specifically before, exploration was deemed to be an appropriate mechanism for interrogating this aspect.

### **3.5.1. Splitting the study into phases**

As the research philosophy and approach pointed to a two-phased study, each phase is discussed separately. For each phase, the researcher discusses the strategy adopted and the research design implemented. In considering the research strategy, the focus falls on the rationale for the methods selected, key assumptions and limitations of the methods, and the role of the researcher in the methods. From a research design perspective, the research setting, participant profiles, sampling and

data analysis procedures are then detailed. Finally, the strategies used to ensure research quality are discussed. Only after Phase 1 has been fully reviewed, does the researcher broach the research strategy, design and quality, as these apply to Phase 2.

### **3.6. Phase 1 – Modified Delphi technique**

As mentioned in Table 3.1, the modified Delphi technique was utilised in the first phase of the study. The Delphi technique is a widely accepted method for gathering data and obtaining consensus on real-world knowledge from participants within their area of expertise (Hsu & Sandford, 2007; Raghav, Kumar, & Bhardwaj, 2016; Skulmoski et al., 2007). It is a group communication process which allows for detailed examinations and discussions of a specific issue. This technique attempts to answer 'what could/should be', whereas surveys try to identify 'what is' (Hsu & Sandford, 2007). The technique is also useful when there is uncertainty or little knowledge about the topic under investigation (Venter & Barkhuizen, 2005). For the purpose of this study, the Delphi technique was modified to incorporate an open-ended question in its first round. Furthermore, while the main question was repeated in all three rounds, different sets of additional questions were posed in the various rounds. In the traditional Delphi technique, the same question is repeated in each round (Ab Latif, Mohamed, Dahlan, & Mat Nor, 2016). These features of the research methods are discussed in detail in later sections.

#### **3.6.1. Phase 1 – Research strategy**

In the first phase, the researcher solicited the views of experts in the field, to identify and test the relevance of IT competencies in the context of entry-level South African HRM professionals. The strategy adopted here closely aligns with grounded theory, which is used to analyse, interpret and explain the meanings social actors construct in order to make sense of their realities (Glaser & Strauss, 1967). It is used to systematically develop theoretical explanations that are grounded in the data which participants in the field provide (Grounded Theory Institute, 2013).

To collect data on the competencies entry-level HRM professionals require if they are to use IT to become strategic partners to business, observing such professionals in their actual role as business partners may have been effective. In fact, observation is preferred as the first stage of an inductive approach to descriptive theory building (Carlile & Christensen, 2004). Observation enables the researcher to collect primary data about the skills used, the knowledge required and the behaviours shown by effective HRM professionals (Turnock & Gibson, 2001). However, the environment in which these professionals function makes it difficult to observe their activities, given their multiple interactions with diverse stakeholders. Also, many of these engagements are preceded by, and followed up with, electronic communications (Heikkilä, 2013). Notably, HRM professionals work with employee data and other confidential company information, thus observing them executing their daily work duties would have been difficult, and may not have proven to be effective in answering the questions posed by this study (Gabriel, Cheshin, Moran, & van Kleef, 2016).

Furthermore, Boudreau, Sarto and Browning (2014) argue that the competencies currently indicated by HRM professionals may not be representative of those that ought to be listed, especially if they would like to contribute strategically to business. Thus, observing current behaviours may not provide answers to the questions posed in this study.

Behavioural event interviews were considered (Raven, 2001), but as mentioned earlier, HR professionals may not currently display the right competencies. Interviewing professionals from other fields who now work within HRM may help to identify selected technical aspects, but such identification might not be comprehensive, especially taking into consideration their possible lack of training in people aspects. Thus, interviewing was not deemed to be the appropriate approach.

The Delphi technique, on the other hand, may be used to gather the opinions of experts and achieve consensus – in this instance, about the IT competencies required of entry-level HRM professionals who wish to serve as strategic partners to business. The experts involved in the study had themselves observed HRM professionals in their specific contexts and, hence, could effectively synthesise their observations into succinct and fitting comments.

### 3.6.1.1. Rationale for selection of method

While the Delphi technique is used for various purposes, three main goals were achieved by employing it in the present study. The first goal was to identify a wide range of IT competencies, while the second was to seek information that might generate consensus among the participants. The third goal was to correlate informed judgements on a topic not limited to a field, area or discipline (Hsu & Sandford, 2007).

Delphi studies have been used in several instances to identify competencies (Mohd Derus & Abdul-Aziz, 2016; Raghav et al., 2016). They have also been used in technological developments, curricular evaluation and planning in higher education, which makes the technique an appropriate tool in the context of this study (Venter & Barkhuizen, 2005).

The Delphi technique enables expert participation, participant interaction, consensus-building and participant debate under conditions of anonymity, without the disadvantages of personality clashes and public challenges (Skulmoski et al., 2007). Soliciting the views of experts in the field enables the researcher to identify competencies that may not have been identified in the extant literature. Further, multiple iterations can be employed to arrive at consensus, thus participants could be orientated toward problem solving, to offer insightful opinions, and to reduce the effect of 'noise', which refers to distortive communication in a group focusing on group or individual interests, instead of focusing on the solution to the problem (Hsu & Sandford, 2007). After each round in the Delphi process, the researcher collected the responses, edited them and returned a statement of the position of the whole group, along with each participant's unique position (Hsu & Sandford, 2007; Venter & Barkhuizen, 2005). Thus, participants were allowed to reassess their initial judgements about a particular aspect, to facilitate the development of a comprehensive competency framework. The Delphi technique also ensured that participants' input remained anonymous, while in group interactions, such as focus groups, the influences of dominant individuals, noise and group pressure for conformity can have an impact on the feedback offered (Hsu & Sandford, 2007).

As mentioned, the Delphi technique incorporated an open-ended question in Round I, with different questions being asked in the various rounds (see Appendix A). In the

traditional Delphi technique, the same question is repeated across various rounds. Based on the participants' answers in Round I, the researcher identified 29 competencies. In Round II, the participants were asked to rank these and in Round III, the final list of competencies was sent to the participants to check for entries, which were not relevant to entry-level HRM practitioners, and to add any behavioural indicators, which may have been missed in the previous rounds. This approach already revealed a fair degree of consensus in respect of the competencies identified in Round I. For this reason, Round II was used to communicate the consensus, and Round III to confirm the final competencies and associated behavioural indicators.

### **3.6.1.2. Key assumptions and limitations of the research method**

One advantage of the Delphi technique is that participants can modify their initial impressions, based on feedback obtained after each round. This may also be deemed a limitation, if participants feel 'guided' by the feedback obtained from the participant group (Hsu & Sandford, 2007).

The Delphi technique has been criticised for its perceived push for consensus. Also, since participants are not really granted an opportunity to discuss the issues raised or to elaborate on their views, the method may not be highly effective (Hasson & Mckenna, 2000). Many scholars who use the Delphi technique point out that consensus does not necessarily mean the 'correct' answer has been found. What it does do, is to pinpoint areas which the participants consider to be important.

Another limitation of the Delphi technique is that the method is associated more with preference, and less with prediction. Thus, consensus does not equate to 'ultimate solution found'. To overcome this limitation, it is suggested that the results of a Delphi study be put through a second round of verification, preferably involving quantitative measures (Venter & Barkhuizen, 2005). In this instance, a survey was developed based on the results of the Delphi study, and distributed in order to verify the proposed competency framework.

While all participants are considered experts in their field, their levels of expertise are in no way equivalent. This uneven distribution of expertise may have meant that the participants were not best positioned to clarify the more important statements put

forward by those with in-depth knowledge. Such unevenness may have caused the participants to identify more generic items as being more important, while participants with more specialised expertise may have prioritised different aspects (Hsu & Sandford, 2007).

The Delphi technique addresses issues related to group dynamics, whereby certain participants overpower the opinions of others. However, it has a drawback in that the researcher can mould the opinions of the participants. Also, there may be subtle pressure to conform with group ratings (Witkin & Altschuld, 1995). The only way to resolve this, was for the researcher to be cognisant and cautious in dealing with the matter.

Another limitation of the study was that only non-interventionist methods were used. Thus, the knowledge obtained pertains to the phenomenon *as observed*. The study did not include any interventions, hence it did not study the consequence of such interventions. Experimental design is, however, quite difficult in a field where human beings interact with technology.

### **3.6.1.3. Role of the researcher**

Unlike natural scientists who have nothing in common with their research objects, human behavioural scientists are, in most instances, members of the group they are studying. The researcher was therefore by no means a neutral, detached observer of the various environments in which the study was conducted. As the designer of the study, the researcher had an interest in the eventual results (Welman & Kruger, 2000).

With regard to the coding and analysis processes, the researcher acknowledges a personal involvement with the subject matter, which may potentially have influenced the questions asked, the responses received and their subsequent interpretation. Furthermore, the researcher's approach to qualitative inquiry, and ontological, epistemological and methodological assumptions, could have influenced coding-related decisions (Saldaña, 2009). Therefore, the researcher may have had certain expectations about the collected data, influenced by her biographical attributes which may have influenced the research process. By contrast, an affinity for the subject



granted her a better understanding of the topic and circumstances of the participants, and allowed her to identify with them.

### **3.6.2. Phase 1 – Research design**

Following the literature review process, Round I of the Delphi technique was sent out to the initial group of participants. Three iterations are required to sufficiently identify points of consensus and difference (Skulmoski et al., 2007), since a lower number may lead to poor or no consensus, and a higher number may bore the participants, thus reducing the validity of the findings (Venter & Barkhuizen, 2005).

Delphi purists criticise the use of pre-existing information, prior to proceeding with this technique (Venter & Barkhuizen, 2005), but numerous studies have successfully employed available information to enrich their first-round questionnaires (Mohd Derus & Abdul-Aziz, 2016; Ouariachi, Olvera-Lobo, & Gutiérrez-Pérez, 2017). Thus, there are different versions of the modified Delphi technique. In this study, data collection started without pre-conceived notions about which IT competencies HRM professionals require. The literature review was, however, used to substantiate the results of the Delphi technique, as discussed in Chapter 5.

#### **3.6.2.1. Research setting**

The research setting describes where, when and with whom the research will take place. In this instance, the setting was closely connected to the research question, as it provided an environment in which the questions could be addressed (Eriksson & Kovalainen, 2008; Holliday, 2007). Holliday (2007) suggests that the research setting should be accessible, have a sense of boundedness, provide a variety of relevant and interconnected data, have sufficient richness and should be sufficiently small.

This study focused on the competencies expected of entry-level HRM professionals in the South African work context. Therefore, Phase 1 required inputs from experts in this area. Since the study focused on the local milieu, the experts were required to be exposed to this environment.

Experts bring richness to a study – in this case, because the participants worked in different organisations and diverse environments both in and outside South Africa, despite being affiliated to the local work environment. The research setting was therefore bounded, ensuring data consistency. This allowed the participants' opinions to interconnect (Holliday, 2007).

The SABPP, which is a professional body for HRM professionals in South Africa, has working relationships with other countries in sub-Saharan Africa and the rest of the world. It has developed HR standards pertaining to strategic HRM, HR risk management and HR technology. It has also developed a competency model in which Citizenship for Future: Innovation, Technology and Sustainability is identified as a core competency for HRM professionals. Furthermore, the SABPP accredits HRM academic programmes at South African universities, from which local entry-level HRM professionals graduate. Thus, as a professional body, the SABPP established a suitable environment in which the research questions could be answered, thus being a suitable setting for this study.

The researcher approached the SABPP to request support for the study. Since the SABPP has developed standards in various HRM sub-fields, the individuals involved in developing those standards were included in the initial pool of nominations to participate in the Delphi study. This is because those experts had to understand the issues pertaining to the topic, in addition to representing a substantial variety of views (Venter & Barkhuizen, 2005).

If one focuses too much on a core-bounded setting, whereby only individuals in the setting are approached to obtain data, such an activity may preclude the importance of data that are peripheral to the setting (Holliday, 2007). With regard to this study, some of the identified experts were not members of the SABPP, but their participation was invited with the backing of that organisation. Thus, the boundedness of the research setting was not compromised, and gave due importance to peripheral data.

During the period of the study, the researcher had a high degree of engagement with the setting, being a professional member of the SABPP. The researcher is also a member of various committees associated with HR higher education in South Africa. Such close involvement could have been a disadvantage, as the researcher was a

part of the setting and, hence, was potentially over-familiar with it, thereby increasing the odds of overlooking important issues and considerations. Despite this, the researcher addressed the issue by continuously questioning her assumptions (Holloway & Wheeler, 1996, as cited in Holliday, 2007).

### **3.6.2.2. Participant profiles**

For the Delphi technique to be effective, experts involved in a study should understand the issues around the topic in question and represent a substantial variety of views. Delphi participants should be highly trained and competent in their field of study. An initial pool of nominations was developed, based on the criteria recommended by Delbecq, Van de Ven and Gustafson (1975), who suggest that the participants should be top management decision makers who will use, and benefit from, the outcomes of the study, professional staff members who are involved in the field, or participants whose judgements are being sought.

Participants may also be considered experts based on their academic publications or consulting work in the field. Positional leaders and those with first-hand involvement in the topic may be considered primary stakeholders, and can also be included in the pool of possible Delphi participants (Hsu & Sandford, 2007). The researcher closely examined and carefully considered the qualifications or other signs of eligibility of those invited to participate in the study.

Choosing the correct participants is important to the success of the Delphi technique. Many authors agree that the participants must be experts in their fields and that their responses should be elicited over a short period of time. For these reasons, Hsu and Sandford (2007) suggest that participants must have related backgrounds or experience pertaining to the topic, they should also be capable of contributing helpful inputs, and must be willing to revise their initial or previous judgements for the purpose of reaching and attaining consensus. Simply choosing experts may not be sufficient or recommended, as they may struggle to reach consensus (Hsu & Sandford, 2007).

The researcher opted to use a nomination process to select the most appropriate individuals, based on the above criteria (Jones & Twiss, 1978; Ludwig, 1997). The first set of nominations included authors of publications in the area under study, speakers

at conferences who addressed the theme of technology in HR, and senior management officials responsible for HR strategy and/or technology in organisations. All those in the initial pool of nominations were invited to participate. The researcher forwarded the Round I questionnaire to those who agreed to complete the required three rounds of surveys and provided other forms of feedback, such as discussions via email. These added value to the study, hence such feedback was integrated in the analysis and discussions. The initial nomination list is given in Table 3.2, which details the expertise of the respective participants.

Table 3.2.

*Expertise of initially nominated participants*

Number	Rounds	Designation	Sector
1	I, II, III	Global Executive Advisor: HR Strategy and Transformation	IT
2	I, II, III	HCM Sales Development and Strategy Leader	IT
3	I, II, III	HCM Business Consultant	IT
4	I, II, III	Operations Effectiveness Manager	Mining
5	I, II, III	Operations Director	IT
6	I, II, III	HR Manager	IT
7	I, II, III	Executive: HR Business Partnering	IT
8	I, II, III	Head of Product Management	IT
9	I, II, III	HRIS Manager	Higher Education
10	I, II, III	Head of Business Strategy	Financial Services
11	I, II, III	Industrial Psychologist	Consulting
12	I, II, III	Director, HCM Business Consulting	Consulting
13	I, II, III	HRIS Consultant	Higher Education
14	I, II, III	Head of HR Technology	Financial Services
15	I, II	HCM Industry Systems Specialist	IT
16	I, II	Partner, HCM Business Consulting	Consulting
17	I, II	Consultant: HR Technology and Operations	Consulting
18	I, II	Manager: Human Capital Analytics	Telecommunication
19	I	Head: People Analytics	Financial Services
20	I	Management Consultant	Consulting
21	I	Senior Manager	Consulting
22	I	Associate Professor	Higher Education
23	0	Head of HR Technology	Consulting
24	0	Data Management Specialist	IT

Number	Rounds	Designation	Sector
25	0	Senior Business Analyst	Manufacturing
26	0	HR Executive	Financial Services
27	0	Partner, HCM Business Consulting	Consulting
28	0	Head of HR	Manufacturing
29	0	HR Technology Manager	Mining
30	0	HR Thought Leader	Consulting

As indicated in Table 3.2, all those initially nominated were consultants in the HR technology sector, heads of HR technology or senior management, both within and outside the HRM function. HR technology consultants are considered experts, being managers who sell such technology and direct IT teams to develop related platforms to meet customers' needs (Rasmussen & Ulrich, 2015). One of their responsibilities is to discuss with customers what HR technology is capable of doing, which gives them an understanding of their customers' needs (Katz, 2010). The customer also shares with them what their HR function is capable of doing, or wishes to do with the technology. Additionally, they work with customers to implement HR technology solutions, which implies that they collaborate with HR functions and HRM professionals to integrate their HR technology solutions into their customers' environments (Hunter, 1999). Such close interactions further imply that they have an understanding of the specific IT competencies HRM professionals have (or do not have). The wish list of competencies, according to these consultants, would indicate the type of IT competencies that will enable HRM professionals to use HR technology to strategically partner with business.

The second category of participants consisted of heads of HR technology at various organisations, who are responsible for implementing that technology. They are aware of trends and know whether the HR functions in their respective organisations are successfully using the technologies they have adopted. Furthermore, they would know what is coming in the way of the technology being used to its full potential and, more specifically, what competencies HR generalists lack, which may be preventing them from using technologies effectively (Poba-Nzaou et al., 2016).

The third category consisted of senior management within organisations, including heads of HRM and other organisational functions. These participants are responsible for purchasing HR technology and have the expectation that it will assist HR professionals in contributing strategically to the organisation. Furthermore, the burden to be strategic rests heavily on their shoulders, as they interact with business and especially top management. Business managers can indicate what they would like to see more of, from the HRM function (Kryscynski et al., 2018). Additionally, these senior management professionals play a role in the career development of their teams, and thus understand what competencies may be lacking. They also recruit their teams, and therefore understand which competencies differentiate successful HR business partners from not-so-successful ones (Kryscynski et al., 2018).

### **3.6.2.3. Sampling procedure**

Since the participants were considered experts in the research field, a purposive sample was used: individuals were selected not as part of a larger population, but for their ability to answer the research questions (Skulmoski et al., 2007). As an insufficient number of experts were included in the initial pool of nominations, the snowball sampling technique was used prior to distributing the Round I questionnaire.

There is limited agreement on the panel size for Delphi studies (Akins, Tolson, & Cole, 2005). To determine the number of participants, several factors were taken into consideration: Delbecq et al. (1975) advise that the minimum number of participants required to answer the question must be used, and the results must be verified not by including more participants, but through follow-up explorations. Ludwig (1997) states that the number of experts or participants should be determined by the number required to obtain a representative blend of judgements or opinions. Another factor that was taken into consideration is the information-processing capability of the researcher, given the technology and other resources available to her.

From a numerical perspective, Delbecq et al. (1975) recommend 10–15 participants, if their background is homogeneous. Since the participants hailed from similar backgrounds, the panel could be considered homogenous. The homogeneity of the sample originates from their experiential background, and not from their demographic

characteristics. Hence, other biographical details were not collected from the participants. According to Ludwig (1997), 15–20 participants are used in the majority of Delphi studies. Too large a sample size has the drawbacks of potentially low response rates, more time being required to analyse results and extra time being required of the participants. It may also require more rounds to achieve consensus. Too small a sample size can lead to the underrepresentation of judgements regarding the topic of research (Hsu & Sandford, 2007).

As there is a linear increase in accuracy levels as the number of participants increases to 11 members (Costa, 2005; Dalkey, 1969, as cited in Venter & Barkhuizen, 2005) – any number greater than that is deemed adequate. The researcher expected that a number of participants might not be able to complete all three rounds of data collection, therefore, the initial request to participate was sent to 30 experts, who were asked to identify other specialists in the field. The Round I questionnaire was distributed to 25 participants, giving a window for sufficient feedback from those unable to participate in the remaining rounds. By the end of the Round III, only 14 of the initial 25 participants had responded. Table 3.3 indicates the numbers that were sent and received per round.

Table 3.3.

*Number of participants in the different rounds of the Delphi process*

Round	Feedback requested	Feedback received
Initial request to participate		<b>30</b>
I	<b>25</b>	<b>22</b>
II	<b>22</b>	<b>18</b>
III	<b>18</b>	<b>14</b>

#### 3.6.2.4. Delphi process: Round I

The first round traditionally begins with an open-ended questionnaire which serves as a foundation from which to solicit specific information on a topic. Data may be both qualitative and quantitative, if open-ended questions are incorporated. The responses received are coded and then converted to a well-structured questionnaire, which is used as the instrument for the second round of data collection (Hsu & Sandford, 2007).

The first round consisted of a single question:

What IT competencies would enable entry-level South African HRM professionals to be strategic partners to business?

The questionnaire was sent and received electronically, via email. Anonymity was ensured by sending emails out individually, as opposed to using carbon copy or blind carbon copy. Participants were asked to respond within ten days to two weeks. A reminder was sent in instances where no response had been received after seven days.

Thus, a hybrid form of access was applied in this phase (Saunders et al., 2016), whereby a combination of traditional and internet-mediated approaches was used to collect data. If potential participants had only been approached via e-mail, at least some may not have invested in the study, as the first rounds especially called for focused time and effort. When using the internet to conduct research, it is important to negotiate access first. Moreover, the researcher viewed access as ongoing, not merely an initial undertaking (Saunders et al., 2016). Initial emails were thus sent, meetings were organised (if need be), follow-up emails and phone calls were made and, finally, emails acknowledging receipt of feedback were sent. Thus, feasibility of access was achieved, as it was possible to access data. Furthermore, as the participants provided detailed feedback to the questions, sufficiency was also achieved from an access point of view (Saunders et al., 2016).

Some participants requested that the researcher visit them and take notes while they gave verbal answers to the open-ended questions. They felt that writing down their thoughts was burdensome, and would have avoided it had the researcher not agreed to come to them. Since data collection was critical to this phase of the study, the researcher personally met with six of the 25 participants, and recorded their answers using a voice recorder.

Once the feedback had been obtained after the first round, she analysed the data, coded it and identified themes. A large number of codes were derived, many being similar across participants' responses, but a substantial number of codes were also



unique. The codes were developed into behavioural indicators and competencies, which were sent to the participants in Round II for scrutiny.

### **3.6.2.5. Delphi process: Round II**

The second round consisted of a structured questionnaire, asking participants to review the items the researcher had summarised, based on feedback from Round I. In this round, participants were asked to rate or rank items, to establish preliminary priority levels. The researcher had two options in her approach to Round II: the first was to ask the participants to rank the competency areas in order of priority, and then to rank the competencies within each area. The second was to list all 27 competencies, and then ask the participants to rank them in order of priority. The latter option was chosen, as there would be more variability in the results. The participants were also asked to recommend changes to the behavioural indicators and competencies extracted from the feedback obtained from Round I. In Round II, the data were sent to all 22 participants who had provided feedback in Round I. Only 18 responded to the email, despite reminders via both email and telephone. The data obtained were numerically analysed.

Once the data from this round had been analysed, the researcher could establish the ranking of items and areas, and identify the level of agreement or disagreement. Ranking reduces detailed and complicated measures to a sequence of ordinal numbers, which enables the researcher to evaluate information based on specific criteria. In this round, the researcher could determine that consensus was forming.

In Round II, participants were also asked for comments on, and additions to, the various items in the framework, and the framework as a whole (Skulmoski et al., 2007; Venter & Barkhuizen, 2005). To avoid any misinterpretation of the different elements constituting the framework, a definition or description of each competency was provided. Any comments made in emails or other formats were taken into consideration, as were differences of opinion. Where necessary, codes, themes and descriptions were reworded.

### 3.6.2.6. Delphi process: Round III

In the third and final round, the participants received a questionnaire which reflected all the items and their ratings, as summarised after the second round. The participants were then asked whether they wished to revise their judgements, based on the group rating. If the participants did not revise their judgements, they could specify their reasons for remaining outside the consensus. This round granted the participants an opportunity to clarify information and revise their opinions about their ranking of the items. Only a slightly improved degree of consensus was expected in this round.

The areas where consensus was achieved, were clearly indicated. Where consensus was not achieved in some areas, such differences were highlighted. If consensus could not be achieved after the third round, such codes and themes were removed from the results presented in the study.

One of the drawbacks of the Delphi technique is the low response rate from participants, as each typically receives three to four consecutive surveys (Witkin & Altschuld, 1995). If a certain group of participants no longer responds, the quality of the information may be affected. Thus, motivating participants is crucial for the successful implementation of the Delphi technique. The researcher played an active role in helping to ensure a high response rate, by meeting the participants personally before the data collection process, sending reminders and informing them how important their feedback was for the study.

It proved useful to advise participants beforehand to block an amount of time when they could answer the questionnaires. The participants were given ten days to two weeks to respond to each round, thus it took 60 days to administer this phase of the study (Delbecq et al., 1975; Hsu & Sandford, 2007; Ludwig, 1997).

Using electronic technology such as emails or teleconferencing can facilitate the effective use of the Delphi technique – in this instance, it allowed the researcher to collect data from geographically dispersed participants, thereby reducing the possibility of manipulation and coercion to conform to, or adopt, a specific viewpoint, concerns which are often associated with group dynamics (Hsu & Sandford, 2007). Electronic technology also facilitated the storage and processing of data, which

assisted in maintaining participant anonymity and made quick feedback possible (Witkin & Altschuld, 1995).

### **3.6.2.7. Data analysis**

The data from the first round were loaded onto Atlas.ti, a data-analysis software program. In the first round, the participants identified competencies that are not necessarily only related to technology. Some participants may have focused on the generic competencies they would like to see in an entry-level HRM professional. Perhaps, for this reason, after the first round of the Delphi process, 106 unique codes were developed, which represented sought-after competencies in the views of the 22 participants who participated.

The data were analysed through three cycles of coding (Saldaña, 2009; Saunders et al., 2016). The first cycle of coding, which may be referred to as open coding, enabled obvious codes to be generated (Saunders et al., 2016). The second round, referred to as axial coding, highlighted and revealed foci which enabled categories and themes to be developed. The third cycle, which is referred to as selective coding, aided in integrating the codes, to produce a theory and bring rigour into the coding process. After three cycles of coding, themes were developed from each participant's response, sentence by sentence, ensuring that each had his/her own codes (Saldaña, 2009). Mindful of the aim of this study, the researcher undertook thematic development, which helped identify the IT competencies demanded of entry-level HRM professionals wanting to become strategic partners to business.

Data from the first round were analysed across aggregated responses. More themes were then developed and incorporated into the framework (Venter & Barkhuizen, 2005). The framework was then returned to the participants for verification, comment and additions. Data analysis took up to two weeks per round. The nature of the participants' responses was noted during the initial rounds, to help plan for data analysis in later rounds.

The next step was to categorise the identified codes, using several different methods. The theoretical frameworks indicated in the literature review was one option: the codes could therefore be categorised as those relevant within the HRM function, those

applicable within the organisation but outside the HRM function, and those applicable outside of the organisation. This framework could not be applied, because many of the identified competencies could be utilised in all three areas. This meant that the same competencies would be revealed in more than one category, making the results repetitive and ambiguous.

The subject matter areas within which each competency was located, was another way of categorising the codes. Competencies were identified and added to the list of codes within various categories of competencies. Following this process, codes were collapsed to streamline the process: for example, 'Able to handle data confidentially and safely' and 'Aware of information risk and responsible data management' were merged into a single competency, namely 'Managing data confidentiality, safety, and awareness of information risk'. From this process, 27 competencies emerged. For the competencies and the associated behavioural indicators, see Chapter 4.

In Round II, participants were asked to rank the identified competencies. When ranking, the median is used as a measure of central tendency, as ranks involve ordinal data. When calculating the median of the ranks, two items may receive the same ranking. If the items received the same rank, a gap was left in the ranking numbers. For example, if two items were ranked 2, the next item receiving a lower rank is ranked 4. To prepare Round II of the Delphi process, multiple approaches could be taken. The first approach would be to list all the IT competencies identified in the first round, and send the whole list to the participants. This approach was not chosen, because some identified competencies were irrelevant to the purpose of this study. Instead, the identified IT competencies were listed and sent to the participants in Round II. They were then asked to rank the identified competencies in order of priority.

#### **3.6.2.8. Determining consensus**

The purpose of using the Delphi technique was to obtain consensus. Thus, the researcher determined which method to use for data analysis, and that influenced the establishment of consensus. Ranking scales are often used to judge consensus. With regard to the first round of the Delphi process, a suitable criterion is 51 per cent or higher (Venter & Barkhuizen, 2005). Those competency codes that were assigned to

the responses of more than 70 per cent of participants can be labelled as 'very high priority' items (Venter & Barkhuizen, 2005), while similar definitions can be set for 'high priority', 'medium priority', 'low priority' and 'very low priority' items. However, setting criteria in this way to obtain consensus may prove to be quite arbitrary.

If determining consensus using statistics proves inappropriate, it can be done through data saturation and by eliminating non-consensus items, those responses not mentioned by a majority of participants during the questionnaire rounds. A second means of identification is based on the ratings an item receives (in this instance, in the survey sent out to HRM professionals). An additional method of determining consensus is to measure the stability of subjects' responses in successive iterations (Hsu & Sandford, 2007).

Statistics used in Delphi studies are measures of central tendency, which include mean, median and mode and levels of dispersion, which include standard deviation and inter-quartile range, as the information presented reflects the collective judgement of the participants (Hasson & Mckenna, 2000; Hsu & Sandford, 2007). Depending on the method employed to judge consensus, the mean, median or mode may be used.

In a study, the analysis of data, when transitioning from one round to another, further reduces the potential for conformity in a group. Opinions generated by each participant may be well represented, even in the final iteration. Thus, each participant should not experience pressure (real or perceived) to conform to other participants' responses. Despite this, pressure might originate from adherence to social norms, customs, organisational culture or professional standing (Hsu & Sandford, 2007). Thus, statistical analysis allows for objective and impartial data analysis and data summarisation.

### **3.6.3. Phase 1 – Strategies used to ensure research quality**

Trustworthiness and authenticity are used to ensure research quality in qualitative studies (Lincoln & Guba, 1985), while in quantitative studies, reliability and validity ensure research quality. In mixed-methods approaches, the concepts of legitimacy (Onwuegbuzie & Johnson, 2006) and inference transferability (Teddlie & Tashakkori, 2009) help to ensure research quality. In the case of this study, legitimacy and

inference transferability were ensured by the inclusion of the latter two phases, surveys sent to both HRM professionals and business managers.

Responses were collected from 22 individuals in the first round, which was the most detailed and open-ended round in the Delphi study, and elicited substantial contribution and input. Moreover, a high degree of consensus was obtained, which was confirmed in the second and third rounds. As expected in a study using the Delphi technique, the number of participants reduced from the first round to the second, but the level of consensus remained consistent through to the third round.

### **3.7. Phase 2 – Survey**

In the second phase of this study, the competency framework (developed using the data collected in the first phase) was sent to a large sample of South African HRM professionals in the form of a field survey. The purpose of the survey was to gain their views on the extent to which the developed competency framework would enable entry-level HRM professionals to be strategic partners to business. This survey was attitudinal in nature, soliciting the opinions of the respondents, but it may also be considered a needs assessment survey as, in a way, the respondents indicated the importance of the sought-after IT competencies.

#### **3.7.1. Phase 2 – Research strategy**

A survey strategy is emblematic of a deductive approach, and is frequently used for exploratory research (Saunders et al., 2016). The quantitative data collected through surveys can be analysed using descriptive and inferential statistics (Pallant, 2016). Such analysis enables researchers to develop models which describe relationships among variables, and even suggest reasons for those relationships, thus opening up further investigation into the area (Saunders et al., 2016).

##### **3.7.1.1. Rationale for selection of method**

Researchers use surveys to collect data about current practices or views on a concept, by employing questionnaires or interviews (Mouton, 2009). Surveys fall within the

category of non-experimental (rather than experimental or quasi-experimental) design (Welman & Kruger, 2000). Non-experimental research does not include random assignments or planned interventions. However, if there is a high level of regularity and orderliness in a phenomenon, then non-experimental research can yield highly satisfactory results. In this phase, data were collected in a natural environment, hence this may be referred to as a field (rather than a laboratory) survey. Field survey-based research design shows the greatest similarity to real life – more so than other forms (Welman & Kruger, 2000). Also, the use of surveys enables a researcher to study several variables at the same time, which is not possible in experimental design.

### **3.7.1.2. Key assumptions and limitations of the method**

A survey, where a sample of the entire population is included, was used as opposed to a census, where each member of the population is supposed to be included. Surveys have several advantages over censuses: first, less time and financial expense are called for (Saunders et al., 2016). As they are less time-consuming, surveys measure the state of affairs at a particular time, which makes the responses comparable. A census is typically performed over a longer period of time, during which the state of affairs may change. In addition, greater accuracy of information is obtained when respondents are willing to cooperate and are frank. In a census, it is difficult to achieve high levels of cooperation and honesty (Welman & Kruger, 2000).

Surveys allow for the collection of quantitative data that can be analysed using descriptive and inferential statistics (Saunders et al., 2016). Furthermore, the data obtained from surveys can be used to identify relationships between variables. The reasons for these relationships and the development of models to describe them, can be derived from survey data (Kelley, Clark, Brown, & Sitzia, 2003). Using a survey strategy affords the researcher greater control over the research process and, at the same time, generates findings that statistically represent the population (Saunders et al., 2016).

Surveys do, however, have certain inherent weaknesses. Firstly, researchers cannot realise insights relating to the causes or processes involved in the phenomena being measured; and second, several sources of bias might creep in, including the possible

self-selecting nature of respondents at the point in time when the survey is conducted (i.e., the researcher's views might affect the design of the survey itself) (Mouton, 2009). Variables such as demographics, socioeconomic status and employment sector can also affect the data collection and analysis process. Some effort must be made to obtain a representative sample, design and pilot the questionnaire, ensure a high response rate, and prepare and analyse the collected data (Saunders et al., 2016). Since the researcher is dependent on others for information, using a survey strategy might cause delays in the research process. Finally, a large number of responses may be deemed inappropriate, especially if they are incomplete or show repetitive trends.

### **3.7.1.3. Role of the researcher**

The data that emerged from this study resulted from the researcher intervening in the social system that provides the context. Thus, the researcher acknowledges having structured the information generated from this study, and having chosen what statistical analyses to perform on the gathered data (Plowright, 2011). Thus, while the researcher usually plays a neutral role in a purely quantitative study, here, her interventions in the social context may have caused the researcher to become involved in a substantive manner, even during the quantitative phase.

### **3.7.2. Phase 2 – Research design**

The findings obtained from Phase 1 of this study were used to develop items that were subsequently assembled into a questionnaire (see Appendix B). Questionnaires offer means of data collection whereby each respondent is required to respond to the same questions in a predetermined order (Saunders et al., 2016). Care was taken with regard to the questionnaire design, as it may affect the response rate, as well as the reliability and validity of the data collected. Furthermore, the researcher carefully designed each question, compiled a clear and pleasing visual presentation, and succinctly explained the purpose of the questionnaire.



### 3.7.2.1. Research setting

In the first phase of this study, the IT competencies which will enable HRM professionals to be strategic partners to business were identified. Thereafter the Delphi technique was employed to rank the various identified competencies, in order to structure them into a competency framework. In this phase, the researcher sought to determine the relationship of the identified IT competencies to strategic business partnering. For this reason, a self-completed questionnaire was used, comprising closed questions with simple sequencing (Saunders et al., 2016). Most respondents accessed the questionnaire through a hyperlink that was sent to them, but in some instances the questionnaires were delivered by hand and collected after completion.

These two forms of questionnaire design were used for various reasons: first, the researcher had access to a few HRM professionals through her social and professional networks. Some potential respondents requested a delivery-and-collection questionnaire, while others requested a web questionnaire, which meant a hyperlink (directing them to the questionnaire) was sent to their email addresses. Second, the researcher attended several HRM conferences, where she physically distributed questionnaires to HRM professionals whom she met there. Having both delivery-and-collection and web questionnaires enabled the researcher to make both options available to potential respondents. Third, the researcher requested the SABPP to distribute the questionnaire to HRM professionals via its mailing list.

Delivering the questionnaire via two modes offered a high level of control. With delivery-and-collection questionnaires, the researcher could ensure that all recipients were indeed HRM professionals, prior to handing them out. With regard to the web questionnaire sent via email, most people read and respond to their own emails, hence the possibility of someone besides the recipient completing a questionnaire, was low. The third distribution mechanism, the SABPP mailing list, was also effective because it contained the names of 6 864 HRM professionals, both members and non-members at the time. The HRM professionals whose names appear in that database subscribe to the SABPP newsletters and voluntarily choose to participate in surveys that the board sends out periodically. In total, 1 075 members on the mailing list viewed the email. A check was put in place, by asking about the recipient's HRM experience, to

ensure that the responses analysed only included feedback from respondents with relevant experience.

### **3.7.2.2. Respondent profiles**

The respondents were expected to have some experience in the field of HRM, so as to be able to identify the extent to which a particular IT competency is considered important for an entry-level professional. Respondents from other fields may not recognise the importance of some of the identified IT competencies or the role which an HRM professional plays in a business milieu. For the above reasons, HRM professionals were chosen as respondents during this phase. Since most of them have access to emails and the internet – either through computers or cell phones – a web questionnaire was deemed the most desirable delivery mechanism.

### **3.7.2.3. Sampling procedure**

The population, for this phase of the study, was all HRM professionals in South Africa, since the questionnaire evaluated their perceptions of the IT competencies an entry-level HRM professional must exhibit, to serve as a strategic partners to business. However, since it is difficult to access all cases in a population, a target population of HRM professionals was considered, all of whom were involved with the SABPP or were based in the Gauteng or Western Cape provinces. Within this target population, non-probability sampling was used. Participation in this phase was voluntary.

Because the issue of sample size in non-probability sampling is unclear, the logical relationship between the sample selection technique and the purpose of the study is more important (Saunders et al., 2016). Any generalisations made are utilised to develop a theory, not to summarise views about the population. The size is also determined by the types of analysis undertaken on the collected data (Saunders et al., 2016). In this phase, 339 responses were collected, of which 249 came via the web questionnaire and 90 via the delivery-and-collection questionnaire. Only 252 responses were used once the incomplete responses had been removed, along with

those responses where respondents indicated the same Likert-scale value for all items in the questionnaire.

Volunteer sampling was used, as the respondents were self-selected. Therefore, as much as the likelihood of the sample being representative of the population was low, that form of sampling is useful when a study is exploratory in nature (Saunders et al., 2016). Those in the database (most of the target population) were requested to take part through invitation letters, and data were collected from all who responded. Respondents who choose to participate in a voluntary study do so because they have strong views on, or feelings towards, the research topic (Saunders et al., 2016). In the case of this study that was acceptable, as the respondents' feedback (positive or negative) was welcomed.

#### 3.7.2.4. Demographic overview of respondents

Taking into consideration that volunteer sampling was used, the descriptive data were analysed from a demographic perspective. Although 339 respondents accessed the survey, only 252 responses were considered valid and useable – a response rate of 74.3 per cent. The respondents comprised HRM professionals with varied educational backgrounds and years of experience in the field. The strata elicited a diversity of views, experiences and inputs. For a demographic overview of the respondents, see Table 3.4.

Table 3.4.  
*Demographic overview of survey respondents*

<u>Variable</u>	<u>Number (%)</u>	<u>Variable</u>	<u>Number (%)</u>
<u>Gender</u>		<u>Highest qualification</u>	
Male	86 (34.1)	Grade 11 or lower	0 (0)
Female	166 (65.9)	Grade 12 (Matric)	4 (1.6)
<b>N</b>	<b>252</b>	Diploma/Certificate	49 (19.4)
		Bachelor/Degree	88 (34.9)
		Master's/PG	99 (39.3)
		Doctoral	11 (4.4)
		(blank)	1 (0.4)
		<b>N</b>	<b>252</b>

<u>Variable</u>	<u>Number (%)</u>	<u>Variable</u>	<u>Number (%)</u>
<i>Years of experience in HR</i>		<i>Qualification in HR</i>	
Less than 1	6 (2.4)	Yes	201 (79.8)
1–3 years	8 (3.2)	No	31 (12.3)
3–5 years	18 (7.1)	Currently pursuing	16 (6.3)
5–8 years	41 (16.3)	(blank)	4 (1.6)
More than 8 years	177 (70.2)	<b>N</b>	<b>252</b>
Blank	2 (0.8)		
<b>N</b>	<b>252</b>		

As shown in Table 3.4, 74.2 per cent of the respondents were graduates, while another 19.4 per cent held a diploma or certificate. Furthermore, 86.1 per cent had either completed or were pursuing a qualification in HR. From a work experience perspective, 86.5 per cent of respondents had more than five years of experience in HR. Thus, the majority were in a good position to comment on the competencies required of entry-level HRM professionals.

### 3.7.2.5. Developing the questionnaire

Various factors influenced the choice of questionnaire, which included the characteristics of potential respondents, the importance of respondents' answers not being contaminated, the sample size, the type and number of questions asked, the time available to complete data collection, the financial implications and the survey tool used (Saunders et al., 2016). HRM professionals are busy individuals, and, more importantly, due to the nature of the field, they are exposed to a large number of surveys (Govender, 2010). Thus, the questionnaire had to be succinct and relevant. Also, the questionnaire had to be simple and direct, as many HRM professionals may not be exposed to complicated IT terminology (Ankrah & Sokro, 2012). At the same time, it was crucial that the answers not be contaminated, so care was taken to ensure that the process of answering the questions was uncomplicated and convenient for the respondents. As 29 competencies incorporating 65 behavioural indicators were identified in the first phase of the study, the survey was lengthy. Thus, each competency and behavioural indicator was analysed, in an attempt to eliminate all non-IT-related items. After analysis, 27 competencies incorporating 45 behavioural indicators were included in the questionnaire.

### 3.7.2.6. Pilot study

A pilot study was conducted to validate the effectiveness of the developed questionnaire, which was distributed to 11 HRM professionals and academics. The pilot test feedback was used to refine the questionnaire, so that respondents would be comfortable answering it, and for ease of data recording and collection (Saunders et al., 2016). The respondents in the pilot study were asked to comment on the representativeness and suitability of the questionnaire items. Feedback was also sought regarding the time taken to complete the questionnaire, the clarity of the instructions, possible instances of ambiguity, any mental unease experienced when answering, any major omissions, as well as the layout, clarity and attractiveness of the questionnaire. Once the pilot testing had been completed and the feedback incorporated into the final questionnaire, the researcher communicated it to all the respondents, taking the opportunity to thank them for their input.

### 3.7.2.7. Data-gathering methods

Traditional and internet-mediated access were used to access the primary data in Phase 2, obtained from both online and physical surveys. The data collection process in Phase 2 took almost four months, as the gathering of physical surveys was dependent on prearranged conference dates. The availability of the survey in an online form enabled the researcher to distribute it on meeting someone from the HRM field at a conference, or in another formal setting.

In all instances, the researcher communicated the purpose of the study to respondents, either verbally or through an introductory note (see Appendix C), which was attached to the printed survey or provided as an opening page to the online version. The researcher also stipulated the expected time needed to complete the survey and gave a description of some terms, to ensure that respondents were clear about what was required of them. In the introduction, confidentiality and anonymity were also addressed. She informed the respondents of how the data would be processed, what the findings would be used for, and how they would be reported. The researcher's contact details were also shared in case respondents had questions while completing the survey or thereafter. The researcher acknowledged and thanked the

respondents both at the beginning and end of the survey, and invited them to contact her for feedback on the survey analyses.

### **3.7.2.8. Transcription and verification of data**

With regard to the web questionnaire, all the responses were captured automatically. The researcher collected all the physical copies of the delivery-and-collection format of the survey in person, and kept them securely at all times. The researcher captured the data on computer. Since almost all items in the survey were closed, the data were coded, entered and saved for analysis on computer. The use of analysis tools made for a rapid and more thorough data analysis.

### **3.7.2.9. Statistical treatment of data**

The survey was done for two purposes: the first was to collect the opinions of HRM professionals regarding the importance of the IT competencies expected of entry-level HRM professionals, with the aim of categorising the identified competencies. The second was to link the IT competencies to strategic business partnering.

Data analysis in Phase 2 employed a combination of statistical methods. IBM SPSS software, version 25, enabled the researcher to conduct the various analyses, and she used both descriptive and inferential statistical methods.

The descriptive statistics derived from quantitative data are useful for a number of reasons: first, as the term suggests, they enable the researcher to describe, summarise and report on various characteristics of the sample (Saunders et al., 2016). Background information related to the sample, including number of respondents, details of their ages, work experience and educational qualifications, can be collected. Furthermore, descriptive statistics are simple to calculate, and form a starting point from which further statistical analyses can be performed (Pallant, 2016). Descriptive statistics enabled the researcher to check the variables used in the study, to determine whether any assumptions underlying the statistical techniques had been violated (Pallant, 2016). Descriptive statistics can, in some instances, also be used to answer certain research questions (Saunders et al., 2016). Here, descriptive statistics served

to describe the sample and check whether further statistical analyses could be performed on the data obtained from the sample. Descriptive statistics can also be used indirectly to answer certain sub-questions. In this phase, the mean, standard deviation, skewness and kurtosis were reported to affirm the normality of the histograms.

Inferential statistics are used to generalise data obtained from a sample to the entire population (Pallant, 2016). In this study, the researcher used inferential statistics to determine whether the results obtained from the sample represented the population. The statistical analysis methods included Cronbach's alpha coefficient, Bartlett's test of sphericity, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Catell's scree test, parallel analysis, exploratory factor analysis using maximum likelihood and promax rotation. The parametric techniques used, and the assumptions associated with each, are described in this chapter.

#### **a. Reliability**

There are two purposes for testing the reliability of a survey questionnaire: the first is to check whether the questionnaire is robust. In other words, reliability indicates whether the questionnaire will produce consistent results under different conditions (Saunders et al., 2016). The second is to check for internal consistency, which indicates the extent to which items that make up a scale all measure the same underlying competency (Pallant, 2016). Internal consistency is most commonly measured using the Cronbach's alpha coefficient.

First, the Cronbach's alpha coefficient was measured to test reliability, associated with the accuracy and precision of a measuring instrument (Suhr & Shay, 2009). In other words, the reliability of an instrument indicates how free it is from random error. Specifically, internal consistency assesses the degree to which the various items that make up the scale measure the same underlying attribute (Pallant, 2016).

Testing the reliability of the questionnaire used in this study helped determine the relationships between the various items, which was the second purpose of testing the reliability. The Cronbach's alpha coefficient, which determines the degree of correlation between various items of a construct, is expressed as a number between

0 and 1, with items strongly correlated having an alpha coefficient closer to one (Suhr & Shay, 2009). The acceptable values of the alpha range from 0.70–0.95 (Cohen, Manion, & Morrison, 2013).

Questions 1–6 were demographic items. The Cronbach's alpha coefficient scores of the remaining questions are reflected in Table 3.5, as the questions used Likert scales.

Table 3.5.

*Cronbach's alpha coefficient for the questions in the survey*

Survey question	Cronbach's alpha	N of items
Strategic business partnering (questions 7–18)	0.892 (0.870, 0.908)	12
Competencies related to data analysis (questions 19–35)	0.924 (0.908, 0.935)	17
Competencies related to business process (questions 36–50)	0.943 (0.933, 0.953)	15
Competencies related to leveraging technology (questions 50–54)	0.885 (0.864, 0.904)	4

*Note:* 95% confidence intervals for alpha in parentheses

The Cronbach's alpha coefficient scores of all categories were in the acceptable range of 0.70–0.95, which implies that the survey items were strongly correlated. Thus, the items were considered for further analysis and interpretation, as the internal consistency was high enough to be deemed reliable.

## **b. Correlations**

In this phase, the researcher used exploratory factor analysis to determine whether a factor, or several factors, could summarise the larger set of items, and to explore the interrelationships among the various items. Exploratory factor analysis is appropriate for early stages of research, for exploring the interrelationships among various items, in order to formulate and refine theory (Pallant, 2016). Additionally, factor analysis provides construct validity evidence for self-reporting scales (Williams, Brown, & Onsman, 2010).

Exploratory factor analysis allowed the researcher to explore the categories of the identified competencies. Since there were no expectations regarding the number of



categories or variables, the exploratory nature of the research remained unaffected. Thus, exploratory factor analysis enabled the researcher to explore the main dimensions which enable the generation of a theory or model from a relatively large set of latent constructs (Suhr, 2006). Confirmatory factor analysis was not considered appropriate, as it is used to test a specific hypothesis or theory concerning how variables are related (Pallant, 2016).

Before conducting factor analysis, the researcher assessed the suitability of the data. Tabachnick and Fidell (2007) suggest that the sample size must be greater than five times the number of items, if a sample is to be considered suitable for factor analysis, while Nunnally (1978) suggests that the sample size must be at least ten times more. Considering that there were 36 items, with a sample size of 252, more than seven times the number of items, the sample size was deemed suitable for factor analysis. The extraction technique used was maximum likelihood factoring (Pallant, 2016), which is considered the best choice when data are relatively normally distributed (Costello & Osborne, 2005). Principal component analysis was not considered sufficient, as the purpose of factor analysis is not solely to reduce data (Costello & Osborne, 2005). An additional purpose of factor analysis is to reduce the number of items, before using them in multiple regression analysis.

Communality is relevant to exploratory factor analysis (Suhr, 2006), and was therefore considered in this study. The communalities of the items were considered, in order to determine the influence of underlying constructs. In real data, moderate communalities of 0.40–0.70 are acceptable (Costello & Osborne, 2005).

Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were considered to assess the factorability of the data. Bartlett's test should be statistically significant at  $p < 0.05$ , and the KMO measure should have a value of 0.6 or above (Pallant, 2016; Tabachnick & Fidell, 2007). For the results of both tests, see Table 3.6.

Table 3.6.  
KMO measure and Bartlett's test results for the survey

<b>KMO and Bartlett's test</b>		
Kaiser-Meyer-Olkin measure of sampling adequacy		.936
Bartlett's test of sphericity	Approx. Chi-square	6445.163
	Df	630
	Sig.	.000

As indicated in Table 3.6, the  $p$  value for Bartlett's test was lower than 0.05. Furthermore, the KMO value was higher than 0.60. Thus, factor analysis was considered appropriate for the next step in the analysis.

The scree test was also used to confirm the number of factors that could be extracted. All factors above the elbow or break in the plot were retained, as they contributed most to the variance in the data set (Pallant, 2016). Horn's parallel analysis, whereby the sizes of the eigenvalues were compared to those obtained from a randomly generated data set of the same size, was also utilised. Only those eigenvalues that exceeded the corresponding values from the random data set, were retained.

Since the purpose of the survey was to determine the importance of the various IT competencies in strategic business partnering, such an exploration moulded and informed the development of an IT competency framework for entry-level HRM strategic business partners. Following factor analysis, the researcher examined the variables that could be attributed to each factor, and gave the factor a name or theme. Such labelling is considered subjective, theoretical and inductive in nature (Williams et al., 2010). The factors identified during this phase, explained the majority of the responses.

The results of the online survey and the development of the factors of the proposed IT competency framework were based on the findings of the exploratory factor analysis. The data generated from the survey responses were sufficient, reliable and valid, and therefore suitable for generating the final competency framework.

### c. Multiple regression

Multiple regression is generally used to investigate the relationships between several independent variables and the dependent variable (Saunders et al., 2016). This technique enables the researcher to model the relationship between the various variables and to predict what one variable will do, based on the score of the others (Pallant, 2016). For the purposes of this study, the researcher used multiple regression to test the relationship between the identified IT competencies and strategic business partnering.

Multiple regression is normally used to explore continuous variables (Pallant, 2016). Notably, the variables in this study were ordinal in nature, but variables using Likert scales with five or more categories can be used as an ordinal approximation of a continuous variable, without being detrimental to the analysis of the variables (Norman, 2010; Sullivan & Artino Jr., 2013). Since the researcher utilised a Likert scale with five categories, the variables were treated as continuous for the purpose of multiple regression.

Various assumptions should be met in order to perform multiple regression analysis: first, the relationship between the dependent and independent variables must be linear, as outliers might violate the assumption of linearity (Saunders et al., 2016). In the analysis undertaken here, one outlier was identified, but due to the large sample size it was decided not to exclude it. Second, the homoscedasticity assumption was assessed. The final assumption related to the absence of multicollinearity – there had to be no (or a low) correlation between the independent variables, because a high correlation would make it difficult to determine how each individual variable affected the dependent variable separately (Saunders et al., 2016). In the analysis, there were slightly high correlations between the identified factors, but none of them were deemed to be substantial. Furthermore, the tolerance values of all three factors were higher than 0.10, and the variance inflation factors were less than 5 (Pallant, 2016; Saunders et al., 2016). Hence, the assumption of 'no multicollinearity' was also met. In other words, it is reasonable that it does not pose a threat to the interpretation of results, enabling the use of multiple regression analysis on the survey responses.

### 3.7.3. Phase 2 – Strategies used to ensure research quality

In this section, the focus falls on the various mechanisms used to ensure the quality of the research and its findings. By reducing the possibility of obtaining an incorrect answer to the research question, one can ensure research quality (Saunders et al., 2016) – this is done by testing for reliability and validity.

The reliability of the data was high, because mechanisms were in place to ensure that the expected type of respondent answered the questionnaire. As the questionnaire was either distributed via the web, or physically delivered and collected, a high level of control was exercised, ensuring that only HRM professionals completed the survey.

Reliability was further addressed by ensuring that there was little contamination of respondents' answers. If HRM professionals have insufficient knowledge of, or experience using, IT, there is a strong possibility that they may guess their answers, leading to uninformed responses. This was highly probable in the case of this survey, as the questionnaire asked questions regarding IT competencies which HRM professionals may (or may not) currently exhibit. This issue was, however, addressed by removing all incomplete or lacking responses (i.e., those with a large number of missing responses, or where respondents chose the same response to a large number of questions).

Since the questionnaire was self-completed, respondents were less likely to respond to please the researcher, or to give socially responsible responses (Saunders et al., 2016). It is, however, possible that some respondents discussed their responses with others, thus potentially contaminating their responses. The large sample size increased the reliability of this phase.

Pilot testing a questionnaire gives the researcher an opportunity to assess the validity of the questions and the likely reliability of the data being collected (Saunders et al., 2016). Content validity was established by asking those who contributed to the pilot study about the representativeness and suitability of the items in the questionnaire. Face validity was also established during that phase by getting feedback from the

contributors to the study as to whether the test appeared to measure what it was supposed to measure.

### **3.8. Integrative analysis**

An important feature of mixed-methods research is the integration of data from the various phases, to develop meta-inferences which are beyond the specific approaches followed by either phase (Guetterman et al., 2019). When analysing data, different types are integrated, sometimes even without the researcher realising it (Plowright, 2011). In this section, the researcher discusses the nature of the data collected and the rationale behind the various data analysis processes from an integrative perspective.

In the first phase, which consisted of the modified Delphi technique, narrative data were predominantly analysed. Narrative data are usually ambiguous and have fluid meanings (Plowright, 2011). Therefore, it is acknowledged that the same data may be differently interpreted and subjective, as meanings are debateable. Numeric data, on the other hand, are subject to statistical analyses, which involve counting and measuring procedures using numbers. Numeric data and statistical analyses are seen as relatively unambiguous, fixed, logical and as using applied conventions of mathematics (Plowright, 2011).

The first phase of the study was qualitative in nature. However, in the second round of the Delphi process, the researcher asked participants to rank the competencies identified during the first round. Ranking is quantitative in nature, although the Delphi process is considered to be qualitative. Also, rankings are based on opinion, and involve the numerical representation of a subjective interpretation.

With regard to the method, the data collected from the first phase (which was qualitative and therefore subjective in nature) were integrated into the second, which was quantitative. The findings of the first phase, which were obtained through thematic analysis, were used to develop survey items in the second. Again, survey responses are opinions and a numerical representation of a subjective interpretation. The survey responses were statistically analysed to verify and streamline the competency framework developed as a result of the qualitative data analysis.

During the integration of the findings, the competency categories identified through the qualitative analysis were combined with the factors identified through the quantitative analysis, to develop an IT competency matrix table. Such an integration enabled the development of a comprehensive and balanced competency framework that a purely qualitative or purely quantitative method would not have made possible.

### **3.9. Ethical issues**

Ethical concerns and issues guide the conduct of a researcher, in respect of those who are affected by the study and those who are its subjects (Saunders et al., 2016). Such concerns appear at various stages of the study, including planning and design, data collection, data analysis and the management and reporting of findings. Saunders et al. (2016) suggest that certain ethical codes must apply as ethical principles in the context of a study. These codes were applied throughout the various phases of the present study, to systematically outline the various steps taken to ensure that all ethical aspects were considered.

Before the study commenced, the researcher defended the research proposal before a research proposal panel at the Department of Industrial Psychology and People Management at the University of Johannesburg. During the defence, panel members scrutinised the ethical considerations associated with the proposal, and made recommendations to improve them. Furthermore, the researcher obtained ethical clearance from the University of Johannesburg to conduct the various phases of this study.

#### **3.9.1. Integrity and objectivity**

At all times, the researcher behaved with integrity and objectivity, reporting all findings systematically and openly. While unconscious bias or prejudice may have crept into the study at various stages, earnest thought went into considering the various forms of bias and prejudice that might have influenced the data analysis and management (Smith & Noble, 2014). Considerations pertaining to the various forms of bias are discussed in detail below.

### 3.9.1.1. Design bias

There may have been some bias in choosing the research question. The researcher has a background in IT, and currently works in the field of HRM education. Thus, the researcher is concerned about the utilisation of technology in this field. Being an academic, the researcher is also concerned about the competencies that must be developed in entry-level HRM professionals. Hence, her involvement in the field may have caused some bias and subjectivity in approaching the research question. However, she took care to ensure that the literature was reviewed and supported the problem statement as well as the research questions identified in this study.

Furthermore, the researcher ensured that there would be no bias from a design point of view. Once the research question and objectives had been identified, all possible approaches, methods and techniques were considered, before settling on the approaches used in this study.

Incongruence between aims and methods can increase the likelihood of bias (Smith & Noble, 2014). Here, this was avoided by approaching the questions and sub-questions from a pragmatic perspective, considering the most appropriate method to answer the specific research question.

### 3.9.1.2. Selection bias

The inclusion criteria took into consideration the research question and the objectives that the study aimed to achieve (Saunders et al., 2016). Selection stringency was kept low so that no population group would be excluded unintentionally (Velasco, 2012). Respondents were not restricted based on race, gender or age.

In the Delphi process, selection bias may have influenced the identification of experts, especially because snowball sampling was used. However, data saturation was achieved. Furthermore, the literature indicates that the sample size used was adequate for the Delphi technique to be used (Costa, 2005; Dalkey, 1969, as cited in Venter & Barkhuizen, 2005). With an understanding that all the participants who contributed to Round I might not participate in rounds II or III, the researcher contacted

more than double the final number of participants required for a Delphi study to be completed.

During the survey phase, care was taken to avoid any exclusion based on race, gender, age or educational qualification. The questionnaire included demographic items. In fact, one respondent queried why there was a question about age in the survey, but completed the questionnaire regardless.

### **3.9.1.3. Data collection and analysis bias**

Data collection and measurement bias was avoided as far as possible in the study. This form of bias manifests itself in the form of leading questions and unclear items and instructions (Smith & Noble, 2014). To this end, the researcher made the Phase 1 participants and Phase 2 respondents fully aware of the purpose of the research and the nature of the activities, in the process of obtaining consent. To avoid this form of bias in Phase 1, no leading questions were asked. In Phase 2, the researcher achieved this by ensuring that the terms and phrases used in the instrument were clear and comprehensible. After conducting a pilot study, the feedback was used to revise the questionnaire as well as the data-collection process. Finally, the researcher tested the survey for validity and reliability.

### **3.9.2. Respect for others**

Trust and respect are highly regarded in research (Saunders et al., 2016). Social responsibility and obligations to those who participate in research (or are affected by it) must be considered. The rights and dignity of all persons involved must be taken into account.

In this study, the researcher maintained respect for others by ensuring that all participants and respondents gave consent prior to participating in both phases 1 and 2. All participants in Phase 1 and all respondents in Phase 2 had the choice to participate voluntarily and withdraw from the study at any time they chose to do so. The various responses they gave to both the open-ended questions in Phase 1 and the closed items in Phase 2 were appreciated and documented, without interfering



with, or disrupting, those responses. Participants in both phases could choose how to interact with the research process, and the researcher made no attempt to extend the scope of participation beyond what was initially agreed upon. All participants had the right not to answer any question, not to supply any information requested of them, to change the nature of their consent, and to withdraw their participation or any information they had already provided, from the research process. The researcher supplied any information that the participants needed in order to make decisions, and made her contact details available to the participants, in the event they required any additional information.

### **3.9.3. Avoidance of harm**

The nature of the study was such that no physical harm was caused to the participants involved. Any form of embarrassment, stress, discomfort or conflict was avoided. In Phase 1, the use of the Delphi technique caused participants to be completely anonymous to each other, enabling them to voice their thoughts without any discomfort. The researcher acted as gatekeeper in the Delphi process, dealing with any conflict by analysing the data and managing the responses herself, presenting the former in such a way that all inputs were accounted for. Furthermore, all the participants in both phases 1 and 2 received sufficient time and notice, to avoid creating any stress for them. Finally, the researcher made every effort to protect the information received, such that no participant would be harmed in any way.

### **3.9.4. Privacy**

All participants' information remained confidential and their privacy was respected. One of the guiding principles of the Delphi technique is that participants remain quasi-anonymous, which implies that while participants and the researcher may be known to each other, their judgements and opinions remain strictly anonymous (Hasson & Mckenna, 2000). In Phase 1, the researcher exercised additional caution by keeping the participants' information confidential from other participants and those interpreting the findings of the study, to safeguard participants from being identified (Hasson & Mckenna, 2000). All the participants' data were converted to non-attributable data.

Furthermore, all email and telephonic conversations that were recorded, were stored in a password-protected account.

In Phase 2, while certain respondents may have been aware of the identity of other respondents, as they were physically present while responding to the survey, privacy was maintained by keeping all responses private and secure. No personal information was collected in the survey. Once the survey had been processed, the privacy of all respondents was protected. The researcher also ensured that the respondents' identities would not be exposed during the data analysis, the reporting of the findings, or the discussions thereof.

All participants involved in both phases of this study remained anonymous throughout the various stages. They were informed that they would remain anonymous, as any breach may have affected their responses. Thus, as soon as the researcher had obtained the data from the various participants in Phase 1, it was converted to non-attributable data, which were subsequently stored in a password-protected account on a secure computer. Thus, both confidentiality and anonymity were prioritised in this study.

### **3.9.5. Responsible and compliant management of data**

The researcher continually upheld all guarantees regarding confidentiality and anonymity which had been given to the respondents before and during data collection, management, analysis and reporting. All primary data obtained during the two phases of this study were reported truthfully. No falsification was done, nor were alterations made to the data. The findings from Phase 1 were reported completely and accurately, even when they contradicted the expected outcome of the study. Through good record keeping, the researcher ensured there would be no fabrication or falsification of the data. Files, including original notes and recordings, that contained confidential information were labelled appropriately and saved securely. Data containing any personal information were also held separately from the anonymised versions of the data. Paper copies of interview notes, signed consent forms, questionnaires and transcripts were filed systematically and held in a restricted, secure location. All

sources and references for figures and tables were acknowledged. All legal regulations associated with the collection of personal information, were complied with.

### **3.10. Conclusion**

The findings and results of statistical analyses of this study enabled the researcher to achieve the identified secondary objectives. The first objective was achieved when the various competencies were identified during the first phase of the study. By determining the relationships among the identified competency categories, and the relationships of those competencies with strategic business partnering, she achieved the second objective – of developing a framework of the identified competencies for entry-level South African HRM professionals. Finally, the researcher used statistical analyses to determine the extent to which the identified IT competencies will enable entry-level South African HRM professionals to be strategic business partners.

The purpose of this chapter was to indicate how the research question was answered and how all the objectives of the study were met. The research paradigm in relation to the study was elaborated on. The research approach used and the methods of data collection were described. The boundaries of the study – what it is, and what it is not – were also discussed. The strategies used to ensure research quality and address ethical concerns were also explained. Sufficient information was provided so that choices made with regard to the research method could be validated, the reliability and validity of procedures assessed and the trustworthiness of the findings evaluated. The next chapter focuses on the findings of Phase 1, the results of Phase 2 and the integrative analysis.

## Chapter 4: Findings

### 4.1. Introduction

The aim of this study was to develop a framework of IT competencies that will enable entry-level South African HRM professionals to be strategic partners to business. The research question that the study sought to answer, is:

What IT competency framework will promote strategic business partnering by entry-level South African HRM professionals?

The above research question was further broken down into the following sub-questions:

1. What competencies must entry-level South African HRM professionals possess to be strategic partners to business?
2. How can the identified competencies be categorised into a competency framework?
3. To what extent do the identified IT competencies enable entry-level South African HRM professionals to be strategic partners to business?

As indicated in preceding chapters, the study consisted of two phases, with the findings being reported in relation to each phase. The first phase helped to determine which IT competencies entry-level HRM professionals require, if they are to serve as strategic partners to business. As an outcome of the Delphi method, the researcher developed competencies and associated behavioural indicators. The details of the findings of this phase are presented first, as the findings of the Delphi method relate to research sub-questions 1 and 2.

Subsequent to the Delphi study, the researcher incorporated the identified behavioural indicators into a survey and distributed that to HRM professionals across South Africa. The statistical analysis of the survey responses relates to research sub-questions 2 and 3. Although this is a sequential mixed-methods study where one phase followed another, some of the sub-questions were answered in both phases. The Delphi

findings have been integrated with the quantitative findings to answer sub-question 2 (see Chapter 5).

## **4.2. Findings: Phase 1**

The findings obtained from the modified Delphi technique are presented in three sections. In the first, the various competencies identified through the modified Delphi technique are discussed, taking into account quotes and comments made by the participants in the first round. Further, comments that were made linking the identified competencies to strategic business partnering, and pertained to entry-level HRM professionals, are reported. In the next section, which relates to rounds II and III of the Delphi process, the rankings which the participants suggested for the various competencies are presented.

### **4.2.1. Phase 1 – Competency identification**

The analysis of the answers the participants gave to the open-ended question in the first round of the Delphi process resulted in various competencies being identified. The codes identified during the thematic analysis were proposed as behavioural indicators, and these were sorted into competencies which, in turn, were grouped into themes. The competency themes relate to data analysis, business process and leveraging technology. In the next section, the various themes are reported separately. Within each theme, the competencies and associated behavioural indicators are reported.

#### **Theme 1: Data analysis competencies**

The first theme of identified IT competencies was in the area of data analysis. All the participants in Round I unanimously agreed that data analysis is an area where entry-level HRM professionals can contribute. Several participants commented that, through sound data analysis, entry-level HRM professionals can assist both the senior HR business partners and line managers in making strategic decisions. The various competencies identified within this theme and the associated behavioural indicators are indicated in Table 4.1, and then discussed in detail.

Table 4.1.

*Data analysis theme: Competencies and behavioural indicators*

Competency	Behavioural indicators
Theme 1: Data analysis	
1.1 Linking human issues to data and vice versa	<ul style="list-style-type: none"> <li>• Identifies data points related to employee and organisational information needed in a particular situation</li> <li>• Identifies the impact of analysed information on people in the organisation</li> <li>• Connects human issues in the workplace to related data</li> </ul>
1.2 Using data for predictions and decision making	<ul style="list-style-type: none"> <li>• Makes predictive inferences from data</li> </ul>
1.3 Processing different forms of data	<ul style="list-style-type: none"> <li>• Organises data for ease of reading (sorting, organising, splitting data into separate fields)</li> <li>• Summarises different forms of data</li> <li>• Is consistently accurate</li> <li>• Gives attention to detail</li> <li>• Is proficient in the use of spreadsheet and database programs</li> </ul>
1.4 Understanding data integrity	<ul style="list-style-type: none"> <li>• Maintains and assures the accuracy and consistency of data in a single system or multiple systems</li> <li>• Differentiates data context from data integrity, i.e. when data are accurate and relevant in one context, but should not be used in another context/database table</li> </ul>
1.5 Managing data with confidentiality, security and awareness of information risk	<ul style="list-style-type: none"> <li>• Keeps data confidential</li> <li>• Stores data securely</li> <li>• Is aware of the risks that could arise if data are not protected</li> <li>• Assesses whether various systems used for HR information have appropriate data security/access levels</li> </ul>
1.6 Understanding of statistics	<ul style="list-style-type: none"> <li>• Knows arithmetic processes</li> <li>• Knows statistical methods</li> </ul>
1.7 Linking data to processes	<ul style="list-style-type: none"> <li>• Maintains an information system</li> <li>• Identifies gaps in processes based on the quality of data</li> <li>• Modifies existing processes, to collect authentic data</li> <li>• Is aware of how to transfer data from one system to another for processing purposes</li> <li>• Contributes to a multi-system environment by identifying data common to various systems</li> </ul>
1.8 Appreciating data mining and big data	<ul style="list-style-type: none"> <li>• Applies data mining outputs and big data insights to HR issues</li> </ul>

#### 4.2.1.1. Competency 1.1: Linking human issues to data

Linking human issues to the data available in the organisation was one of the most prominent competencies which the participants mentioned. Some responses related to this competency include the following:

*“If you are my business partner, when we talk about talent and succession, don’t just send me a spreadsheet of people’s performance ratings.”* (Participant 14: head of HR technology, financial services)

*“... must critically understand the power of people insights beyond traditional HR ...”* (Participant 3: HCM business consultant, IT)

*“They must be able to link human issues to various forms of data obtained through different IT systems.”* (Participant 15: HCM industry systems specialist, IT)

These comments point to the ability of entry-level HRM professionals to identify data points relating to employee and organisational information that either senior HR management or business managers require to answer a particular question or solve a particular problem. Additionally, entry-level HRM professionals must be comfortable in identifying people issues from data, and, conversely, the impact data analysis can have on people matters. The following comments imply that entry-level HRM professionals need to understand that a decision made based on information must not be based on only one data point. They should know that the person must be viewed holistically, before a decision is made, as is evident from the following:

*“Don’t send me spreadsheets of people’s performance ratings. It means nothing. At a point of time, this is this person’s rating ... My top performer must have had a rough six months, a personal situation or something that caused him to underperform. So when you come and talk to me, show a holistic profile, not just one data point in isolation. I don’t know of any HR people who can do that right now.”* (Participant 14: head of HR technology, financial services)

Furthermore, the participants mentioned that entry-level HRM professionals should be able to recognise the impact that analysed information may have on people in the organisation:

*“Technology is becoming prescriptive and predictive ... As an HR professional, being forward thinking and understanding how people are affected by decisions made using data, are very important.”* (Participant 12: director: HCM business consulting, consulting)

*“... they must be able to decipher the analysed data or the information one gets from such analysis and understand how it impacts people.”* (Participant 22: associate professor, higher education)

Thus, the ability to link human issues to data, and vice versa, is identified as an important IT competency for entry-level HRM professionals.

#### **4.2.1.2. Competency 1.2: Using data for predictions and decision making**

The second identified competency relates to using data to make predictions, which subsequently enable decisions to be made. According to the participants, entry-level HRM professionals must be able to use data for predictions and decision making:

*“As an HR professional, being forward thinking and understanding how people are affected by decisions made using data, are very important.”* (Participant 12: director: HCM business consulting, consulting)

*“... being able to analyse workforce trends and advise corrective measures, risk mitigation strategies and changes to the workforce/talent mix ...”* (Participant 1: global executive advisor, IT)

These comments indicate that entry-level HR professionals must be able to connect data to human issues or problems in the workplace. While linking human issues to data has been mentioned before, this particular competency relates to the ability of an entry-level HRM professional to proactively identify and analyse data to connect the findings of such data analyses to various people-related phenomena in the workplace, as these comments serve to confirm:



*“They must be able to make predictive inferences by identifying trends in past and current observable people data.”* (Participant 21: senior manager, consulting)

*“They must be forward thinking and looking at predictive tools.”* (Participant 15: HCM industry systems specialist, IT)

One must differentiate the phenomenon of connecting data to people-related events from predicting people-related phenomena based on data. Connecting data with certain incidents or issues is associated with the past and the present, while predicting people-related incidents based on data analysis relates to the future.

#### **4.2.1.3. Competency 1.3: Processing different forms of data**

The next competency is associated with understanding and processing various forms of data. Some participants' comments were rather generic in respect of this competency:

*“A skill required is basic data manipulation, for example, in Microsoft Excel... HR must know how to work with large data sets...”* (Participant 6: HR manager, IT)

*“Inaccurate/sloppy HR data is the bane of working with HR IT systems.”* (Participant 5: operations director, IT)

Several participants agreed that entry-level HRM professionals should be able to analyse and determine trends in the workforce. To do so at a basic level, these new entrants must be able to organise data for ease of reading, and must know how to sort, filter and split data into separate fields. They must be comfortable working with large datasets. Furthermore, they must be able to summarise different forms of data, ensuring that they are accurate, consistent and give attention to detail. The participants commented that entry-level HRM professionals should be able to manipulate data by processing and analysing texts, numbers and strings, in addition to knowing how to determine data exceptions, as is evident from the following:

*“For example, if someone entered ‘Smithh’ instead of ‘Smith’, they must know how to pick that up. Also, if an address is broken down into three parts, Address Line 1, Address Line 2 and City, they must know that it will be easy to filter employees based on the city that they reside in at a later stage. This will be difficult if an address as a whole is entered as one data point.”* (Participant 6: HR manager, IT)

*“... must understand that information can be broken down into smaller parts of data.”* (Participant 5: operations director, IT)

*“... should be able to manipulate data by processing and analysing different forms of data in the form of text, number and string. They must also know how to determine data exceptions.”* (Participant 6: HR manager, IT)

*“Attention to detail is a necessary attribute.”* (Participant 17: consultant in HR technology and operations, consulting)

All the above behavioural indicators point to the fact that entry-level HRM professionals must be proficient in the use of spreadsheet and database programs.

*“Building baseline analytical skills will greatly improve an HRM professional’s ability to be a strategic partner by being able to analyse workforce trends ...”* (Participant 1: global executive advisor, IT)

*“Relational database knowledge and understanding the nuances of data will be very useful.”* (Participant 5: operations director, IT)

Linking to the processing of data, some participants named two attributes that are more generic in nature: the first relates to accuracy, while the second relates to attention to detail.

#### **4.2.1.4. Competency 1.4: Understanding data integrity**

Understanding data integrity, which is about ensuring the accuracy and consistency of the data collected, either in a system or in multiple systems, was the next competency to be identified. According to several participants in the Delphi process,

entry-level HRM professionals must understand data integrity. Those who have mastered this competency should be able to maintain and assure data accuracy in a single system or across multiple systems. The participants also expected entry-level HRM professionals to ensure data consistency across multiple systems, and over lengthy periods, as these comments show:

*“The data you need may not always be in one system. HRM professionals must be able to move data between systems, instead of getting employees to resubmit information that they may have already provided.”* (Participant 10: head of business strategy, financial services)

*“They must know how to clean up source files. They must be able to pick up if there are any glaring errors.”* (Participant 21: senior manager, consulting)

*“If I see gaping holes in my source data, I must immediately be able to pick up one of two things. Either my process is not allowing me to collect good data, or the employee does not feel the need to or is uncomfortable sharing that data. Then I must be looking to figure out how else I can collect the data, or at least why employees are uncomfortable.”* (Participant 1: global executive advisor, IT)

*“There is a tendency to forget data once its immediate need is met. Data must be consistently accurate, and someone must be responsible for ensuring data accuracy over a longer period. Otherwise, how can anyone make accurate predictions?”* (Participant 19: head: people analytics, financial services)

In some instances, even though a particular dataset may be accurate and relevant in one context, system users may apply the same dataset inaccurately in another context. Entry-level HRM professionals must be able to identify such contextual inaccuracies, as is clear from these observations:

*“... they must know whether a particular set of information collected under one context can be used in another context. Or they must know that some data may be effective in one context, but absolutely useless in another.”* (Participant 11: industrial psychologist, consulting)

Entry-level HRM professionals must also be able to check for both data integrity and context in a single system and across multiple systems, as this participant noted:

*“They must also be able to discern the value gained or lost by a single integrated system versus multiple systems.”* (Participant 3: HCM business consultant, IT)

Thus, entry-level HRM professionals must understand the importance of data integrity across multiple systems and over extended periods, if they are to contribute strategically.

#### **4.2.1.5. Competency 1.5: Managing data with confidentiality and security**

A competency that many participants in the first round identified as necessary for entry-level HRM professionals, pertained to data confidentiality and security. According to the majority of participants, entry-level HRM professionals must keep data confidential and understand the principles of storing data securely. Considering that they would be expected to work extensively with sensitive data related to people, most participants deemed this competency to be crucial.

Many participants remarked on this competency – while some discussed it broadly, others were more specific:

*“The adoption of cloud systems is increasing, so there is a need to be involved in formulating strategies for guarding the data of their employees.”* (Participant 14: head of HR technology, financial services)

*“HR is the custodian of the [employee] data... They need to have a view of all the different data laws that come into play when data is housed outside the borders of their own country.”* (Participant 20: management consultant, consulting)

*“Data confidentiality is talked about, but junior HRM professionals must be aware of the consequences if employee data is not private. It should not just be a legal concern .... There is a difference between data security and data privacy*

... There are serious risks associated with both. They must know the difference between the two.” (Participant 13: HRIS manager, higher education)

“They must check who’s got access to what, and question whether certain people need access, especially to confidential information.” (Participant 11: industrial psychologist, consulting)

“They must not only practice keeping data confidential and secure, they must also be aware of the risks that could arise if the systems do not protect data sufficiently.” (Participant 13: HRIS manager, higher education)

“They should be able to assess whether the various systems used for storing and processing HR information have appropriate data security and access measures.” (Participant 11: industrial psychologist, consulting)

Thus, the participants agreed that entry-level HRM professionals must necessarily know how to manage data by keeping it confidential and secure, they have to understand these concepts and appreciate the need for both, in the organisation as a whole and in their own handling of employee data.

#### 4.2.1.6. Competency 1.6: Understanding of statistics

Most participants agreed that entry-level HRM professionals need an understanding of mathematics in general, and of statistics in particular, as these comments indicate:

“If we put data in front of HR professionals, they won’t know what to do with it.” (Participant 8: head of product management, IT)

“... they also should know what to do with the data.” (Participant 15: HCM industry systems specialist, IT)

There were, however, differences in opinion regarding the level of understanding required of entry-level HRM professionals. Some participants felt that entry-level HRM professionals have to know arithmetic processes and statistical methods. Most suggested that a basic knowledge would do, while a few stated that a more thorough understanding of statistics would be helpful, as they would then be able to extract

information from various forms of data. Some participants indicated that, with technological advances, organisations have systems providing vast quantities of data. HRM professionals would benefit from a thorough understanding of statistics, as they would then be able to work with the data to extract useful information, as these comments show:

*“Mathematics, basic mathematics skills are necessary. HRM professionals cannot be strategic without number skills.”* (Participant 18: manager: human capital analytics, telecommunication)

*“Building baseline analytical skills will greatly improve an HRM professional’s ability to be a strategic partner by being able to analyse workforce trends and advise corrective measures...”* (Participant 1: global executive advisor, IT)

*“They must have basic knowledge of how to represent data using various graphs and charts. They must also know how to read such visual representations.”* (Participant 5: operations director, IT)

*“... knowledge of data as a construct is very useful.”* (Participant 7: executive: HR business partnering, IT)

*“They must know enough about the possible statistical methods that would be applied to the data. This will make them aware of how important collecting the data is, and if need be, do some calculations themselves. We have technology to do the calculations. Knowing what to do is more important than how to do it.”* (Participant 12: director: HCM business consulting, consulting)

*“They must know enough of statistics from university already. Where else will they learn about the various techniques and where they must apply them?”* (Participant 20: management consultant, consulting)

Thus, while there did not seem to be consensus regarding the extent of understanding needed, there was agreement that a grasp of statistics is sought after in entry-level HRM professionals who wish to serve as strategic partners to business.

#### 4.2.1.7. Competency 1.7: Linking data to processes

The next competency concerns linking data to processes. Several participants stated that entry-level HRM professionals must insist on following processes, such that useful data can be collected. Others mentioned that HRM professionals focus excessively on people aspects, and forget that processes need to be in place to support people effectiveness in organisations, as is evident from the following quotes:

*“... when they skip certain steps in a process, they must realise that they cannot do certain analyses in the future.... Processes and data are integrated things; they are not separate.”* (Participant 10: head of business strategy, financial services)

*“They just need to know that they can obtain data from systems.”* (Participant 17: consultant in HR technology and operations, consulting)

*“They must know how to maintain an information system.”* (Participant 18: manager: human capital analytics, telecommunication)

Based on the quality of data in such a system, entry-level HRM professionals should be able to identify gaps in the organisation’s HR processes. They also should be able to modify existing processes in order to collect authentic data, as this statement confirms:

*“They should be looking for opportunities to collect whatever data they can. People data comes by with quite a bit of difficulty. So, if they do not look at the various processes and cannot see the associated data, it’s really pointless.”* (Participant 11: industrial psychologist, consulting)

Finally, an entry-level HRM professional must contribute to a multi-system environment by identifying data that may be captured in one system and required in another system, or that is common to various systems, as these comments confirm:

*“In most organisations, especially medium to large organisations, HRM professionals have to work on more than one system at a given point in time. Therefore, these newcomers should be aware of the collection of data from*

*these systems, and also how to transfer data from one system to another for processing purposes.” (Participant 22: associate professor, higher education)*

*“They should know that while some systems may give real-time data, there may be delays in other systems which will prevent the data from being up to date. Such awareness can prevent [them from] using the wrong information.” (Participant 6: HR manager, IT)*

*“Entering data that is already in another system can be frustrating for the employee. HRM professionals must be aware of what data is available in other systems to prevent repetitive data collection.” (Participant 22: associate professor, higher education)*

Thus, entry-level HRM professionals must be able to collect data by ensuring that various processes are in place to facilitate this – both within the HRM function and outside it.

#### **4.2.1.8. Competency 1.8: Appreciating data mining and big data**

The final competency identified under this theme, relates to data mining and big data. A number of participants commented that entry-level HRM professionals must be able to apply data-mining outputs and big data insights to HR issues:

*“Big data is one of the upcoming trends. From an entry-level HRM professional’s perspective, they must know what it is, they must appreciate it, and they must be ready to participate in it.” (Participant 18: manager: human capital analytics, telecommunication)*

*“Data mining and big data are important. They don’t need to know much about it, they just need to be prepared to process data to be ready for data mining.” (Participant 21: senior manager, consulting)*

*“Big data findings are all over the place. The HRM professional must know how to apply such findings in his own context.” (Participant 16: partner: HCM business consulting, consulting)*



Thus, the participants concurred that while big data and data mining fundamentals are necessary for entry-level HRM professionals, they do not need to know the intricacies thereof.

The eight competencies identified under the first theme closely relate to data processing and analysis, which most participants deemed crucial for entry-level HRM professionals. The next theme – business process competencies – is discussed in detail hereunder.

## Theme 2: Business process competencies

The second theme of identified IT competencies was in the area of business processes. While it may seem that these competencies are not directly related to IT or other technological advances, they appear to align with how such technology is being used to improve the HRM practices in organisations. All the participants in Round I identified competencies under this theme, noting that without them (even with good technology being available), the HRM function would not achieve much. This theme links strongly to strategic business partnering. This section includes an analysis of all the business process competencies identified during Round I, as indicated in Table 4.2.

Table 4.2.

*Business process theme: Competencies and behavioural indicators*

Competency	Behavioural indicators
<b>Theme 2: Business process competencies</b>	
2.1 Understanding HR metrics	<ul style="list-style-type: none"> <li>• Explains and calculates HR metrics</li> <li>• Identifies HR metrics relevant to organisation, context and specific requirements</li> </ul>
2.2 Understanding HR transactions and process integration	<ul style="list-style-type: none"> <li>• Breaks down HR processes into various transactions</li> <li>• Integrates existing transactions into new processes</li> <li>• Effectively connects information from various systems</li> </ul>
2.3 Managing large- and small-scale change	<ul style="list-style-type: none"> <li>• Applies the principles of change management to the technological aspects of HR</li> <li>• Is able to work with others</li> <li>• Reacts to change with technological perspectives, tools and techniques, in order to make change seamless</li> </ul>

Competency	Behavioural indicators
2.4 Researching and benchmarking	<ul style="list-style-type: none"> <li>• Extracts relevant information from external and internal reports</li> </ul>
	<ul style="list-style-type: none"> <li>• Applies findings to own context</li> </ul>
	<ul style="list-style-type: none"> <li>• Investigates a matter systematically by studying various materials and sources</li> </ul>
	<ul style="list-style-type: none"> <li>• Differentiates how and when to use external benchmarks appropriately, for example, able to interrogate the applicability of external benchmarks to the organisation's scenarios</li> </ul>
2.5 Appreciating the relationship between process and data integrity	<ul style="list-style-type: none"> <li>• Has knowledge of records management principles</li> </ul>
	<ul style="list-style-type: none"> <li>• Focuses on process, to ensure data obtained have integrity</li> </ul>
	<ul style="list-style-type: none"> <li>• Displays understanding of process ownership, data ownership, process integrity and process waste</li> </ul>
2.6 Designing user experiences	<ul style="list-style-type: none"> <li>• Identifies the needs of the end user (employee or manager) through observation, engagement and empathising</li> </ul>
	<ul style="list-style-type: none"> <li>• Contributes to designing experiences for the end user (employee or manager)</li> </ul>
	<ul style="list-style-type: none"> <li>• Observes and engages with people, to understand their needs</li> </ul>
	<ul style="list-style-type: none"> <li>• Defines a problem, question or hypothesis based on the needs of stakeholders</li> </ul>
2.7 Understanding system thinking	<ul style="list-style-type: none"> <li>• Views the organisation and the HR function as a system and as part of a system</li> </ul>
	<ul style="list-style-type: none"> <li>• Taps into information from other functions to benefit the HR function</li> </ul>

#### 4.2.1.9. Competency 2.1: Understanding HR metrics

A number of participants agreed that entry-level HRM professionals must have a sound understanding of HR metrics:

*“At the most basic level, entry-level HRM professionals must be able to explain and calculate HR metrics. Unless entry-level HRM professionals can explain HR metrics and their relevance to the business, how will they extract relevant data from the available IT systems?”* (Participant 9: HRIS manager, higher education)

*“There is no point going into industry without knowing HR metrics.”* (Participant 16: partner: HCM business consulting, consulting)

*“Metrics is the starting point of strategic business partnering. It’s the language that one must use.”* (Participant 19: head: people analytics, financial services)

The participants also remarked that entry-level HRM professionals must identify HR metrics that are relevant to the organisation and the context in which these are requested, taking into consideration the specific requirements of the business and the organisation. This much is evident from the following statements:

*“Do you think business is going to consult with the HR function before introducing a business process? Absolutely not. The HRM function needs to look at the business process and see what information they can collect from there, which information is useful to HR.... For that, they have to start at the HR metrics that are useful to the organisation.”* (Participant 12: director: HCM business consulting, consulting)

*“Communicating needs clearly, is very important for the right metrics to be identified and monitored.”* (Participant 4: operations effectiveness manager, mining)

*“Only once the right HR metric is identified, can a system be used to get the data required to calculate such a metric.”* (Participant 7: executive: HR business partnering, IT)

Thus, entry-level HRM professionals must be able to look at a particular situation, analyse it and determine what HR metrics would be relevant to resolve associated problems. Having done that, they must be able to calculate the HR metrics and explain them to line managers and employees, if need be.

#### **4.2.1.10. Competency 2.2: Understanding HR transactions and process integration**

According to the participants, entry-level HRM professionals must be able to break down any HR process into various transactions or steps. Thus, understanding HR transactions and process integration is deemed an important competency for entry-level HRM professionals, as one participant’s comment shows:

*“An entry-level HRM professional should exhibit HR process knowledge.”*  
(Participant 6: HR manager, IT)

Entry-level HRM professionals must also be able to integrate existing transactions into new processes, according to these participants:

*“The processes should integrate with both technology and with other processes in the organisation. For example, if during the process of recruitment, the address of an employee has already been captured, the employee must not be asked for the address again as part of another HR process, which may be for training planning, for example.”* (Participant 13: HRIS manager, higher education)

*“They must also be able to align various processes and practices to the technology that may be used in the organisation, and vice versa.”* (Participant 10: head of business strategy, financial services)

Furthermore, entry-level HRM professionals must be able to effectively connect information from various systems. If various data points captured as part of an HR process are required for a new HR process, they should be able to link such existing data to the new process, to avoid repetition and extra work. Therefore, entry-level HRM professionals must be capable of connecting information from various HR systems in an effective way, as this comment confirms:

*“Such integration is often a business or HR philosophy problem first, before the system even comes into the discussion.”* (Participant 13: HRIS manager, higher education)

#### **4.2.1.11. Competency 2.3: Managing large- and small-scale change**

Most participants interviewed in this phase of the study considered change management to be an important competency, noting that entry-level HRM professionals should apply the related principles to the technological aspects of HRM:

*“Change management is an important skill for HR professionals, given the advisory and supporting nature of the role.”* (Participant 4: operations effectiveness manager, mining)

*“They must now go back and challenge some of the traditional policies and processes.”* (Participant 17: consultant in HR technology and operations, consulting)

Entry-level HRM professionals should react to change, both internal and external to the business, with the appropriate technological perspectives, tools and techniques, as is evident from these statements:

*“They must convey the urgency and need for HR to enable people, inside and outside the organisational walls, in a highly visible manner that materially improves the organisation for most/all stakeholders.”* (Participant 13: HRIS manager, higher education)

*“When any decision is made in an organisation, HR should be able to appreciate the effect this decision may have on people and inform management about how they can make it better for the employees.”* (Participant 15: HCM industry systems specialist, IT)

Furthermore, they must be able to use such technological perspectives, tools and techniques to make any change seamless and efficient, in one participant’s view:

*“Ultimately, entry-level HRM professionals must be able to work with others to pick up their concerns and issues, and also, they must be able to resolve them with a technological mind-set.”* (Participant 13: HRIS manager, higher education)

Thus, although change management can be perceived from different angles, from an IT perspective, understanding and applying change management principles are important for entry-level HRM professionals.

#### 4.2.1.12. Competency 2.4: Researching and benchmarking

A finding in this phase is that, for entry-level HRM professionals to strategically partner with business, they must exhibit research and benchmarking competencies, as these statements confirm:

*“They should be able to extract relevant information from both external and internal business reports.”* (Participant 21: senior manager, consulting)

*“They must be able to discern what leading and lagging technologies are, and NEVER to invest in lagging.... What are relevant IT and HR trends?... Identify aspects which are pertinent to [those].”* (Participant 10: head of business strategy, financial services)

Furthermore, entry-level HRM professionals should be able to apply such findings to their own context. Given any matter, they must be able to investigate it systematically by studying various documents and sources. They must also differentiate how and when to use external benchmarks appropriately, as proposed in these comments:

*“Entry-level HRM professionals must know how to leverage benchmarking to the max(imum)....”* (Participant 9: HRIS manager, higher education)

*“Part of staying curious means being receptive to the changes that may occur in ones’ industry ... taking time to learn what the major disruptors are and what competitors are doing to stay abreast of the change.”* (Participant 12: director: HCM business consulting, consulting)

They must be able to interrogate whether external benchmark reports or any other information sources are relevant to the organisational context, especially before purchasing or using any such source(s), in the view of this participant:

*“From a centre of excellence perspective, they are responsible for defining practice. This is how we remunerate. This is practice, process, policy. Each brand then goes and crafts within that box, and makes sure they don’t step out of the box.”* (Participant 14: head of HR technology, financial services)

Thus, researching and benchmarking are necessary for entry-level HRM professionals, as is applying such research to a particular context.

#### **4.2.1.13. Competency 2.5: Appreciating the relationship between process and data integrity**

According to several participants, HR professionals must focus on various HR processes, so that they can ensure that the data obtained through these processes have integrity. Entry-level HRM professionals must display an understanding of process ownership, data ownership, process integrity and process waste. Furthermore, they must have sound knowledge of records management principles, as indicated in these comments:

*“One should build the best processes into a system and not take legacy thinking or practice and put it into a system – this causes huge cost, pain, poor adoption and business goal distraction.”* (Participant 9: HRIS manager, higher education)

*“Processes and data are integrated things; they are not separate.”* (Participant 10: head of business strategy, financial services)

*“... must be able to ask questions about data integrity, when a process is being established.”* (Participant 20: management consultant, consulting)

#### **4.2.1.14. Competency 2.6: Designing user experiences**

A competency that several participants mentioned, concerns designing user experiences. Many considered understanding the perspective of the employee – as a user of technology and systems – to be essential, as the extracts below suggest:

*“If I find someone who can think from a user perspective, I’ll hire him .... The HR business partner should fully understand what I need.”* (Participant 17: consultant in HR technology and operations, consulting)

*“The focus should be on the end user.”* (Participant 15: HCM industry systems specialist, IT)

*“HR people should design.... The HR professionals should put themselves in the shoes of the user.”* (Participant 8: head of product management, IT)

*“... must understand what is happening operationally on the ground.”*  
(Participant 22: associate professor, higher education)

*“Someone who understands the multi-generational workforce and can talk to everyone at their level, would be very useful.”* (Participant 14: head of HR technology, financial services)

Entry-level HRM professionals must therefore be able to define a problem, question or hypothesis, based on the needs of various stakeholders, as this participant noted:

*“Most HR systems are designed to benefit back-end administration and data analysis, but does not take into account the user, who is the employee.”*  
(Participant 14: head of HR technology, financial services)

Currently, users do not use these systems and the associated processes efficiently. HRM professionals, due to their people-related knowledge and skills, should be equipped to consider user experience and design, as suggested in these comments:

*“One cannot expect the IT team to develop the front end of such systems as it will then look like the back end of a database.”* (Participant 8: head of product management, IT)

*“Hypothesising is a great method of targeting specific workforce issues that an organisation might face.”* (Participant 2: HCM sales development and strategy leader, IT)

*“These are the guys who should interact with employees and managers to identify their needs.”* (Participant 8: head of product management, IT)

*“One must identify the needs of the end user, be it employee or manager, by observing, engaging and empathising with various stakeholders. Once such needs are identified, they must contribute their understanding to designing*



*experiences that are end-user-friendly.*” (Participant 14: head of HR technology, financial services)

Therefore, entry-level HRM professionals must appreciate and understand user experience and design, keeping the end user in mind.

#### **4.2.1.15. Competency 2.7: Understanding systems thinking**

To be effective strategic partners to business, entry-level HRM professionals must view the organisation and the HR function as systems in themselves, and as sub-systems which are part of a larger system. First, they must be able to approach various people matters holistically and accurately, taking into consideration various processes and sub-systems. Further, they must be able to tap into information from other functions, in order to benefit the HR function, as suggested in these statements:

*“One needs to know how systems work together.”* (Participant 19: head: people analytics, financial services)

*“They would need to know at some point how systems work together.”*  
(Participant 15: HCM industry systems specialist, IT)

*“A holistic perspective of both the employee and the various systems in play is important.”* (Participant 1: global executive advisor, IT)

### **Theme 3: Leveraging technology competencies**

The third theme of identified IT competencies was in the area of leveraging technology, where competencies related to the use of various IT software, hardware and application features, with a view to enhancing strategic business partnering. This section includes an analysis of all the leveraging technology competencies identified during Round I, as indicated in Table 4.3.

Table 4.3.  
Leveraging technology theme: Competencies and behavioural indicators

Competency	Behavioural indicators
<b>Theme 3: Leveraging technology competencies</b>	
3.1 Appreciating the usability and benefits of technology	<ul style="list-style-type: none"> <li>• Translates the capabilities that technological products can deliver to a particular organisational/stakeholder situation</li> <li>• Applies technological solutions to various situations</li> </ul>
3.2 Being informed of various HR technology products	<ul style="list-style-type: none"> <li>• Is aware of new trends and products in technology that could impact HR products</li> <li>• Applies various forms of social media for two-way communication with potential employees, employees and managers</li> </ul>
3.3 Using social media for work purposes	<ul style="list-style-type: none"> <li>• Utilises various tools available through social media to achieve various tasks</li> </ul>
3.4 Being informed of the legal aspects of/risks associated with, IT use	<ul style="list-style-type: none"> <li>• Is aware of legal implications of using data and IT systems</li> </ul>
3.5 Understanding the influence of cross-functional integration on technology use	<ul style="list-style-type: none"> <li>• Enables the flow of information across various organisational functions using technology</li> <li>• Uses technology to enable cross-functional integration</li> </ul>
3.6 Being able to digitise data	<ul style="list-style-type: none"> <li>• Knows the principles of converting physical information into digital format</li> </ul>
3.7 Linking technology and systems	<ul style="list-style-type: none"> <li>• Knows how technology can be used to develop new systems</li> <li>• Understands the capability of technology to do back-end processing</li> <li>• Knows how technology can be used to improve systems</li> </ul>

#### 4.2.1.16. Competency 3.1: Appreciating the usability and benefits of technology

The first competency identified under this theme, concerns entry-level HRM professionals' capability to appreciate both the usability and benefits of technology. Participants indicated that, at a fundamental level, entry-level HRM professionals must have basic computer skills. They must be able to translate the capabilities that technological products can deliver to a particular situation, either within the organisation or among stakeholders. For that, as several participants mentioned,

entry-level HRM professionals must be comfortable using computers and motivated to use them to get work done:

*“General technology awareness is becoming a necessity.”* (Participant 8: head of product management, IT)

*“The quest to understand more from a technological perspective.”* (Participant 14: head of HR technology, financial services)

*“It is not just about being efficient with a computer mouse or being able to use an internet browser. They must be able to apply various IT solutions to the various situations that they specifically, or the organisation generally, find themselves in.”* (Participant 16: partner: HCM business consulting, consulting)

*“... must understand and embrace the purpose of an HR IT system .... Most HR professionals find the prospect of an electronic system intimidating.”* (Participant 6: HR manager, IT)

Furthermore, if something goes wrong, entry-level HRM professionals must be able to identify whether the fault is related to the IT system, the browser, the company network or the internet, as these participants' comments show:

*“Only if they know what tech[nology] is capable of, will they be able to identify return on investment on various HRM-related IT purchases in the organisation, and motivate for similar purchases in the future.”* (Participant 3: HCM business consultant, IT)

*“Atomisation of applications, platforms, private versus public systems, multi-tenant versus single-tenant systems, on-premise versus cloud applications and software as a service are all concepts that entry-level HRM professionals should at least be aware of.”* (Participant 4: operations effectiveness manager, mining)

The above competencies will enable entry-level HRM professionals to appreciate the existing technology, and how new forms of systems and applications can be integrated into them, as these comments testify:

*“ ... should be able to differentiate between analytics technology tools and mature HR analytics metrics and understand that one is a tool and the other requires visualising what is embedded within the organisation.... Must be able to critically differentiate between two similar-looking tools and identify that which can cause a change in business, besides just improving HR administration.”*  
(Participant 4: operations effectiveness manager, mining)

*“ ... general technology awareness is becoming a necessity, irrespective of which business function one works in.”* (Participant 14: head of HR technology, financial services)

Thus, in general, understanding and appreciating the usability and benefits of technology can be beneficial to entry-level HRM professionals.

#### **4.2.1.17. Competency 3.2: Being informed of HR technology products**

The competency discussed in this section relates to an awareness of various HR technology products and their capabilities. Entry-level HRM professionals are expected to be aware of new trends in the use of technology that could affect the HR function and the employees in the organisation. They must scan the external environment to see what other organisations are doing to accommodate technological changes, both inside and outside the HRM function. Furthermore, they must be able to determine whether such trends can be applied to their own organisations, with or without the help of senior HRM professionals, as these participants pointed out:

*“They must be used to gather information for the whole HRM function.”*  
(Participant 2: HCM sales development and strategy leader, IT)

*“In order to best utilise [the] technology available, an HRM professional requires the base knowledge and understanding of what’s available and how these technologies can add value to their organisations, even if they are not responsible for deploying the technology.”* (Participant 2: HCM sales development and strategy leader, IT)

*“ ... must appreciate technology speeds and innovations over history, discussing how these historically impacted workforce relations, leadership and HR practices [...] relevant IT trends, the leading and lagging technologies and seeing how it can apply to your organisation by determining what the valid and secondary concerns are.”* (Participant 3: HCM business consultant, IT)

The same elements apply to upcoming innovations and the potential impact they could have on HR approaches. Such an understanding will enable HRM professionals to use technology appropriately. In other words, they must be aware of new HR technology products, according to the participants cited here:

*“They must regularly attend HR and technology conferences, also sign up for newsletters and read blogs and other relevant publications so that they are aware of products that are currently available and potentially available in the future.”* (Participant 21: senior manager, consulting)

*“They must spend focused and optimised time to stay relevant.”* (Participant 9: HRIS manager, higher education)

These competencies will ensure that entry-level HRM professionals become invaluable to the organisation, as they will be equipped to prepare the larger organisation for the human impact of IT products, specifically within the field and outside of it, as one participant stated:

*“ ... must know how technology is changing life as a citizen, family member, employer, government, etc. A general understanding of how one must not put work concepts into ‘work boxes’ can, in itself, make HRM a strategic partner to the organisation.”* (Participant 4: operations effectiveness manager, mining)

Such practices can limit productivity in the organisation as a whole, especially when competitors and other organisations are already using technology in their favour.

#### **4.2.1.18. Competency 3.3: Using social media for work purposes**

Several participants commented that entry-level HRM professionals must use various social media platforms for two-way communication and collaboration with potential,

current and past employees, as well as managers. The former should be aware of how to reach out to various stakeholders through social media platforms, for various HRM functional purposes. As two participants noted:

*“For example, if an entry-level HRM professional does not know how to use LinkedIn [a social media platform on which professionals place their career details] for recruitment purposes, then I would not even bother hiring him/her.”*  
(Participant 19: head: people analytics, financial services)

*“Graduates know how to use Facebook and Instagram [social media platforms] to create a profile for themselves, and to post and share images and content for themselves. But do they know how to utilise the same platforms for work purposes?”* (Participant 3: HCM business consultant, IT)

Beyond mere communication purposes, social media platforms have various tools that business professionals can use to achieve diverse tasks, as one participant noted:

*“There are so many things one can do with social media. You can create employee pages or forums, you can create employee polls, you can do some employer branding.”* (Participant 20: management consultant, consulting)

Thus, participants agreed that entry-level HRM professionals must be able to fulfil tasks related to the use of social media platforms.

#### **4.2.1.19. Competency 3.4: Being informed of legal risks associated with IT use**

According to various participants, entry-level HRM professionals must be aware of the legal implications of using data and IT systems, both internal and external to the organisation. For the participants, this awareness becomes important especially while working with data or IT systems that are shared among different countries and organisations:

*“They must know how to manage governance, laws related to retention of information, POPI [Protection of Personal Information Act, which aims to protect personal information of customers and employees that are processed by public*

*and private organisations] requirements.” (Participant 13: HRIS manager, higher education)*

*“In many organisations, even at entry level, HR professionals have access to employee data, sometimes of employees in other countries. When tinkering with such data, they at least need to be conscious that rules are different in different countries.” (Participant 21: senior manager, consulting)*

Thus, awareness of legal aspects and knowing that they may vary under different circumstances, was identified as a competency for entry-level HRM professionals.

#### **4.2.1.20. Competency 3.5: Enabling cross-functional integration**

Entry-level HRM professionals should enable the flow of information across various organisational functions. They must interact with other business functions within the organisation, to determine how to use already-existing technology outside of the HRM function, to contribute data to the HRIS. Also, there may be data within the HRM function that can be of assistance to other functions. Such cross-functional integration of people-related data can be beneficial, saving time and money for numerous functions in the business, and ultimately benefitting the larger organisation. As one participant reported:

*“[That’s] the power of people insights.... They must know why and how to prioritise certain metrics that may be useful to your organisation. Tracking such metrics should create new and healthy conversations and arguments and change behaviours.” (Participant 3: HCM business consultant, IT)*

This observation indicates that a cross-functional view or larger business perspective is required of entry-level HRM professionals. They should not just be limited to focusing on the HRM function, but should visualise the organisation as a whole.

Ideally, entry-level HRM professionals must be able to use technology to enable cross-functional integration. They may be aware of such integration or believe information could be relevant to another function, but if they do not know how to use technology

to transfer such data to another function, cross-functional integration can become tedious. In this regard, the participants recommended the following:

*“They must talk to people in other functions, understand what they need. Check if employees in other functions may have some information that could be of assistance to you. Help them, so that they may help you.”* (Participant 18: manager: human capital analytics, telecommunication)

*“It is not just about data moving between functions. Sometimes it makes sense that processes are also cross-functional. ... to get that right, HR professionals need to have conversations with other functions. They must not see themselves as not linked to other business functions.”* (Participant 16: partner: HCM business consulting, consulting)

#### **4.2.1.21. Competency 3.6: Being able to digitise data**

Entry-level HRM professionals must know how to convert physical information into digital format. Any data they have with regard to employees must be converted into information that can be analysed and managed efficiently. In other words, they must be able to upload images and other documents for easy access and use, create categories for effective analysis and data management, and access data in various formats, both quickly and effortlessly. Comments regarding this issue, included the following:

*“When people talk technology, they sometimes forget that digitisation is sometimes not a very easy task. With new processes and new technology, new data is readily available and easily digitised. But there may be large amounts of data, hidden in employee files and other documentation, in the organisation. If an entry-level HRM professional enters an organisation with an understanding of the importance of data digitisation, he can contribute to putting all that hard-copy stuff into digital information, which can be of use to ... management.”* (Participant 6: HR manager, IT)

*“I am talking about a different type of filing, you know. Scanning documents, entering information available in a file into a system – these tasks seem very*



*basic, but they can be very important for an organisation when it comes to decision making, even auditing.” (Participant 10: head of business strategy, financial services)*

Thus, the digitisation of data is something entry-level HRM professionals must anticipate and appreciate before they start working at an organisation.

#### **4.2.1.22. Competency 3.7: Linking technology and systems**

Entry-level HRM professionals must know how to develop new systems using the various forms of technology available to them. To this end, they should identify how technology contributes to a particular system, be it new or existing. They must be able to determine how the technology influences the systems and/or associated processes, and make the necessary changes so that the technology is integrated into the system and/or associated process, as proposed by the participants:

*“What is the point in having a sophisticated user-friendly leave system if the HR manager still insists that you fill in a physical leave form?” (Participant 21: senior manager, consulting)*

*“ ... must know when to add additional capabilities to your existing system.” (Participant 3: HCM business consultant, IT)*

What is required of entry-level HRM professionals is an understanding of the capability of technology to do different forms of back-end processing. This applies to both current and new systems, or additional functionalities in the old system. In other words, they must know how to utilise various IT systems, especially those that they may be using on a regular basis, to do as much processing as possible, as this participant advised:

*“They should know what a particular system is capable of. Let’s take Microsoft Word [a word-processing application], for example. Although many people use Microsoft Word on a daily basis, they do not know some of the functionalities, including how to develop a table of contents, or how to do mail merging. These functionalities can be very useful to reduce the administrative load on entry-*

*level HRM professionals. The same applies for more complex ERP systems.”*

(Participant 19: head: people analytics, financial services)

Thus, appreciating the relationship between technology and various processes and systems is useful for entry-level HRM professionals.

#### **Theme 4: Reporting competencies**

The fourth theme of identified IT competencies was in the area of reporting – a theme which resorts under business competencies. However, business reporting relates more to the outcomes of business processes than to the processes themselves. In addition, business professionals in the HRM function (and in other business functions) use IT extensively to prepare and present various forms of reports.

From the perspective of this study, a different theme was necessary because here, the competencies required are not considered technological. These competencies are associated with presenting the outputs of various technological systems. A significant number of participants in Round I identified competencies under this theme. They commented that if entry-level HRM professionals are unable to exhibit competencies within this theme, the use of excellent technology, and improved HR and business processes, may not be communicated well to senior management and other business functions. Thus, the competencies resorting under this theme also contribute to strategic business partnering. This section includes an analysis of all the reporting competencies identified during Round I. For the competencies and associated behavioural indicators resorting under this theme, see Table 4.4.

Table 4.4.  
Reporting theme: Competency and behavioural indicators

Competency	Behavioural indicators
<b>Theme 4: Reporting competencies</b>	
4.1 Developing and writing reports and business cases	<ul style="list-style-type: none"> <li>• Prepares reports that communicate information in a meaningful manner</li> </ul>
	<ul style="list-style-type: none"> <li>• Communicates effectively in writing</li> <li>• Conveys a meaningful narrative from the data/business case</li> </ul>
	<ul style="list-style-type: none"> <li>• Communicates technical and general information using illustrative presentation methodologies</li> </ul>
4.2 Presenting data to convey information	<ul style="list-style-type: none"> <li>• Is proficient in the presentation of software</li> </ul>
	<ul style="list-style-type: none"> <li>• Is proficient in story-telling</li> </ul>
	<ul style="list-style-type: none"> <li>• Is proficient in word-processing applications</li> </ul>

#### 4.2.1.23. Competency 4.1: Developing and writing reports and business cases

Several participants remarked that entry-level HRM professionals should be able to develop reports that communicate information in a meaningful manner:

*“They should understand how to structure a report .... They must be able to use the relevant technology to develop reports, so that reports are meaningful and can communicate information meaningfully.”* (Participant 22: associate professor, higher education)

*“They must be able to communicate effectively through writing. Whether we like it or not, HRM professionals prepare a wide variety of written material, including letters, reports, policies and other documentation. The ability to write effectively and, also, the ability to use technology to enable them to write effectively are therefore crucial to the success of an entry-level HRM professional.”* (Participant 19: head: people analytics, financial services)

In the same manner, entry-level HRM professionals must also be capable of developing business cases, in the view of one participant who stated:

*“They must be able to construct business cases for different organisations with different HR problems. ... to do so, they must be able to convey meaningful narratives emanating from data obtained through IT systems and from reports of various formats ... [and] must responsibly present the business case as a dynamic, living concept.”* (Participant 4: operations effectiveness manager, mining)

This may not be considered an IT competency, as these aspects are expected of HRM professionals even in the absence of technology. However, the competency may relate to the outputs obtained from IT systems.

#### **4.2.1.24. Competency 4.2: Presenting data to convey information**

The next competency which several participants mentioned, relates to presenting data to convey information. IT systems, depending on their purpose, generate data in various forms, as this participant commented:

*“Entry-level HRM professionals need to know how to present such data in order to convey information or knowledge to others within and outside the organisation. This includes the ability to communicate both technical and general information using illustrative presentation methodologies, presentation software and word-processing applications.”* (Participant 6: HR manager, IT)

An important behavioural indicator within this competency, which a number of participants mentioned, is the ability to tell stories or convey meaning:

*“They should understand ... the basics of story-telling.”* (Participant 22: associate professor, higher education)

*“Story-telling is important ... the ability to communicate in simple language, excluding jargon, is also very important. HRM professionals tend to use language that business professionals do not use commonly, so line managers and employees disregard what HRM professionals are trying to communicate.”* (Participant 8: head of product management, IT)

Several participants agreed that, at a basic level, entry-level HRM professionals must know how to use Microsoft Office tools, including Excel, Word, PowerPoint, OneNote, Outlook and Skype:

*“They only need to know Microsoft Project superficially. It is more important that they know how to research from reliable sources on the internet.”* (Participant 9: HRIS manager, higher education)

*“They need a more advanced understanding of Outlook, Word and PowerPoint and only a basic understanding of Microsoft Excel.”* (Participant 7: executive: HR business partnering, IT)

*“... must be inquisitive and creative to determine ways in which they can get a computer to do repetitive tasks for them, for example, through an Excel macro. This demands an advanced understanding of Microsoft Excel.”* (Participant 5: operations director, IT)

Thus, the ability to present several forms of information, thanks to an understanding of technology and the capabilities of various types of software, was identified as a competency.

### **Theme 5: Design competencies**

The fifth and final theme of competencies identified in Round I was termed design competencies. While these are not directly viewed as IT competencies, they are indirectly related to the use of IT. In other words, the competencies identified under this theme are generic in nature and would be beneficial to entry-level HRM professionals, even in the absence of IT, as they strategically partner with business. Most participants mentioned these competencies in Round I of the Delphi process, and below one of the comments is given:

*“Design thinking/human design/human processes go a long way to providing a human(e) system, such that adoption will be higher, less costly and less disruptive.”* (Participant 4: operations effectiveness manager, mining)

This theme was included in Round I but omitted from Round II, as it did not directly relate to IT competencies.

Table 4.5.

*Design theme: Competencies and behavioural indicators*

Competency	Behavioural indicators
<b>Theme 5: Design competencies</b>	
5.1 Solving problems	• Identifies issues, obstacles and opportunities
	• Develops solutions to problems
	• Evaluates alternatives
	• Implements solutions
5.2 Simplifying complex situations	• Establishes priorities
	• Breaks a situation down into manageable chunks
	• Describes a situation simply and clearly
5.3 Being able to visualise	• Is aware of the big picture at all times
	• Visualises data and processes
	• Is aware of design principles

#### 4.2.1.25. Competency 5.1: Solving problems

Many participants mentioned that problem solving is an important competency for entry-level HRM professionals to have, if they wish to become strategic partners to business. To this end, they must identify issues, obstacles and opportunities within the function and outside the system. They must be able to analyse various situations, filter out the main concerns, develop multiple solutions to the issues, evaluate various alternatives and, finally, implement the best-suited solution to address the issue. As some of the participants commented on what was required:

*“... fault-finding ability, for example, when is a problem related to the IT system, the browser, the company network or the internet?”* (Participant 3: HCM business consultant, IT)

*“... focus on finding solutions to complex issues, even simple issues ... but having that approach to everything in the organisation.”* (Participant 12: director: HCM business consulting, consulting)

*“They must try to suggest solutions based on what they see in data and in the organisation. Just having a problem-solving mentality can take them places.”*  
(Participant 7: executive: HR business partnering, IT)

*“If they can make an effort in understanding what the underlying problem is, then most of the work is already done. It’s tough to find HR practitioners who can do that.”* (Participant 20: management consultant, consulting)

#### **4.2.1.26. Competency 5.2: Simplifying complex situations**

Another competency that several participants mentioned was the ability of entry-level HRM professionals to simplify complex situations:

*“They need to avoid complex psychological jargon when interacting with line managers and employees.”* (Participant 8: head of product management, IT)

*“They must know how to describe a situation simply and clearly, break a situation down into manageable chunks and establish priorities, being aware of the big picture at all times.”* (Participant 16: partner: HCM business consulting, consulting)

*“They must see the big picture.”* (Participant 15: HCM industry systems specialist, IT)

*“They must display good planning and organising skills, and the ability to use technological tools to facilitate planning and organising.”* (Participant 7: executive: HR business partnering, IT)

Thus, simplifying complex situations and utilising simple language seem to be important competencies, according to several participants.

#### **4.2.1.27. Competency 5.3: Being able to visualise**

The last competency identified under this theme, is the ability to visualise. According to the participants, entry-level HRM professionals must be able to visualise data and processes:

*“This skill is about how best to present facts, trends, findings, etc. to your client so that the message is conveyed correctly. So, being able to present a clear, concise message is just as important to getting to the right conclusions, in my view.”* (Participant 2: HCM sales development and strategy leader, IT)

One participant advised that they should be aware of design principles when introducing new processes and making changes to existing processes:

*“Understanding the world of the internal client and being able to put yourself in their shoes ...”* (Participant 1: global executive advisor, IT)

The participants’ comments imply that visualisation competencies can help entry-level HRM professionals predict and understand both employee and organisational needs.

#### **Theme 6: Non-IT competencies**

Many participants described several non-IT competencies, even though the question put to them referred only to technological (and, specifically, IT) competencies. In fact, several competencies that may not be related directly to technology were included in the themes described previously. This is because such competencies, although not directly technological, are needed to work with the outputs of technology, in the process of strategically partnering with business. The non-IT competencies which the various participants proposed, are discussed in this section.

#### **4.2.1.28. Financial knowledge**

Financial knowledge is a competency which several participants felt entry-level HRM professionals should exhibit. Many mentioned organisational financial knowledge, while others mentioned budgeting within the HR function, HR-related costs and other financial aspects, as these comments testify:

*“... should know how to calculate return on investment, net present value, cost of delay, cost of capital, tax and project depreciation.”* (Participant 3: HCM business consultant, IT)



*“Basic understanding of financial ratios .... This will enable the HRM professional to better understand what’s important to their client, how their business is measured, which levers drive their strategies and goals, and how HR metrics and insights can best support business decisions.”* (Participant 14: head of HR technology, financial services)

*“They must know how to back-cast timelines from when the ROI paybacks and benefits are needed by ... back to today’s date.”* (Participant 17: consultant in HR technology and operations, consulting)

*“ ... need a clear view of each team’s budgets, needs and strategic priorities.”* (Participant 11: industrial psychologist, consulting)

*“HR also needs to handle budgeting and ROI calculations – some basic financial knowledge will be fantastic.”* (Participant 13: HRIS manager, higher education)

Thus, the participants agreed that financial awareness would be beneficial, although they differed on the aspects they considered to be important.

#### **4.2.1.29. Project management**

Project management is a competency area which, with or without technology, is considered important for entry-level HRM professionals, as these participants remarked:

*“ ... must know the various concepts of project management including back-casting, agile development, bimodal operations and lean development approaches.”* (Participant 3: HCM business consultant, IT)

*“ ... what needs preparation before a project and where money should be invested for integrations.”* (Participant 8: head of product management, IT)

*“ ... it is essential for them to have good planning and organising skills – they must use IT tools for this.”* (Participant 5: operations director, IT)

Furthermore, they must also know when to use which approach when managing diverse projects, as is clear from these comments:

*“The candidate should know the main project management methodologies; when to use which one; what are critical aspects that impact the organisation.”* (Participant 16: partner: HCM business consulting, consulting)

*“They should be able to carry out projects and successfully leverage the most appropriate methodology to ensure best results.”* (Participant 4: operations effectiveness manager, mining)

Thus, project management, both from an IT and a non-IT perspective, was considered a useful competency for entry-level HRM professionals to have.

#### **4.2.1.30. Knowledge of teams and teamwork**

Participants also discussed the understanding of teamwork as an important competency:

*“If they understand the philosophy of high-performing teams and related leadership styles, they would be able to incorporate those aspects into building better HR systems that integrate such thinking.”* (Participant 4: operations effectiveness manager, mining)

Some participants felt that merely knowing about teams and teamwork would not be sufficient:

*“Collaboration is critical for social learning in organisations and falls under the ambit of HR, plus it adds material values for part of project team communications.”* (Participant 3: HCM business consultant, IT)

Thus, the expectation is that entry-level HRM professionals will exhibit team skills and attributes that will enable them to be more effective, even in using technology.

#### 4.2.1.31. Communication competencies

Several participants in Round I either directly mentioned or indirectly implied that communication is an important competency to expect of entry-level HRM professionals. While communication competencies have been reported previously (integrated with technology in the form of reporting and presenting the outputs of IT systems), many participants mentioned concepts such as listening, paraphrasing, avoiding jargon and speaking to employees as important for entry-level HRM professionals:

*“HRM professionals in general should understand symmetrical communications.”* (Participant 2: HCM sales development and strategy leader, IT)

*“Collaboration ... adds material values for part of project team communication.”* (Participant 6: HR manager, IT)

*“Ability to verbalise your strategies, vision and methods. Selling your plans is crucial to getting people’s buy-in.”* (Participant 10: head of business strategy, financial services)

While these important competencies may be indirectly linked to the use of technology, they are not necessarily associated directly with technology. In fact, HRM professionals are expected to communicate effectively with both managers and employees in an organisation, with or without having recourse to technology.

#### 4.2.1.32. Learning competencies

Participants in Round I mentioned many competencies that can resort under the categorisation of learning competencies, as is evident from the following:

*“They must be willing to learn a system in-depth, not just superficially, to be able to obtain return on investment on these systems.”* (Participant 17: consultant in HR technology and operations, consulting)

*“They must have the ability and interest to learn any HR IT program quickly... Life-long learning will also be an important attribute for entry-level HRM*

*professionals to display, as both IT and employee behaviour are constantly evolving, and evolving fast.”* (Participant 7: executive: HR business partnering, IT)

Similarly, participants remarked that entry-level HRM professionals must have a learning attitude, to be able to use technology as it continues to evolve:

*“They must have a quest for knowledge ... appreciate continuous learning ...”*  
(Participant 14: head of HR technology, financial services)

*“Entry-level HR must be able to practise social learning.”* (Participant 9: HRIS manager, higher education)

*“They must use IT tools made available to them. Through forums, blogging and collaborations with others in similar disciplines, they can better understand and utilise technology.”* (Participant 21: senior manager, consulting)

Thus, through the process of thematic analysis, 27 competencies with both IT and non-IT behavioural indicators (resorting under five themes) and four areas of non-IT competencies were identified.

Although the purpose of this phase of the study was to identify the IT competencies required of entry-level HRM professionals, participants also commented on the ability of those professionals to serve as strategic business partners. Their comments, which relate to the second and third sub-questions posed in this study, are discussed in the next sections.

#### **4.2.2. Phase 1 – Findings related to the role of entry-level HRM professionals**

The purpose of the first phase of this study was to identify the IT competencies entry-level HRM professionals should possess, if they are to be strategic business partners. While answering that question, some participants commented on the strategic role entry-level HRM professionals can play within an organisation:

*“Currently, they may have only limited contribution to strategy, but that may be because they have limited exposure to strategy, technology and HRM*

*processes at the higher educational institution from which they graduated.”*  
(Participant 3: HCM business consultant, IT)

*“The most basic level at which an HRM professional enters the workplace is as an HR administrator, and an HR administrator can barely contribute strategically. However, at the next level, as a junior HRM consultant to a business function, or as an officer within an HRM function, there is definitely space for an HRM professional to start contributing strategically to business.”*  
(Participant 10: head of business strategy, financial services)

Several participants commented that the curricula and programme aspects associated with the HEIs or universities, from which entry-level HRM professionals graduate, play a role in developing the right type of HRM professional:

*“ ... depending on the qualification and curriculum of the higher education institution that the entry-level HRM professional has graduated from, the contribution of an entry-level HRM professional will vary.”* (Participant 17: consultant in HR technology and operations, consulting)

*“The readiness of entry-level HRM professionals will depend on what they have learnt in the institution that they graduated from.”* (Participant 9: HRIS manager, higher education)

*“You can’t just expect them to know all this. Universities and, to an extent, even schools have a role to play in preparing students.”* (Participant 20: management consultant, consulting)

A number of participants commented that while entry-level HRM professionals may not directly partner strategically with business, they can collaborate and work with senior HRM professionals to deliver strategic value to business:

*“They can become tactical partners to a more senior strategic HR business partner by enabling them with data and other feedback .... For such partnering to happen between a junior HRM professional and a senior HRM professional, there needs to be a well-defined differentiation between their roles and a clear*

*understanding of the relationship.” (Participant 16: partner: HCM business consulting, consulting)*

*“You can’t expect them to work in isolation. Senior HR people, depending on how large the organisation is, must utilise the juniors more strategically. Don’t waste their time, and in the process, they wouldn’t waste their own.” (Participant 18: manager: human capital analytics, telecommunication)*

Many participants did not discuss the role of entry-level HRM professionals specifically, but opted to focus on the requisite IT competencies. The absence of such a discussion may imply either that they believe entry-level HRM professionals can contribute strategically, or that they may not have considered the role of such entrants to be very different from that of their more senior counterparts. The next section focuses on specific comments pertaining to the strategic business partnering capabilities of entry-level HRM professionals.

#### **4.2.3. Phase 1 – Findings related to strategic business partnering and entry-level HRM professionals**

In the first phase of the study, some participants specifically commented on the strategic business partnering capabilities of entry-level HRM professionals:

*“If they can combine data and associated tools, it can provide critical breakthroughs, including opportunities from collaboration, multi-disciplinary thinking, and technology based on previously laid platforms of human development.” (Participant 3: HCM business consultant, IT)*

*“The right competencies will lay platforms/foundations so that next level HR impact can be delivered to all stakeholders”. (Participant 19: head: people analytics, financial services)*

*“ ... the benefits of a good understanding of how technology can assist in [the] automation of repetitive HR activities/transactions, for example, that will, in turn, free up HR capacity to focus on true strategic business partnering.” (Participant 2: HCM sales development and strategy leader, IT)*

Thus, exhibiting competencies associated with leveraging technology implies that the prohibitive administrative workload of entry-level and other HRM professionals can be reduced, to allow them to participate in strategic business partnering. Therefore, while these competencies in isolation may not be sufficient for strategic business partnering, they are crucial for strategic business partnering to occur.

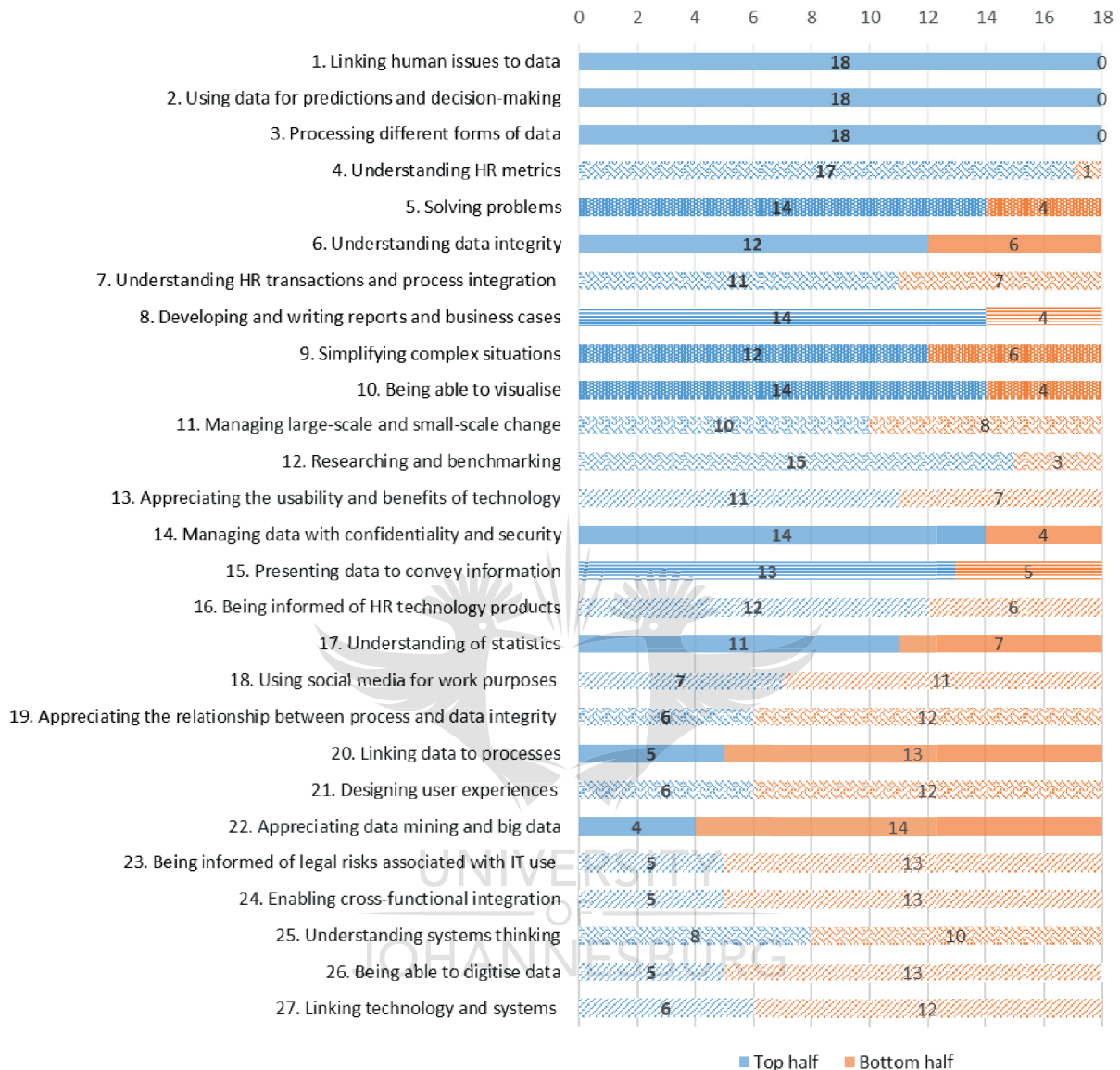
By contrast, the participants noted that administrative competencies cannot be exhibited in isolation either. Associated reasoning and analytical skills are necessary for entry-level HRM professionals to be successful strategic partners to business, as one participant commented:

*“Hypothesising can assist in looking at all angles of a workforce-related challenge and, if adopted successfully, together with sound reasoning skills, can be a great tool in strategic business partnering discussions.”* (Participant 2: HCM sales development and strategy leader, IT)

#### **4.2.4. Phase 1 – Findings related to the ranking of competencies**

The feedback received in Round II can be summarised as shown in Figure 4.1. The graph shows each of the identified competencies, placed in descending order of rank, specifying the number of participants who ranked each competency in the top or bottom half of all the competencies. The number on the left indicates the number of participants who ranked the particular competency in the top half, while the number on the right indicates how many ranked it in the bottom half. The legend below the figure indicates the broader themes within which each competency is categorised.

## RANKING ANALYSIS (DELPHI ROUND II)



Competency themes



Figure 4.1. Delphi participants' ranking of identified competencies

As indicated in Figure 4.1, there was consensus regarding the ranking of all the competencies. Of the 18 participants who responded during Round II, the majority ranked the top 17 competencies as belonging in the top half of all the competencies



and the bottom ten as belonging in the bottom half. Thus, overall, consensus was obtained regarding the ranking of the competencies.

With regard to themes, the highest ranked were data analysis competencies, followed by business process, design, reporting and leveraging technology competencies.

The participants in this phase of the study considered leveraging technology competencies to be the least important. Given that the study investigated IT-related competencies, this implies that the experts believed entry-level HRM professionals do not need to focus on the particulars of technology itself, but, more importantly, should focus on the processes being followed with the assistance of technology and on the data processed using various forms of technology.

Therefore, in sum, the competencies identified in Round I were ranked as indicated in Figure 4.1. There was consensus regarding the ranking. According to the Delphi participants, competencies related to data analysis were most important and those related to leveraging technology were least important.

#### **4.2.5. Phase 1 – Findings related to consensus**

In the last round of the Delphi process, the final list of competencies and associated behavioural indicators was sent to the 18 participants who had responded in Round II. They were asked to indicate which behavioural indicators had to be removed, as they were deemed not to be relevant to entry-level HRM professionals' strategic business partnering capability. Of the 14 participants who responded, 12 reported that they did not want to change anything. The participants were aware that the competencies would be distributed in the form of a survey, therefore some commented that they would keep the list of competencies as is, to see how the larger HRM population viewed them. Two participants suggested removing the last two leveraging technology competencies, namely being able to digitise data and linking systems to processes, but these were retained, as there was consensus regarding the complete list.

### 4.3. Development of the survey questionnaire

Following the three rounds of the Delphi process, the next step related to the development of the survey questionnaire. During the analysis of the various codes and themes of competencies, it was decided that the competencies which the Delphi participants had suggested, could be broadly classified into three larger groups, as shown in Table 4.6.

Table 4.6.  
*Groupings of competency themes identified in Delphi Round I*

<b>Group A: Technological competencies (Direct interaction with IT)</b>	<b>Group B: Technological competencies (Prominent with IT and indirect interaction with IT)</b>	<b>Group C: Non-technological competencies (Prominent with IT)</b>
Data analysis	Reporting	Financial management
Business process	Design	Project management
Leveraging technology		Knowledge of teams and teamwork
		Communication
		Learning

Group A consists of those technological competencies which require HRM professionals to work directly with IT. Group B consists of the competencies expected of HRM professionals in the absence of IT, but which are prominent in the presence of IT. In other words, HRM professionals are expected to exhibit these competencies in the absence of IT. However, with IT being available and accessible, these competencies are emphasised. The third group, C, consists of those non-technological competencies that are not directly related to IT, but become prominent because of IT.

In Round I of the Delphi process, all competency groups mentioned in Table 4.6 were identified. The non-technological competencies in Group C were not included in Round II of the Delphi study, as they were unrelated to IT. As mentioned, although they may be essential and relevant in the presence of IT, they fell outside the scope of this study.

In rounds II and III of the Delphi process, all competency themes in groups A and B were incorporated. Within the five themes, 27 competencies were identified. However, not all the behavioural indicators associated with the competencies in groups A and B

were included in the survey in Phase 2. Some competencies combined IT and non-IT behavioural indicators. To adhere to the purpose of this study, behavioural competencies that were not associated with IT directly, were excluded from the survey. For instance, design competencies are related to creating products or services that are meaningful to stakeholders, and are therefore about presenting and communicating either needs, or data obtained through IT, to various stakeholders. In addition, reporting competencies are related to informing various stakeholders of organisational operations, to assist them in doing their work. Both sets of competencies are expected of HRM professionals for strategic business partnering, in the presence or in the absence of technology. Thus, while the need for these competencies is acknowledged, no associated behavioural indicators were included in the survey phase of this study. Therefore, the survey comprised only those behavioural indicators which involve entry-level HRM professionals interacting with IT.

Furthermore, after excluding the non-IT behavioural indicators, the IT behavioural indicators resorted under three main themes: data analysis, business process and leveraging technology. Thus, the survey included 36 items from an IT competency perspective, each related to an IT behavioural indicator. Of the 36 items, 17 related to the data analysis theme, 15 to the business process and four to leveraging technology.

#### **4.4. Results: Phase 2**

As discussed in Chapter 3, the items identified through the qualitative process were distributed to HRM professionals in the form of a survey. This section, which reports on the results of the data analysis done on the survey responses, is organised in two parts: the first reports on the descriptive statistics associated with the competencies and other aspects included in the questionnaire, while the second reports on the inferential statistics.

##### **4.4.1. Phase 2 – Results related to importance of identified competencies**

The respondents were asked how important they thought the identified IT competencies were. The descriptive statistics associated with each competency theme are discussed next.

#### 4.4.1.1. Descriptive statistics of data-analysis competencies

The descriptive statistics associated with the items related to data analysis are specified in Table 4.7. In this table, the number of responses, the number of missing responses, the mean, standard deviation, skewness and kurtosis are reported for each item.

Table 4.7.  
*Descriptive statistics related to items in the data analysis theme*

Behavioural indicators – Data analysis	N	Mean	Std. deviation	Skewness	Kurtosis
Maintains data accuracy in a single system or multiple systems	250	4.30	.729	-.657	-.406
Identifies risks that could arise if data are not protected	251	4.29	.829	-1.140	1.055
Displays proficiency in the use of spreadsheet and database programs	250	4.25	.742	-.740	.152
Organises data for ease of reading (sorting, splitting and filtering)	252	4.14	.857	-.923	.753
Continually maintains the quality of an information system	252	4.10	.905	-1.066	1.166
Connects human issues in the workplace to related data	249	4.09	.783	-.614	.045
Identifies the types of employee data needed to resolve a problem	252	4.07	.823	-.862	.979
Identifies the impact of HR decisions on employees	252	4.06	.870	-.737	.291
Summarises different forms of data into meaningful information	252	4.04	.855	-.731	.230
Understands that data relevant to a particular context may not be used in another context	252	4.03	.772	-.578	.420
Identifies gaps in processes if the quality of obtained data is poor	251	3.98	.912	-.718	.249
Evaluates whether various systems used for HR information have appropriate data security/access levels	251	3.89	1.073	-.879	.181
Transfers data from one system to another for processing purposes	252	3.78	.972	-.653	.160
Modifies existing processes in order to collect accurate data	251	3.76	.991	-.672	.255
Applies basic statistical methods to solve problems	252	3.73	.940	-.598	.147

Behavioural indicators – Data analysis	N	Mean	Std. deviation	Skewness	Kurtosis
Makes predictive inferences from data	252	3.73	1.008	-.528	-.303
Applies data-mining outputs and big data insights to HR issues	251	3.62	1.053	-.634	-.079

The respondents rated all the items high on the Likert scale. The mean value for all items was close to four (Important), taking into account the low standard deviations for all the items. These figures show that the respondents considered all the behavioural indicators within the data analysis theme to be important, on average. Also, all items were skewed to the left, which implies that the majority of the respondents thought the indicators were important or very important. Furthermore, the kurtosis of all items, except two, was below one, indicating that there were relatively few outliers. These statistics imply that the respondents regarded data analysis competencies as important for entry-level HRM professionals.

The most important item within this theme, based on the mean of each item, related to maintaining data accuracy, closely followed by data risk identification. The least important item related to data mining and big data.

#### 4.4.1.2. Descriptive statistics for business process competencies

The descriptive statistics associated with the items related to the business process theme, are indicated in Table 4.8. This table reports the number of responses, the number of missing responses, the mean, standard deviation, skewness and kurtosis for each item.

Table 4.8.

*Descriptive statistics related to items in the business process theme*

Behavioural indicators – Business process	N	Mean	Std. deviation	Skewness	Kurtosis
Focuses on HR processes to ensure the data obtained have integrity	251	4.24	.805	-.979	.838
Displays HR process ownership	252	4.22	.863	-1.075	.987
Maintains electronic records, taking into consideration information governance	250	4.13	.880	-.832	.171

Behavioural indicators – Business process	N	Mean	Std. deviation	Skewness	Kurtosis
Views the organisation and the HR function as a system and as part of a system	252	4.11	.854	-.796	.462
Taps into information from other functions to benefit the HR function	252	3.99	.932	-.758	.064
Identifies the needs of the end user (employee or manager) through observation, engagement and empathising	251	3.91	.903	-.712	.327
Effectively connects information from various systems	251	3.85	.866	-.566	.157
Explains and calculates HR metrics	251	3.75	1.011	-.757	.290
Reacts to change with technological perspectives, tools and techniques in order to make change seamless	252	3.75	.956	-.640	-.009
Identifies existing HR transactions that can be integrated into new processes	252	3.73	.960	-.563	-.006
Identifies relevant HR metrics by considering organisational context	250	3.71	1.020	-.587	-.138
Breaks down HR processes into specific transactions	251	3.71	.999	-.638	.030
Manages change associated with implementing HR technology	251	3.70	1.107	-.545	-.608
Defines a problem, question or hypothesis based on the needs of stakeholders	252	3.67	1.052	-.634	-.157
Contributes to designing experiences for the end user (employee or manager)	252	3.65	1.032	-.739	.156

The mean value for all the items was close to four (Important), indicating that the respondents considered all the behavioural indicators within the business process theme to be important, on average. All items were skewed to the left, which implies that the majority of respondents thought these indicators were important or very important. The kurtosis of all items was below one, indicating that there were relatively few outliers.

The most important item in this theme related to focusing on HR processes to improve data integrity, followed by displaying HR process ownership. The least important items related to designing end-user experiences and defining problems, questions and hypotheses based on stakeholder needs. The statistics shown in Table 4.8 indicate

that business process competencies are deemed important for entry-level HRM professionals.

#### 4.4.1.3. Descriptive statistics for leveraging technology competencies

The descriptive statistics associated with the items related to leveraging technology are indicated in Table 4.9. In this table, the number of responses, the number of missing responses, the mean, standard deviation, skewness and kurtosis are reported for each item.

Table 4.9.

*Descriptive statistics related to items in the leveraging technology theme*

Behavioural indicators – Leveraging technology	N	Mean	Std. Deviation	Skewness	Kurtosis
Is aware of new trends and products in technology that could impact HR	252	3.92	.944	-.709	.074
Applies various forms of social media for two-way communication with potential employees, employees and managers	251	3.84	1.013	-.739	.150
Utilises various tools available through social media to achieve various tasks	252	3.73	1.034	-.588	-.204
Translates the capabilities of technological products to particular organisational/ stakeholder situations	252	3.50	.992	-.455	-.013

The mean value for three of the four items was close to four (Important), indicating that the respondents considered all the behavioural indicators within the leveraging technology theme to be important, on average. All items were skewed to the left, which implies that the majority of respondents thought these indicators were important or very important. The kurtosis of all items was below one, indicating that there were relatively few outliers.

The most important item in this theme related to entry-level HRM professionals being aware of new trends and products in HRM technology. However, this theme had

smaller mean values across the three themes. While all items in the other themes could be rounded off to four (which implies that the respondents considered those items to be important), one item in this theme had a mean value of 3.5. That item related to translating the capabilities of technological products to particular organisational/stakeholder situations. A considerable number of respondents deemed this item to be only moderately important. The other three items were also below four, indicating that this theme was regarded as less important than the other two.

#### 4.4.2. Phase 2 – Categorising the identified competencies

To categorise the behavioural indicators based on the survey responses, the researcher conducted exploratory factor analysis on the data collected. The tests employed to test the feasibility of factor analysis were discussed in Chapter 3, and the results of the exploratory factor analysis are discussed in this section.

The parallel analysis suggested three factors. Furthermore, based on the scree test (used to assist in decisions regarding the number of factors), three factors were retained for further investigation, as indicated in Table 4.10. These three factors explained 57 per cent of the variance in total.

Table 4.10.  
*Total variance explained*

Factor	Initial Eigenvalues	% of variance	Cumulative %	Rotation sums of squared loadings
1	15.851	44.030	44.030	14.275
2	2.743	7.618	51.649	11.673
3	1.911	5.307	56.956	7.716

The three factors identified had initial Eigenvalues exceeding 1. The initial factors explain 44.0, 7.6 and 5.3 per cent of the variance respectively. On inspecting the associated scree plot, as depicted in Figure 4.2, a break was seen after the third factor. Therefore, using the scree test, three factors were retained for further investigation.



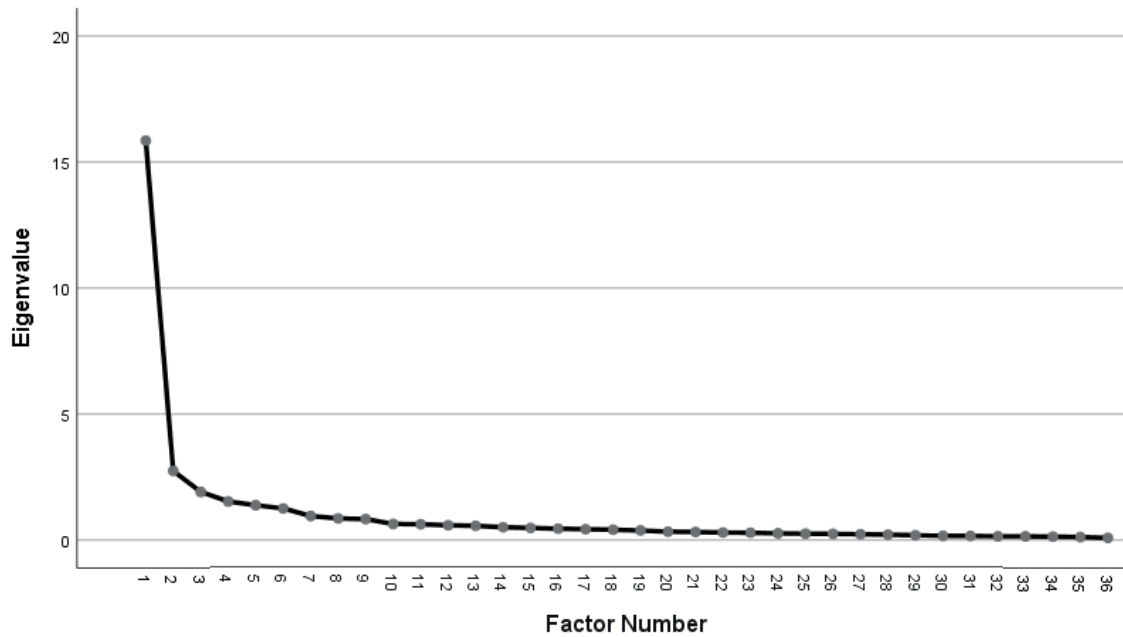


Figure 4.2. Scree plot

Although the items were categorised into themes following the qualitative data analysis, the exploratory factor analysis grouped the items differently. The results of the scree test and factor rotation enabled the different grouping. Three factors, which were identified as a result of the exploratory factor analysis process, and the factor loadings associated with the various items are indicated later in Table 4.12, Table 4.14 and Table 4.16.

Table 4.11 depicts the pattern matrix that indicates oblique rotation and the factor loadings of the various items. The communalities of all the items were above 0.3, as specified in Table 4.11.

Table 4.11.  
*Pattern matrix and communalities*

Item	Factor			Communalities (Extracted)
	1	2	3	
Defines a problem, question or hypothesis based on the needs of stakeholders	<b>.917</b>	-.250	.039	.627
Contributes to designing experiences for the end user (employee or manager)	<b>.856</b>	-.235	.024	.534
Manages change associated with implementing HR technology	<b>.855</b>	-.139	-.020	.570
Explains and calculates HR metrics	<b>.854</b>	-.037	-.071	.623
Identifies relevant HR metrics by considering organisational context	<b>.844</b>	-.078	.013	.641

Item	Factor			Communalities (Extracted)
	1	2	3	
Identifies existing HR transactions that can be integrated into new processes	<b>.764</b>	.104	-.035	.668
Makes predictive inferences from data	<b>.748</b>	.053	-.153	.495
Identifies the needs of the end user (employee or manager) through observation, engagement and empathising	<b>.722</b>	-.092	.027	.461
Reacts to change with technological perspectives, tools and techniques, in order to make change seamless	<b>.705</b>	-.023	.114	.583
Breaks down HR processes into specific transactions	<b>.650</b>	.141	.029	.595
Translates the capabilities of technological products to particular organisational/stakeholder situations	<b>.587</b>	-.132	.309	.534
Connects human issues in the workplace to related data	<b>.567</b>	.200	-.120	.428
Views the organisation and the HR function as a system and as part of a system	<b>.547</b>	.111	.099	.478
Applies data-mining outputs and big data insights to HR issues	<b>.545</b>	.223	.092	.600
Taps into information from other functions to benefit the HR function	<b>.540</b>	.033	.228	.524
Identifies the impact of HR decisions on employees	<b>.498</b>	.214	-.066	.391
Effectively connects information from various systems	<b>.488</b>	.323	.047	.599
Modifies existing processes, in order to collect accurate data	<b>.460</b>	.443	-.054	.637
Evaluates whether various systems used for HR information have appropriate data security/access levels	<b>.434</b>	.289	.010	.450
Displays HR process ownership	<b>.336</b>	.238	.165	.407
Maintains data accuracy in a single system or multiple systems	-.219	<b>.815</b>	.007	.473
Organises data for ease of reading (sorting, splitting and filtering)	-.110	<b>.788</b>	-.097	.469
Displays proficiency in the use of spreadsheet and database programs	-.242	<b>.756</b>	.063	.408
Continually maintains the quality of an information system	-.096	<b>.744</b>	.059	.508
Transfers data from one system to another for processing purposes	-.131	<b>.735</b>	.098	.484
Summarises different forms of data into meaningful information	.220	<b>.576</b>	-.082	.496
Focuses on HR processes to ensure data obtained, have integrity	.125	<b>.564</b>	.043	.459
Maintains electronic records, taking into consideration information governance	.013	<b>.561</b>	.126	.405
Understands that data relevant to a particular context may not be used in another context	-.002	<b>.502</b>	.020	.260
Identifies gaps in processes, if quality of the obtained data is poor	-.096	<b>.500</b>	.116	.580
Identifies risks that could arise if data are not protected	.235	<b>.475</b>	-.089	.377
Applies basic statistical methods to solve problems	.411	<b>.437</b>	-.096	.529
Identifies types of employee data needed to resolve a problem	.317	<b>.389</b>	-.173	.324
Applies various forms of social media for two-way communication with potential employees, employees and managers	.017	-.004	<b>.935</b>	.890
Utilises various tools available through social media to achieve various tasks	-.033	.008	<b>.892</b>	.767
Is aware of new trends and products in technology that could impact HR	.227	.104	<b>.568</b>	.625

Although the items were categorised into themes following the qualitative data analysis, the exploratory factor analysis grouped the items differently. The results of the scree test and factor rotation enabled a different grouping, as discussed above.

In summary, three factors were identified as a result of the exploratory factor analysis process. The three factors and the factor loadings associated with the various items, as indicated in Table 4.12, Table 4.14 and Table 4.16, are discussed in further detail in the next sections.

#### 4.4.2.1. Factor 1: Technologising employee processes

The first factor to be identified, is presented in Table 4.12. On examining the loading pattern, the highest item loaded at 0.917 and the lowest at 0.336.

Table 4.12.  
Factor analysis: Factor 1

Factor	Item	Factor loading	Factor name
1	Defines a problem, question or hypothesis based on the needs of stakeholders	0.917	<b>Technologising employee processes</b>
	Contributes to designing experiences for the end user (employee or manager)	0.856	
	Manages change associated with implementing HR technology	0.855	
	Explains and calculates HR metrics	0.854	
	Identifies relevant HR metrics by considering organisational context	0.844	
	Identifies existing HR transactions that can be integrated into new processes	0.764	
	Makes predictive inferences from data	0.748	
	Identifies the needs of the end user (employee or manager) through observation, engagement and empathising	0.722	
	Reacts to change with technological perspectives, tools and techniques, in order to make change seamless	0.705	
	Breaks down HR processes into specific transactions	0.650	
	Translates the capabilities of technological products to particular organisational/ stakeholder situations	0.587	
	Connects human issues in the workplace to related data	0.567	
	Views the organisation and the HR function as a system and as part of a system	0.547	
	Applies data-mining outputs and big data insights to HR issues	0.545	
	Taps into information from other functions to benefit the HR function	0.540	

Factor	Item	Factor loading	Factor name
	Identifies the impact of HR decisions on employees	0.498	
	Effectively connects information from various systems	0.488	
	Modifies existing processes in order to collect accurate data	0.460	
	Evaluates whether various systems used for HR information have appropriate data security/access levels	0.434	
	Displays HR process ownership	0.336	

In examining the items that grouped within the first factor, and their relationships as depicted in Table 4.12, the factor was collectively named “technologising employee processes” – a name which captures the various behavioural indicators that group within this factor into a larger component. The factor showed a number of strong loadings and all items loaded strongly on Factor 1. This analysis indicates that the items may be collapsed into a single factor.

In the first factor, none of the items was dropped, as none of them had low loadings. Moreover, the purpose of the exploratory factor analysis was not to remove items, but to categorise them. The factor titled “technologising employee processes” had a high Cronbach’s alpha ( $\alpha = 0.954$ ) and the mean inter-item correlation was 0.509, indicating that the factor has high internal consistency and that the items go well together. Additionally, the item-total correlations in Table 4.13 show how strongly each item in the scale was associated with the overall scale.

Table 4.13.

*Item-total statistics for Factor 1 – Technologising employee processes*

Item	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Identifies existing HR transactions that can be integrated into new processes	.787	.730	.950
Identifies relevant HR metrics by considering organisational context	.757	.818	.950
Reacts to change with technological perspectives, tools and techniques, to make change seamless	.754	.715	.951
Breaks down HR processes into specific transactions	.745	.696	.951
Explains and calculates HR metrics	.744	.823	.951
Defines a problem, question or hypothesis based on the needs of stakeholders	.742	.661	.951

Item	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Applies data-mining outputs and big data insights to HR issues	.732	.643	.951
Manages change associated with implementing HR technology	.731	.677	.951
Effectively connects information from various systems	.730	.640	.951
Modifies existing processes in order to collect accurate data	.711	.630	.951
Taps into information from other functions, to benefit the HR function	.702	.666	.951
Contributes to designing experiences for the end user (employee or manager)	.696	.612	.951
Makes predictive inferences from data	.677	.617	.952
Views the organisation and the HR function as a system and as part of a system	.670	.599	.952
Identifies the needs of the end user (employee or manager) through observation, engagement and empathising	.664	.597	.952
Translates the capabilities of technological products to particular organisational/stakeholder situations	.657	.485	.952
Evaluates whether various systems used for HR information have appropriate data security/access levels	.618	.489	.953
Connects human issues in the workplace to related data	.612	.661	.953
Displays HR process ownership	.603	.453	.953
Identifies the impact of HR decisions on employees	.595	.606	.953

#### 4.4.2.2. Factor 2: Processing data expertly

The items that clustered within the second factor are presented in Table 4.14. On examining the loading pattern, the highest item loaded at 0.815 and the lowest item loaded at 0.389.

Table 4.14.  
*Factor analysis: Factor 2*

Factor	Item	Factor loading	Factor name
<b>2</b>	Maintains data accuracy in a single system or multiple systems.	0.815	<b>Processing data expertly</b>
	Organises data for ease of reading (sorting, splitting and filtering).	0.788	
	Displays proficiency in the use of spreadsheet and database programs.	0.756	
	Continually maintains the quality of an information system.	0.744	
	Transfers data from one system to another for processing purposes.	0.735	
	Summarises different forms of data into meaningful information.	0.576	

Factor	Item	Factor loading	Factor name
	Focuses on HR processes to ensure data obtained has integrity.	0.564	
	Maintains electronic records taking into consideration information governance.	0.561	
	Understands that data relevant to a particular context may not be used in another context.	0.502	
	Identifies gaps in processes if data quality obtained is poor.	0.500	
	Identifies risks that could arise if data are not protected.	0.475	
	Applies basic statistical methods to solve problems.	0.437	
	Identifies types of employee data needed to resolve a problem.	0.389	

On analysing the relationships among the items that grouped within this second factor, the factor was labelled “processing data expertly”. The name of this factor is a representation of the various behavioural indicators that cluster within this factor. The factor showed a number of strong loadings and all items loaded strongly on Factor 2. This analysis indicates that the items indicated in Table 4.14 may be collapsed into one factor.

In this factor, none of the items were dropped. The factor titled ‘processing data expertly’ has a high Cronbach’s alpha ( $\alpha = 0.898$ ) and the mean inter-item correlation was 0.406, which imply that the factor has high internal consistency and that the items go well together. Additionally, the item-total correlations in Table 4.15 show how strongly each item is associated with the overall scale.

Table 4.15.  
*Item-total statistics for Factor 2 – Processing data expertly*

Item	Corrected item-total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
Identifies gaps in processes if data quality obtained is poor.	.668	.604	.887
Summarises different forms of data into meaningful information.	.661	.607	.888
Continually maintains the quality of an information system.	.661	.592	.888
Applies basic statistical methods to solve problems.	.637	.475	.889
Maintains data accuracy in a single system or multiple systems.	.633	.562	.890

Item	Corrected item-total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
Focuses on HR processes to ensure data obtained has integrity.	.629	.526	.889
Organises data for ease of reading (sorting, splitting and filtering).	.623	.546	.890
Transfers data from one system to another for processing purposes.	.601	.441	.891
Displays proficiency in the use of spreadsheet and database programs.	.594	.587	.891
Maintains electronic records taking into consideration information governance	.590	.463	.891
Identifies risks that could arise if data are not protected.	.560	.379	.892
Identifies types of employee data needed to resolve a problem.	.489	.374	.896
Understands that data relevant to a particular context may not be used in another context.	.474	.329	.896

#### 4.4.2.3. Factor 3: Translating external trends

Finally, three items clustered to form a third factor, as shown in Table 4.16. The loading pattern indicates the highest item loading at 0.935 and the lowest loading at 0.568.

Table 4.16.  
Factor analysis: Factor 3

Factor	Item	Factor loading	Factor name
<b>3</b>	Applies various forms of social media for two-way communication with potential employees, employees and managers	0.935	<b>Translating external trends</b>
	Utilises various tools available through social media to achieve various tasks	0.892	
	Is aware of new trends and products in technology that could impact HR	0.568	

The relationships among the items that group within this third factor were analysed in order to term this factor “translating external trends”. The factor name aptly characterises the behavioural indicators that cluster within this factor. The factor showed a number of strong loadings and all items loaded strongly on Factor 3. This analysis indicates that the items indicated in Table 4.16 may be collapsed into one factor.

In the third and final factor, none of the items were dropped. The factor titled 'translating external trends' has a high Cronbach's alpha ( $\alpha = 0.892$ ), and the mean inter-item correlation was 0.732. These values imply that the factor has high internal consistency and that the items go well together. The item-total correlations in Table 4.17 indicate how strongly each item in the scale is associated with the overall scale.

Table 4.17.  
*Item-total statistics for Factor 3 – Translating external trends*

Item	Corrected item-total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
Applies various forms of social media for two-way communication with potential employees, employees and managers	.857	.749	.783
Utilises various tools available through social media to achieve various tasks	.800	.697	.835
Is aware of new trends and products in technology that could impact HR	.712	.523	.908

Thus, the three factors obtained through the exploratory factor analysis was used to categorise the various identified IT competencies. Once the identified IT competencies were categorised, the role of the entry-level HRM professional was examined. The details of this analysis are included in the next section.

#### 4.4.3. Phase 2 – Role of entry-level HRM professionals

Following the feedback provided by the participants in Phase 1, a section was developed in the survey to examine the role of entry-level HRM professionals in organisations. The results of the survey associated with the related items are indicated in Table 4.18.

Table 4.18.  
*Descriptive statistics – Items related to the role of entry-level HRM professionals*

Item	N	Mean	Std. deviation	Skewness	Kurtosis
Using information technology can enable an entry-level HRM professional to be a strategic partner to business	250	4.09	.927	-.999	.700
Entry-level HRM professionals must attend to day-to-day operational activities	252	4.14	.828	-.901	.918



Item	N	Mean	Std. deviation	Skewness	Kurtosis
Entry-level HRM professionals must focus on long-term strategic activities	250	3.36	1.105	-.003	-.925
Entry-level HRM professionals must focus on internal HR processes	248	4.24	.822	-.995	.780
An entry-level HRM professional can support a business manager in strategy execution	252	3.67	1.045	-.545	-.263
An entry-level HRM professional can be a tactical partner to a senior HRM professional	252	3.92	1.011	-.797	.167
<b>Valid N (listwise)</b>	<b>245</b>				

The means associated with the items related to the role of entry-level HRM professionals were all between 3 and 4, implying that, in general, the respondents agreed that entry-level HRM professionals can contribute, to a moderate extent, to strategic business partnering. The survey respondents agreed that such professionals should only focus on long-term strategic activities to a moderate extent, and that it is most important that they attend to internal HR processes and day-to-day operational activities. According to the respondents, entry-level HRM professionals must have a moderate to good involvement in assisting their senior counterparts and supporting business managers in strategy execution.

#### 4.4.4. Phase 2 – Results related to strategic business partnering

Besides the generic items related to entry-level HRM professionals, the survey included items related to various strategic business partnering activities. The descriptive statistics associated with these items are indicated in Table 4.19.

Table 4.19.

*Descriptive statistics related to items associated with strategic business partnering*

Item	N	Mean	Std. deviation	Skewness	Kurtosis
Understands the functioning of the business or business unit	251	4.54	.664	-1.393	1.666
Proactively builds relationships of trust	252	4.47	.670	-1.124	1.036
Engages with employees to understand their needs	251	4.31	.738	-.756	-.155

Item	N	Mean	Std. deviation	Skewness	Kurtosis
Focuses on day-to-day actions needed to deliver on operational and strategic expectations	252	4.29	.762	-.978	.744
Assists in creating a culture that allows employees to operate well	251	4.25	.836	-.906	.109
Provides line managers and senior HR professionals with required information to formulate strategy	251	4.18	.791	-.910	1.211
Develops relationships needed between business units and other departments	252	4.16	.817	-.609	-.429
Coordinates HR processes to increase operational efficiency	252	4.12	.819	-.618	-.264
Partners with line managers to develop people solutions for business problems	252	4.10	.914	-.789	.084
Communicates business strategy through various means	252	3.84	1.056	-.764	.019
Tracks the implementation of strategies	252	3.75	1.040	-.621	-.190
Obtains strategy evaluation feedback from the business	250	3.70	1.120	-.642	-.269
Valid N (listwise)	246				

In this table, the number of responses, the mean, standard deviation, skewness and kurtosis were reported for each item associated with strategic business partnering. Table 4.19 indicates that entry-level HRM professionals are expected to focus on their operational and functional activities and to interact closely with colleagues and employees, rather than being involved in long-term strategic initiatives.

Since the respondents were asked about the importance of the identified IT competencies, the descriptive statistics associated with the various items indicated the importance of these competencies in general. One of the objectives of this study, however, was to determine the relationship between the identified IT competencies and strategic business partnering. This relationship is explored in the next section.

#### 4.4.5. Phase 2 – Relationship between IT competencies and strategic business partnering

Multiple regression was used to determine the relationship between the identified IT competency themes and strategic business partnering. For multiple regression to be used various assumptions need to be met, therefore, these were first tested.

#### 4.4.5.1. Assumptions of multiple regression

Collinearity diagnostics was performed as part of the multiple regression procedure, to identify any problems related to multicollinearity. The results are presented in Table 4.20.

Table 4.20.

*Extract from the coefficient table in multiple regression analysis*

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.145	.226		9.475	.000		
	Technologising employee processes (Factor 1)	.484	.075	.580	6.468	.000	.353	2.836
	Processing data expertly (Factor 2)	.097	.080	.095	1.222	.223	.469	2.132
	Translating external trends (Factor 3)	-.066	.045	-.103	-1.463	.145	.574	1.741

*Note:* Robust standard errors were also computed due to the slight heteroscedasticity in the residuals. There was not much difference in the standard errors and associated t-statistic. Therefore, these are not reported.

Tolerance indicates how much of the variability of each independent variable is not explained by the other independent variables in the model. Since this value was not less than 0.1 for any of the factors, the possibility of multicollinearity was rejected. Variation inflation factor (VIF) values below 5 also reject multicollinearity, thus the assumption of multicollinearity was met in this model.

An inspection of the normal probability plot (P-P) of the regression standardised residual (as indicated in Figure 4.3) and the scatterplot (Figure 4.4), reveals no major deviations from normality.

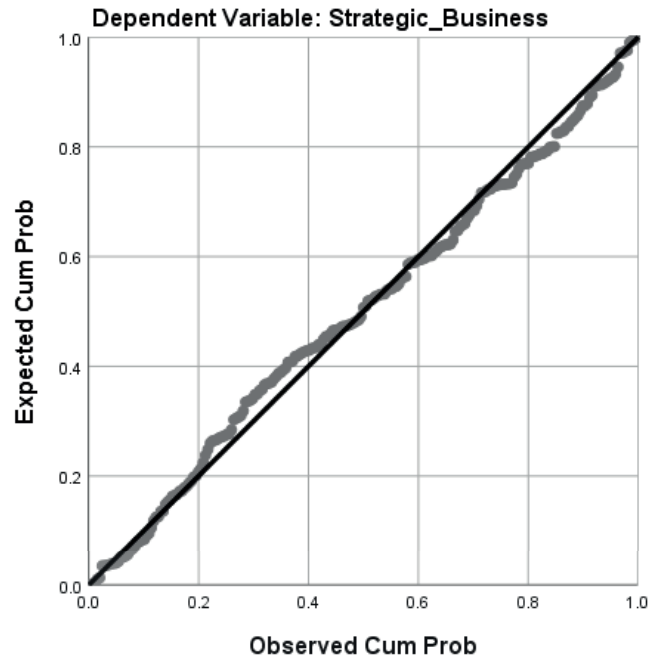


Figure 4.3. Normal probability plot of the regression standardised residual

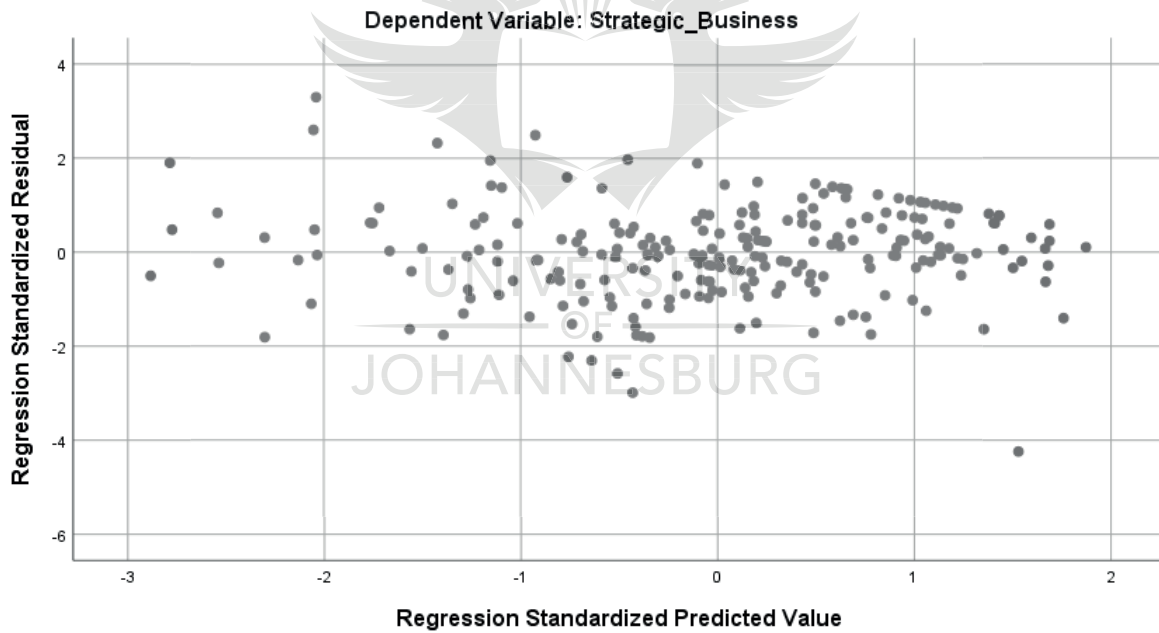


Figure 4.4. Scatterplot of the standardised residuals

One outlier can be identified in the scatterplot. Since the number of outliers was small, when compared to the sample, no action was deemed necessary. Furthermore, based on Figure 4.4, slight evidence of heteroscedasticity was detected. However, it appeared to have a minor effect, and was therefore not considered.

The residual statistics table indicates the Mahalanobis distance and Cook's distance, as shown in Table 4.21.

Table 4.21.

*Extraction from residual statistics table indicating Mahalanobis distance and Cook's distance*

Residual statistics <sup>a</sup>					
	Minimum	Maximum	Mean	Std. deviation	N
Mahal. distance	.040	14.055	3.011	2.798	233
Cook's distance	.000	.128	.006	.015	233

The Mahalanobis distances produced by the multiple regression programme were also inspected to check for outliers. The critical value of the Mahalanobis distance for two independent variables was 13.82 (Tabachnick & Fidell, 2007). As indicated in Table 4.21, which is extracted from the residual statistics table from the multiple regression analysis output, the maximum value in the data was 14.055, which was higher than the critical value. On analysing the Mahalanobis distance of all the cases, only one case had a high value (14.055). Considering that there was only one outlier, it was decided not to remove the case for further analysis.

Furthermore, it was identified that no items had a Cook's distance of more than one. In fact, the highest Cook's distance was 0.128, indicating that no single case had any undue influence on the results of the model as a whole.

The correlations between the various factors are provided in Table 4.22.

Table 4.22.

*Correlations between identified factors and strategic business partnering*

		Strategic business partnering	Technologising employee processes (Factor 1)	Processing data expertly (Factor 2)	Translating external trends (Factor 3)
Pearson correlation	Strategic business partnering	1.000			
	Technologising employee processes (Factor 1)	.582	1.000		
	Processing data expertly (Factor 2)	.467	.729	1.000	

	Strategic business partnering	Technologising employee processes (Factor 1)	Processing data expertly (Factor 2)	Translating external trends (Factor 3)	
	Translating external trends (Factor 3)	.321	.652	.485	1.000
Sig. (2-tailed)	Strategic business partnering	.	.	.	.
	Technologising employee processes	.000	.	.	.
	Processing data expertly	.000	.000	.	.
	Translating external trends	.000	.000	.000	.
N	Strategic business partnering	252			
	Technologising employee processes	240	240		
	Processing data expertly	243	234	243	
	Translating external trends	251	239	242	251

\*  $p$  less than .001

All independent variables showed a correlation coefficient higher than 0.3. Factor 1 and Factor 2, namely technologising employee processes and processing data expertly, correlated substantially with strategic business partnering ( $r=0.582$  and  $r=0.467$  respectively). Table 4.22 indicates a bivariate correlation between technologising employee processes and processing data expertly. However, since the assumption of no multicollinearity was met, this finding was noted and discussed later.

The ANOVA table, as shown in Table 4.23 indicates that the model reached statistical significance.

Table 4.23.  
ANOVA table for the multiple regression analysis

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	27.383	3	9.128	41.028	.000
	Residual	51.169	230	.222		
	Total	78.552	233			

A multiple linear regression was calculated to predict strategic business partnering based on technologising employee processes (Factor 1), processing data expertly

(Factor 2) and translating external trends (Factor 3). The regression score ( $R^2$ ) indicates the amount of variance explained by each competency category in strategic business partnering. The percentage indicates the extent to which each competency theme explains variance in strategic business partnering.

Table 4.24 denotes how much variance in strategic business partnering was explained by the model, which included the three identified factors. Since the sample size was small, the adjusted R square value was considered, as it provided a better estimate of the population value. Expressed as a percentage, the three identified factors explained 34.0 per cent of the variance in strategic business partnering.

Table 4.24.  
*Model summary table for the multiple regression analysis*

Model summary				
Model	R	R square	Adjusted R square	Std. error of the estimate
1	.590 <sup>a</sup>	.349	.340	.47167

To compare the extent to which each of the factors contributed to the prediction of strategic business partnering, the standardised beta values in Table 4.20 were used. The largest beta coefficient was associated with Factor 1, which implies that that factor makes a unique contribution towards explaining strategic business partnering, when the variance explained by the other factors in the model is controlled for. The beta values for factors 2 and 3 were much lower, indicating a contribution to strategic business partnering, although less than Factor 1.

Table 4.20 also indicates that Factor 1 made a statistically significant unique contribution to the equation. The statistical significance values of both the other factors were high, which can possibly be explained by the overlap among the independent variables.

For the purpose of this study, the results of the multiple regression analysis made it clear that all three factors explained 34 per cent of the variance in strategic business partnering. Additionally, all three factors correlated strongly with strategic business partnering. The first, technologising employee processes, was particularly significant. This analysis was considered sufficient to enable the researcher to develop the competency framework.

#### 4.5. Conclusion

In this chapter, the findings emanating from the modified Delphi process and the results from the survey questionnaires were presented. A number of IT competencies were identified in Phase 1, and in both phases 1 and 2, attempts were made to categorise them. The references related to non-IT competencies and non-IT behavioural indicators indicated that there was some confusion regarding expectations related to IT.

The results of the data analysis undertaken on the responses obtained through Phase 2 were interrogated to determine the extent of the relationship between the identified competencies and strategic business partnering. The researcher ascertained that the identified IT competencies explained 34 per cent of the variance in strategic business partnering. The findings suggest that IT competencies in the areas of data analysis, business process and leveraging technology can lead to strategic business partnering.

In the next chapter, the findings and results from phases 1 and 2 are brought together, to explain the logical progression culminating in the development of an IT competency framework for entry-level HRM professionals who wish to serve as strategic partners to business. The relationship between the identified IT competencies and strategic business partnering is also explored. Thus, the research questions posed during this study, will be answered.

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## Chapter 5: Discussion

### 5.1. Introduction

This chapter entails an interpretation and discussion of the findings obtained in the study. First, the focus falls on the IT competencies identified in Phase 1 of the study, giving due consideration to differences in opinions, comprehensiveness and alternative approaches. Then the researcher considers the various processes used to categorise the identified competencies. Subsequent to that, the discussion moves to the relationship between the identified IT competencies and strategic business partnering. An assimilation of the findings obtained from the various processes and relationships leads to the development of the final IT competency framework. The different identified competencies and competency categories, the relationships between the competency themes and factors, and the relationships that the identified competencies have with strategic business partnering align with the research objectives of this study, and have enabled the development of an IT competency framework. The framework emerging from this study addresses the overall objective, which is to develop a framework of IT competencies that will enable entry-level South African HRM professionals to be strategic partners to business.

Once the IT competency framework has been developed, it is related to other frameworks in the HRM field, leading to a discussion on the data-driven HRM approach, the new HRM professional and the need for career development for this cohort. The chapter concludes with the envisaged implications which the findings of this study will have for various stakeholders, including higher education and the corporate environment.

### 5.2. Building the IT competency framework – integrating the findings

Through the coding and analysis of the first round of the modified Delphi process, the researcher identified various behavioural indicators and competencies (see Section 5.2.1). Once identified, these competencies were ranked. The ranking and classification resulted in an initial competency framework which reflected information obtained through the modified Delphi process.

### 5.2.1. Identification of competencies

During the open-ended round of the modified Delphi process, 107 codes were identified through the coding process. Based on the comments made, codes were converted into behavioural indicators. In some instances, a few behavioural indicators were combined to form a competency. In other instances, a single behavioural indicator or code represented certain competencies. The competencies and the initial categorisation based on the themes developed in Phase 1 are indicated in Figure 5.1.



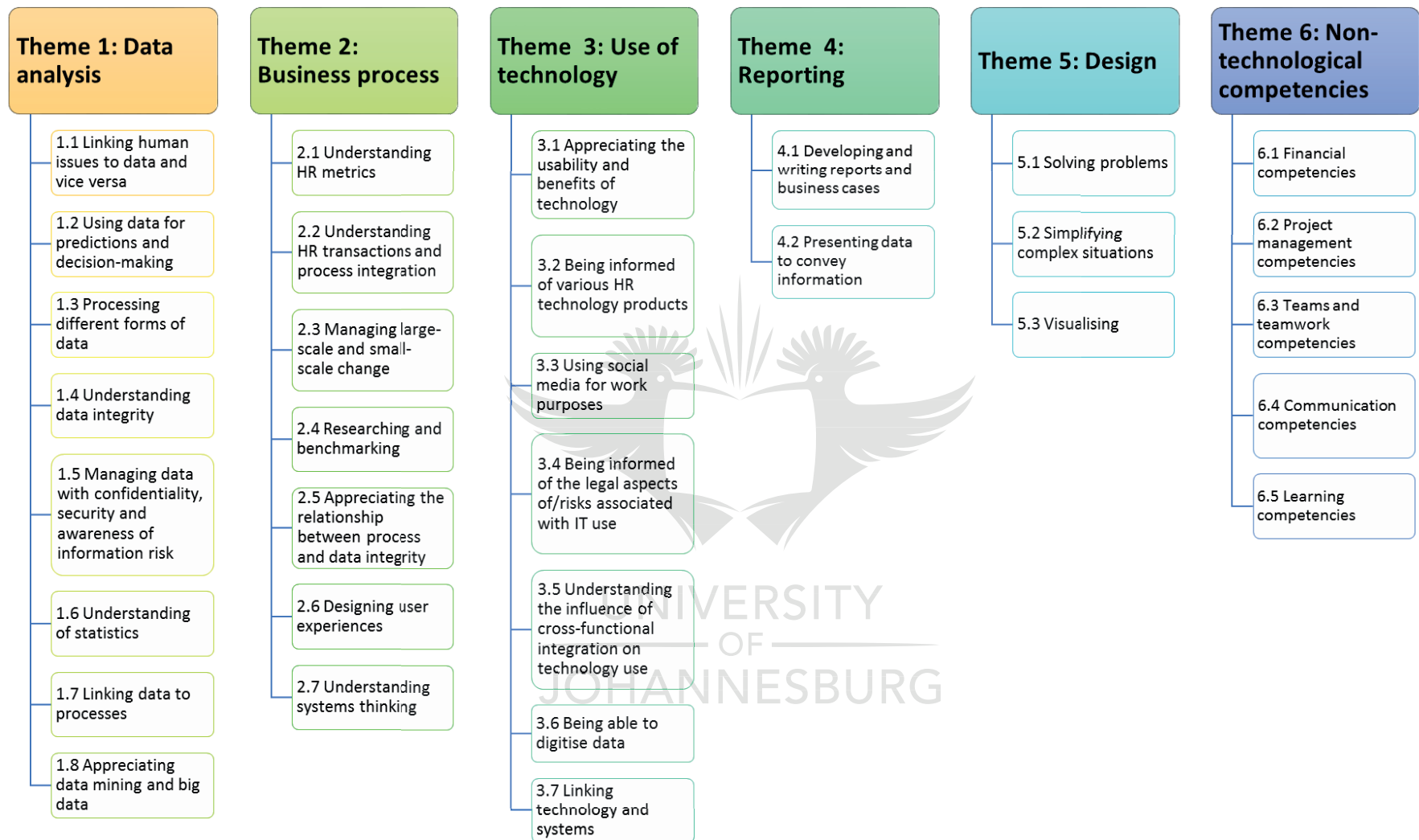


Figure 5.1. Competency categories and competencies identified in Round 1 of Delphi process.

Source: Author's own construction

### 5.2.1.1. IT competencies

The first objective of this study was to identify and define the IT competencies that entry-level South African HRM professionals must possess, if they are to contribute to their organisations as strategic business partners. The study related specifically to IT competencies, as the literature indicated that the use of IT systems in HRM correlated with the strategic business partnering capabilities of that function in an organisation (Ankrah & Sokro, 2012). The IT competencies which HRM professionals exhibit, appear to be important criteria for creating IT business value (Poba-Nzaou et al., 2018). From another angle, Bondarouk and Ruël (2013) concede that HRM technology has not achieved its full potential due to a lack of HRM skills, poor training in HRM technology use, and poor engagement with such technology.

In keeping with the focus of the study, 34 IT competencies were filtered, along with 54 associated behavioural indicators. The non-IT competencies which the participants in Round 1 mentioned, were not considered in the rest of the study. The refined list of 54 behavioural indicators was used in the survey questionnaire. After piloting the questionnaire, the 54 behavioural indicators were further reduced to 36, which were directly linked to IT. Once the survey responses had been collected, through the process of exploratory factor analysis, the 36 behavioural indicators were grouped into three factors, which explained 34 per cent of the variance in strategic business partnering.

The findings indicate that, in order to be strategic business partners, entry-level HRM professionals must be competent in the use of HR IT, not in HR IT itself. Such competence must be demonstrated not merely in analysing the data generated by such technology, but also in ensuring that the various employee processes within the organisation are effective at generating accurate and consistent data. An appreciation for external trends in the field of HR and other technology was also found to be useful for these entry-level HRM professionals.

While a few participants mentioned technological competencies (such as appreciating the back end of technology and coding), most did not consider these to be important. In fact, the findings suggest that HRM professionals do not require such expert technological competencies, because those are usually exhibited by the IT function in

the organisation. In fact, being able to communicate their needs was deemed a more useful competency for HRM professionals to have: if they cannot communicate to the IT team what their expectations are, it may lead to the poor usage of HR technology.

### **Business process competency theme**

Some of the identified competencies relate to utilising technology in automating and improving business processes. The evidence from this study suggests that entry-level HRM professionals need to seek every opportunity to automate various employee processes, while paying attention to two aspects: data obtained through the system and via the end user. HRM professionals must be able to ensure that the data obtained from such processes can be utilised for reporting and decision-making purposes. For this to happen, the data must be both accurate and consistent. The end user is usually the employee or line manager. If new entrants are not comfortable using automated processes or enter inaccurate data, the purpose of automating business process will not be achieved.

The literature supports the finding that automating processes – even partially – is important for the HRM function, because it makes its administrative tasks easier, faster and more structured (Florkowski & Olivas-Luján, 2006). This enables the HRM function to be strategic, providing practitioners both the time and the data necessary to contribute to organisational objectives. Thus, the entry-level HRM professional must analyse and look for opportunities to automate HRM processes, such that the overall function can be strategic in its relationship with business.

Furthermore, the findings suggest that entry-level HRM professionals must take into consideration the end user(s) of the various HR IT systems, which are already in place. Ultimately, as people professionals, HRM professionals are expected to anticipate the needs and expectations of the end user, and to contribute to designing systems, which the end users will be comfortable using. The same applies to IT systems. Entry-level HRM professionals are therefore expected to observe and engage with employees, to fully appreciate their needs and the issues which concern them.

The evidence gleaned from this study suggests that entry-level HRM professionals must understand the concept of linking several processes and systems in the

organisation. If they appreciate that certain data collected for a particular purpose can be utilised for other purposes, then they can avoid repetitive data collection, which is tedious for the end user and might create confusion in the organisation.

### **Data analysis competency theme**

Another set of competencies identified in this study, relates to the processing and analysis of data. These competencies are associated with processing data to enable their use for reporting, and making decisions or predictions. The findings indicate that identifying data related to people matters, and knowing the implications that various decisions (based on that data) will have for people, were deemed important competencies.

In light of the above finding, data integrity, accuracy, security and confidentiality become critical concepts that entry-level HRM professionals must comprehend. Competencies related to these concepts were identified in this study. The literature supports the findings, in that HRM professionals must be familiar with these concepts. For instance, Suen and Chang (2017) agree that security issues (data protection, security and integration) can be detrimental for organisations, if not dealt with. For Shrivastava and Shaw (2003), HRM professionals who are involved in the implementation of HR technology must be sensitised to this. Without the foundations of data security, integrity and consistency, it is impossible to rely on the data emerging from an HRIS, to make accurate risk assessments and predictions in relation to risk and corporate governance. These aspects are rarely mentioned in existing competency frameworks targeting HRM professionals. Either it is assumed that HRM practitioners are aware of these concepts, or the need for these concepts has not yet been ascertained.

The other competencies discussed within this theme include understanding statistics, being able to apply data to make decisions and predictions, and appreciating big data and data-mining concepts, which may be used for analysing the information obtained through various processes. In a conceptual paper, Hempel (2004) suggests that HR professionals must acquire a thorough understanding of relational databases, as well as hands-on skills to conduct data mining. Furthermore, knowledge of simulation modelling, expert system design, and communications media and applications is also

prized (Hempel, 2004). Du Plessis and Fourie (2016) confirm that big data are becoming more and more important for business success. They nonetheless found that HR managers do not utilise their HRIS effectively, especially from a big data perspective. Du Plessis and Fourie (2016) thus recommend that HR managers use analysts to analyse big data for them, but they do not advise whether these should be people with HRM backgrounds, but they do recommend that HRM practitioners ensure that all data are entered into the HRIS. Kryscynski, Reeves, Stice-Lusvardi, Ulrich and Russell (2018) determined that, while HR professionals with higher analytical abilities have higher perceived job performance, the analytical abilities are only useful if they get the right data and information. Poba-Nzaou, Uwizeyemungu and Stanate (2016), in an attempt to identify IT competencies for HRM professionals, do not discuss data-related competencies at all, but rather those technologies that can be used to circulate data.

These findings can be interpreted in several ways: first, there is confusion regarding the level of data-processing capabilities expected of entry-level HRM professionals. While some scholars suggest that these practitioners must have data-analysis capabilities (Hempel, 2004; Kryscynski et al., 2018), others argue that higher-order data-analysis capabilities are unnecessary, especially at a junior level. The findings of this study suggest that entry-level HRM professionals must focus more on data processing and less on data analysis. More complex data analysis may be required at senior levels, or it may even be possible to outsource such activities to data-analysis experts, either within or outside of the organisation.

This competency theme has been considered from an IT perspective. A broader version of this competency theme is discussed by Ulrich et al.(2012), who suggest that high-performing HRM professionals translate external business trends into internal decisions and actions, making them strategic positioners. Thus, the strategic relevance of the IT competency is confirmed in the literature.

### **Leveraging technology competency theme**

The evidence from this study suggests that entry-level HRM professionals need to be aware of the usability, benefits of, and trends in technology as a whole. Such awareness can help them to translate selected aspects into the organisation, having decided which trends are relevant to the organisation.

The evidence from this study suggests that the use of social media is another aspect where entry-level HRM professionals can contribute. According to the study participants, entry-level HRM professionals must be able to use social media to communicate with both current and potential employees. Besides using social media as communication tools, the participants also suggested using a variety of platforms for other aspects of HRM, including recruitment and evaluating engagement levels in the organisation.

### **Reporting and design competency themes**

The two other competency themes identified in this study relate to reporting and design. Reporting is associated with business competencies, as it relates to business reporting. While HRM professionals are expected to use IT to develop and present reports in various formats, reporting, as a competency, is expected of them even in the absence of IT. Thus, while the findings suggest that reporting competencies are important for entry-level HRM professionals, the IT aspects of it were identified and categorised within business process competencies, while the non-IT aspects were not considered any further.

The findings revealed a final theme, entitled design competencies. These broader competencies include problem solving, simplifying complex situations and being able to visualise. With regard to the literature associated with this competency theme, Farndale et al. (2010) note that HRM professionals must view HR and other organisational processes with a design mind-set. Again, while these competencies are relevant in an IT environment, they are also relevant in, and applicable to, a non-IT milieu. The design principles identified in this study can be applied to knowledge management, policy development and many other HRM practices (Farndale, Paauwe, Morris, et al., 2010). Hence, it was decided to exclude these competencies from the IT competency framework.



### 5.2.1.2. Differences in opinion

Although the question posed regarded IT competencies, the findings from the first phase suggest that the Delphi participants had varied and complex perceptions of IT competencies. As mentioned earlier, several behavioural indicators were combined to develop the competencies suggested in this phase. While the majority of the behavioural indicators mentioned were related to IT, some were not. These non-IT behavioural indicators were integrated with IT behavioural indicators, and are distinct from the non-IT competency themes that were identified separately.

Such combining of IT and non-IT behavioural indicators may be due to the use of technology in HRM requires a multidisciplinary approach, which integrates the use of IT with competencies that typically fall within non-IT fields. A multidisciplinary approach to HRM, especially strategic HRM, is supported in the literature (Isson & Harriott, 2016; Jackson, Schuler, & Jiang, 2014). Jackson et al. (2014) discuss organisations as interrelated elements, where each contributes to the functioning of the system and is affected by other elements. Thus, strategic HRM needs to consider the socio-technical systems that organisations are. Furthermore, information systems as a field is also considered to be multidisciplinary in nature, where human activities and perceptions are integral (Halaweh, 2018). In other words, the use of technology requires a consideration of both the social and technical aspects of the organisation. This may especially be true for HRM professionals, particularly those working with a strategic purpose, who deal with the inputs and outputs of an HR IT system, which requires them to apply behaviours that would not be considered highly technical. For example, one of the competencies identified in this study is the ability to link data to processes. A behavioural indicator linked to this competency is that an HRM professional must identify gaps in processes based on the quality of data, which is an output of an HR IT system.

Another reason for such combinations may be that there have been relatively few attempts to separate IT aspects from non-IT aspects. Technology has only recently been introduced in HRM, making it a nascent field. Thus, there may be a lack of precision when it comes to separating the IT and non-IT behavioural indicators expected of HRM professionals in general, and entry-level HRM professionals in

particular. Such combining is discussed by Poba-Nzaou, Uwizeyemungu and Clarke (2018), who found that different organisations seem to desire different IT competencies from their HRM professionals. Poba-Nzaou et al. (2018) contend that this may be because organisations and HRM functions have low expectations of the IT-related experience HRM professionals may have. In the study, Poba-Nzaou et al. (2018) also mention that the organisational context and maturity of the HR IT used, may have an effect.

Thus, although the findings related to identifying competencies focused on the multidisciplinary aspects of using IT in HRM, they also indicated that HRM functions and professionals who work in the area of HR IT systems may not have clear indications of the purpose of using such systems in their function, especially from a strategic perspective.

### **5.2.1.3. Comprehensiveness and alternative approaches**

The process of identifying IT competencies can be considered comprehensive, as opinions were sought from HRM leaders, HR technology experts and business leaders, strategy leaders and line managers during the first phase, and from HRM professionals in the second phase. Employees are important stakeholders through whom HRM strategic business partnering is achieved (Keegan & Francis, 2010). The views of employees on the identified IT competencies would have contributed to the completeness of this study. However, it must be noted that different participants held diverse views regarding the most desired competencies.

Different alternatives to the approach adopted, were deliberated when the study was conducted. One study in the area analysed recent HR job advertisements, to determine both IT and non-IT competencies (Poba-Nzaou et al., 2018). Another evaluated the level of IT competencies and their perceived importance for HRM among working HR students in North America (Poba-Nzaou et al., 2016). There have also been several broader attempts to identify competencies for HRM professionals (Cohen, 2015; Ulrich & Dulebohn, 2015; Younger et al., 2012), but none of these studies focus on strategic business partnering, which is the overall direction of the HRM profession in the current business environment. Therefore, no alternative

approaches seemed better suited to achieve the objectives of this study. From a methodological perspective, the Delphi process was chosen because of its suitability for future studies. The integration of data collected in both phases also provided a highly reliable and precise answer to the questions posed in this study.

### **5.2.2. Building the competency framework**

In this section, the abovementioned findings (competencies and behavioural indicators identified through the coding process) are structured into a competency framework. The next important challenge facing the researcher was to determine how to categorise the various competencies emerging from this process. This linked to the second sub-objective of the study, which was to categorise the identified competencies into a competency framework.

Building the competency framework incorporated various stages: first, the themes generated from the qualitative phase were used to structure an initial framework. Second, various HR IT models were used to determine whether the competencies could be structured based on such models. Next, the participants in the modified Delphi process were asked to rank the IT competencies. Also, the survey responses were used to rank the IT competencies in accordance with the HRM professionals' responses. A comparison of the rankings was used to build on the framework. Following the ranking process, the factors generated from the quantitative phase were integrated into the IT competency framework.

#### **5.2.2.1. Thematic analysis and coding**

During Round 1 of the Delphi process, 107 codes were identified and subsequently categorised into ten competency themes as part of the coding and thematic analysis process. The identified themes were further classified into three groups. Group A comprised IT competencies which see the HRM professional directly interacting with IT. Group B incorporated non-IT competencies which have become prominent due to the use of technology. Group C consisted of non-technological competencies which enable HRM professionals to be strategic partners to business. Under Group A three competency themes were identified, while group B included two and Group C five. The

competencies in groups A and B were detailed further, but the themes in Group C were not explored in detail, as they were deemed to be non-IT competency themes.

The process of coding and generating themes led to the categories indicated in Figure 5.2. To an extent, the coding process also enabled the categorisation of the identified competencies, to form an initial competency framework.



Figure 5.2. Presentation of initial competency categories (axial coding)  
Source: Author’s own construction

The initial competency framework, developed based only on the qualitative thematic analysis, is shown in Table 5.1.

Table 5.1.  
Initial competency table developed after Phase 1

Competency	Behavioural indicators
<b>Theme 1: Data analysis</b>	
1.1 Linking human issues to data and vice versa	<ul style="list-style-type: none"> <li>• Identifies data points related to employee and organisational information needed in a particular situation</li> <li>• Identifies the impact of analysed information on people in the organisation</li> <li>• Connects human issues in the workplace to related data</li> </ul>
1.2 Using data for predictions and decision making	<ul style="list-style-type: none"> <li>• Makes predictive inferences from data</li> </ul>
1.3 Processing different forms of data	<ul style="list-style-type: none"> <li>• Organises data for ease of reading (sorting, organising, splitting data into separate fields)</li> <li>• Summarises different forms of data</li> <li>• Is consistently accurate</li> <li>• Gives attention to detail</li> <li>• Is proficient in the use of spreadsheet and database programs</li> <li>• Maintains and assures accuracy and consistency of data in a single system or multiple systems</li> </ul>
1.4 Understanding data integrity	<ul style="list-style-type: none"> <li>• Differentiates data context from data integrity, i.e. when data are accurate and relevant in one context but should not be used in another context/database table</li> <li>• Keeps data confidential</li> </ul>
1.5 Managing data with confidentiality, security and awareness of information risk	<ul style="list-style-type: none"> <li>• Stores data securely</li> <li>• Is aware of the risks that could arise if data are not protected</li> <li>• Assesses whether various systems used for HR information have appropriate data security/access levels</li> </ul>
1.6 Understanding of statistics	<ul style="list-style-type: none"> <li>• Knows arithmetic processes</li> <li>• Knows statistical methods</li> <li>• Maintains an information system</li> <li>• Identifies gaps in processes based on quality of data</li> </ul>
1.7 Linking data to processes	<ul style="list-style-type: none"> <li>• Modifies existing processes in order to collect authentic data</li> <li>• Is aware of how to transfer data from one system to another, for processing purposes</li> <li>• Contributes to a multi-system environment by identifying data that are common to various systems</li> </ul>

Competency	Behavioural indicators
1.8 Appreciating data mining and big data	<ul style="list-style-type: none"> <li>• Applies data-mining outputs and big data insights to HR issues</li> </ul>
<b>Theme 2: Business process</b>	
2.1 Understanding HR metrics	<ul style="list-style-type: none"> <li>• Explains and calculates HR metrics</li> <li>• Identifies HR metrics relevant to organisation, relevant context and specific requirements</li> </ul>
2.2 Understanding HR transactions and process integration	<ul style="list-style-type: none"> <li>• Breaks down HR processes into various transactions</li> <li>• Integrates existing transactions into new processes</li> <li>• Effectively connects information from various systems</li> </ul>
2.3 Managing large- and small-scale change	<ul style="list-style-type: none"> <li>• Applies the principles of change management to the technological aspects of HR</li> <li>• Is able to work with others</li> <li>• Reacts to change with technological perspectives, tools and techniques, in order to make change seamless</li> </ul>
2.4 Researching and benchmarking	<ul style="list-style-type: none"> <li>• Extracts relevant information from external and internal reports</li> <li>• Applies findings to own context</li> <li>• Investigates a matter systematically by studying various materials and sources</li> <li>• Differentiates how and when to use external benchmarks appropriately, for example, able to interrogate the applicability of external benchmarks to the organisation's scenarios</li> </ul>
2.5 Appreciating the relationship between process and data integrity	<ul style="list-style-type: none"> <li>• Has knowledge of records management principles</li> <li>• Focuses on process to ensure obtained data have integrity</li> <li>• Displays understanding of process ownership, data ownership, process integrity and process waste</li> </ul>
2.6 Designing user experiences	<ul style="list-style-type: none"> <li>• Identifies the needs of the end user (employee or manager) through observation, engagement and empathising</li> <li>• Contributes to designing experiences for the end user (employee or manager)</li> <li>• Observes and engages with people to understand their needs</li> <li>• Defines a problem, question or hypothesis based on the needs of stakeholders</li> </ul>
2.7 Understanding system thinking	<ul style="list-style-type: none"> <li>• Views the organisation and the HR function as a system and as part of a system</li> <li>• Taps into information from other functions to benefit the HR function</li> </ul>

Competency	Behavioural indicators
<b>Theme 3: Leveraging technology</b>	
3.1 Appreciating the usability and benefits of technology	<ul style="list-style-type: none"> <li>• Can translate the capabilities that technological products can deliver to a particular organisational/stakeholder situation</li> <li>• Applies technological solutions to various situations</li> </ul>
3.2 Being informed of various HR technology products	<ul style="list-style-type: none"> <li>• Aware of new trends and products in technology that could impact HR</li> </ul>
3.3 Using social media for work purposes	<ul style="list-style-type: none"> <li>• Applies various forms of social media for two-way communication with potential employees, employees and managers</li> <li>• Utilises various tools available through social media to achieve various tasks</li> </ul>
3.4 Being informed of the legal aspects of/risks associated with, IT use	<ul style="list-style-type: none"> <li>• Aware of legal implications of using data and IT systems</li> </ul>
3.5 Understanding the influence of cross-functional integration on technology use	<ul style="list-style-type: none"> <li>• Enables the flow of information across various organisational functions using technology</li> <li>• Uses technology to enable cross-functional integration</li> </ul>
3.6 Being able to digitise data	<ul style="list-style-type: none"> <li>• Knows the principles of converting physical information into digital format</li> </ul>
3.7 Linking technology and systems	<ul style="list-style-type: none"> <li>• Knows how technology can be used to develop new systems</li> <li>• Understands the capability of technology to do back-end processing</li> <li>• Knows how technology can be used to improve systems</li> </ul>

### 5.2.2.2. Categorising competencies based on application theory

Once the initial framework had been developed, an attempt was made to apply existing theories to structure it. A theory that could potentially be utilised was the tiers of influence of e-HRM, as indicated in Section 2.2.8. According to that theory, competencies can be clustered into three groups: the first is based on how the associated area relates to changes in technology external to the organisation; the second deals with competencies associated with technological advances within the organisation (but external to the HRM function); and the third includes competencies related to technological advances within the HRM function or profession.

Classification according to these three categories yielded the model shown in Table 5.2, which indicates overlaps with regard to the competencies required in each category. Such overlaps are italicised in the table. The competencies in black (not italicised) are those that do not overlap.





Table 5.2.

Classification of identified competencies required within the HRM function, within the organisation but outside the HRM function and outside the organisation.

WITHIN THE HRM FUNCTION	WITHIN THE ORGANISATION, BUT OUTSIDE THE HRM FUNCTION	OUTSIDE THE ORGANISATION
<ul style="list-style-type: none"> <li>• <i>Linking human issues to data and vice versa</i></li> <li>• <i>Using data for predictions and decision-making</i></li> <li>• <b>Processing different forms of data</b></li> <li>• <b>Understanding data integrity</b></li> <li>• <b>Managing data with confidentiality, security and awareness of information risk</b></li> <li>• <i>Understanding of statistics</i></li> <li>• <i>Linking data to processes</i></li> <li>• <b>Understanding HR transactions and process integration</b></li> <li>• <i>Managing large-scale and small-scale change</i></li> <li>• <b>Appreciating the relationship between process and data integrity</b></li> <li>• <b>Appreciating the usability and benefits of technology</b></li> <li>• <b>Being informed of various HR technology products</b></li> <li>• <i>Being informed of the legal aspects of/risks associated with IT use</i></li> <li>• <i>Being able to digitise data</i></li> <li>• <i>Linking technology and systems</i></li> <li>• <i>Problem-solving</i></li> <li>• <i>Simplifying complex situations</i></li> <li>• <i>Being able to visualise</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Linking human issues to data and vice versa</i></li> <li>• <i>Using data for predictions and decision-making</i></li> <li>• <i>Understanding of statistics</i></li> <li>• <i>Linking data to processes</i></li> <li>• <b>Understanding HR metrics</b></li> <li>• <i>Managing large-scale and small-scale change</i></li> <li>• <b>Designing user experiences</b></li> <li>• <b>Systems thinking</b></li> <li>• <i>Developing and writing reports and business cases</i></li> <li>• <i>Presenting data to convey information</i></li> <li>• <i>Using social media for work purposes</i></li> <li>• <i>Informed of the legal aspects of/risks associated with IT use</i></li> <li>• <b>Understanding the influence of cross-functional integration on technology use</b></li> <li>• <i>Being able to digitise data</i></li> <li>• <i>Linking technology and systems</i></li> <li>• <i>Problem-solving</i></li> <li>• <i>Simplifying complex situations</i></li> <li>• <i>Being able to visualise</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Linking human issues to data and vice versa</i></li> <li>• <i>Using data for predictions and decision-making</i></li> <li>• <i>Understanding of statistics</i></li> <li>• <b>Appreciating data mining and big data</b></li> <li>• <i>Managing large-scale and small-scale change</i></li> <li>• <b>Researching and benchmarking</b></li> <li>• <i>Developing and writing reports and business cases</i></li> <li>• <i>Presenting data to convey information</i></li> <li>• <i>Using social media for work purposes</i></li> <li>• <i>Informed of the legal aspects of/risks associated with IT use</i></li> <li>• <i>Being able to digitise data</i></li> <li>• <i>Linking technology and systems</i></li> <li>• <i>Problem-solving</i></li> <li>• <i>Simplifying complex situations</i></li> <li>• <i>Being able to visualise</i></li> </ul>

According to Table 5.2., it appears that similar competencies are required within the HR department, within the organisation (but outside the HR department) and outside the organisation. Thus, using this model would not be effective in developing unique categories of competencies.

This attempt to categorise the competencies generated a number of additional interpretations. First, Table 5.2. suggests that the competencies expected of an entry-level HRM professional are mainly used within the HRM function, and to a lesser extent external to the organisation. This finding aligns with the literature, in that the use of IT in HR is dictated by the work level of the HRM professional (Haines III & Lafleur, 2008; Suen & Yang, 2013). Junior-level HRM professionals are expected to be fully involved in administrative and day-to-day management (mostly in operational activities) and in external activities (to a limited extent) (Haines III & Lafleur, 2008; Marler & Fisher, 2013).

Furthermore, an individual who exhibits overlapping competencies is deemed able to undertake responsibilities associated with functional, business and external activities, from an HRM perspective. In other words, this finding suggests that there is no need for different HRM specialists (one to focus on technological aspects internal to the HRM department, one to focus on the business partnering aspect and one to specifically focus on activities external to the organisation). At a basic level, all HRM professionals need to be comfortable with HR technology and should be able to utilise it for administrative, operational and strategic activities. Kryscynski et al. (2018) support this finding, as they received partial confirmation for their hypothesis that analytical abilities may be more important for HR generalists than HR specialists. Hussain and Prowse (2004) note that HR specialists are mostly charged with handling advisory responsibilities, then service-related and, lastly, functional responsibilities. This implies that, at a junior level, HRM professionals are expected to have generic knowledge, and as they progress in their HRM careers, they could fulfil more specialised roles, from a service or advisory perspective. This suggests that all entry-level HRM professionals (and not just a select few) must possess at least some of the IT competencies identified in this study.

By contrast, Isson and Harriott (2016) suggest that a people analytics centre of excellence is necessary in every organisation, and that it should include data

wranglers and statisticians. This may be required at a higher level, but if internal HRM professionals do not have the basic competencies suggested in these findings, such a centre of excellence may not be very effective, especially considering the expenses which may be incurred.

In conclusion, while the theoretical analysis did not lead to a further refinement of the competency framework, it suggested a few elucidations: first, entry-level HRM professionals need IT competencies at a basic level, in order to fulfil their functional role (their most relevant role). Second, IT competencies can also assist them in their operational and external roles. Third, at the entry level, there may not be a need for HR technology specialists – in fact, if all entry-level HRM professionals exhibit the identified IT competencies, organisations would benefit largely from those.

### **5.2.2.3. Factor analysis**

Following the first phase, based on the qualitative analysis, an initial framework was developed (see Table 5.1). The survey responses were utilised to further categorise the identified competencies and to determine their relationship with strategic business partnering. Once the quantitative analysis had been completed, an intermediate competency framework was developed, which incorporated the qualitative and quantitative findings and analyses. The abovementioned activities and their outcomes are discussed in this section.

#### **Factor 1: Technologising employee processes**

The first factor, entitled ‘technologising employee processes’, refers to the entry-level HRM professional being the intercessor or link between technology and the people processes in the organisation. The literature supports this finding, in that HRM professionals must be comfortable with HR technology from the onset (Hussain & Prowse, 2004; Quinn & Brockbank, 2006). HR IT is widely used and is important for the daily operations of HRM functions (Hussain & Prowse, 2004). While the use of IT in HR enables increased efficiency, effectiveness and integration, Hussain and Prowse (2004) note that early use of HR IT is almost always for operational purposes. Nonetheless, even when it is used for strategic purposes, there is a need to manage

systems from an operational perspective. The findings of this study imply that the operational management of HR IT systems may be something entry-level HRM professionals should be doing.

The literature reinforces the above finding. According to Thite, Budhwar and Wilkinson (2014), the optimum configuration of people, processes and technology can enable organisations to leverage their intangible resources. HRM functions that have good processes, measure everything and put improvement plans in place, are able to contribute strategically to organisations. Pretorius (2009) states that how the HRM function is performed and managed in an organisation must be radically changed before technology can empower that function. Pretorius (2009) further suggests that the competitive advantage that good HR technology provides is the information it produces, which indirectly affects the quality of decisions. Thus, the HRM processes that are in place in the organisation must be in good shape if the information gleaned from them is to be effectively used for decision making.

Thus, technologising employee processes includes a combination of competencies categorised under the business process, data analysis and leveraging technology themes respectively. Most competencies that fall within this particular factor refer to the incorporation of technology into various processes and activities within the organisation, and even externally.

There are contrasting views about the importance of technology for the HRM function. Selmer and Chiu (2004), in identifying competencies, only mention technology under the 'innovation' role that the HRM executive may perform, but they do not refer to HRM technology in their discussion of that role. In most competency frameworks, HR processes and technology are some of the last competencies to be included, being least correlated with HR success. However, this study suggests that unless HR technological competencies are valued appropriately, some higher-order competencies (such as strategic business partnering, change and innovation) may not be of much value within the HRM function. So, while these competencies may not be important for HR executives, they are vital for entry-level HRM professionals. This assertion is supported by the fact that this factor makes the strongest unique contribution to strategic business partnering competencies for entry-level HRM professionals.

## **Factor 2: Processing data expertly**

The second identified factor was named 'processing data expertly'. Most of the competencies clustered within this factor refer to data processing, analysis and management. The literature backs the finding that the competencies identified in this category are important for HRM professionals (Farndale, Paauwe, Morris, et al., 2010). For Farndale et al. (2010), the HRM functions in multinational corporations focus on their administrative processes, strongly emphasising data and metrics.

The competencies that cluster within this factor predominantly fall under the data analysis theme from the qualitative phase of this study. Several studies support the need for analytical abilities in HRM professionals, as discussed earlier. There is, however, also an argument that data analytics is not an HRM professional's job (Isson & Harriott, 2016), but it has been identified that a basic understanding of data processing will be helpful (Kryscynski et al., 2018). Some argue that data analytics competencies are not necessarily IT competencies, as data are products of IT. Nevertheless, in this study, it was identified that factors 1 and 2 were highly correlated. Thus, data-processing competencies are considered IT competencies, for the purposes of this study.

For data to be accurate, there must be a clear link between people, processes and technology. In other words, having this competency category is not sufficient – it is not stand-alone. In fact, in many instances, organisations have poor data. HRM professionals do not know how to fix data or how to process them, even if the processes are fine. This mutual dependence explains the high correlation between these categories.

The findings of this study support the idea that entry-level HRM professionals must not merely be comfortable with data, but must be experts at processing, and not necessarily analysing, data. The findings further imply that the analysis may happen at a senior level, but entry-level HRM professionals must have an understanding of the basics, so that they can collect and process data in order for analysis at senior levels to be effective.

### **Factor 3: Translating external trends**

The third factor identified refers to external trends. Kryscynski, Reeves, Stice-Lusvardi, Ulrich and Russell (2018) agree that HR professionals who identify important trends create more value for the business. Appreciating external trends enables HRM professionals to understand how such trends can assist the organisation in meeting its needs. For example, when flexible working grew as a concept, an HRM professional who understood the trend would have prepared policies, processes and systems to accommodate this, giving employees an opportunity to do flexi-work. The quicker such adaptation, the more strategic the contribution the HRM professional can make to the organisation. Also, this factor included social media competencies and an awareness of trends and new products in technology. In this study, it was identified that this factor makes only a limited contribution to strategic business partnering. Boudreau (2014) and Poba-Nzaou et al. (2016) interpret the identified competencies in their respective studies as not sufficient for strategic business partnering. The competencies that cluster within this factor are thus recognised to not be strategic in isolation, but are beneficial to strategic business partnering, if exhibited by entry-level HRM professionals.

Furthermore, these findings are in line with the point made by Boudreau (2014), that HRM functions are not at the forefront of addressing organisational dilemmas or external trends. An HRM professional who can interpret external trends can strategically advise on the impact that recent phenomena such as globalisation and the fourth industrial revolution can have on the employees and potential employees of an organisation. The competencies that HRM professionals possess in relation to linking employee processes to technology and data processing will also enable them to make decisions related to various trends, and to report back on the success of any associated initiatives.

Ignoring these competencies and being unable to scope out external trends can pose a threat to the organisation as a whole, and to the HRM function in particular, preventing the entity from being able to respond to such trends (Phelps, 2010). Thus, interpreting external trends is a necessary IT competency for any entry-level HRM professional.

#### 5.2.2.4. Integrating factors and themes

Thematic analysis during the qualitative phase of the study generated several themes. Additionally, exploratory factor analysis was conducted to determine whether any items would group together. The thematic findings were collated with the factors identified through the exploratory factor analysis, to develop an integrated competency framework (see Table 5.3).

The competency framework in Table 5.3 lists all the IT competencies identified in this study. The rows indicate the competencies that cluster within the various factors, while the columns indicate the competencies that are categorised within each theme (identified qualitatively). Further, factor loading is used to rank the competencies within each factor, indicated by the number to the left.



Table 5.3.  
Competency framework integrating themes and factors

		THEMES (PHASE 1)		
		Data analysis	Business process	Leveraging technology
<b>FACTORS (PHASE 2)</b> Technologising employee processes			Defines a problem, question or hypothesis based on the needs of stakeholders	
			Contributes to designing experiences for the end user (employee or manager)	
			Manages change associated with implementing HR technology	
			Explains and calculates HR metrics	
			Identifies relevant HR metrics by considering organisational context	
		Makes predictive inferences from data	Identifies existing HR transactions that can be integrated into new processes	Translates the capabilities of technological products to particular organisational/ stakeholder situations
		Connects human issues in the workplace to related data	Identifies the needs of the end user (employee or manager) through observation, engagement and empathising	
		Applies data-mining outputs and big data insights to HR issues	Reacts to change with technological perspectives, tools and techniques, in order to make change seamless	
		Identifies the impact of HR decisions on employees	Breaks down HR processes into specific transactions	
		Modifies existing processes in order to collect accurate data	Views the organisation and the HR function as a system and as part of a system	
		Evaluates whether various systems used for HR information have appropriate data security/access levels	Taps into information from other functions to benefit the HR function	
			Effectively connects information from various systems	
		Displays HR process ownership		



THEMES (PHASE 1)			
	Data analysis	Business process	Leveraging technology
FACTORS (PHASE 2)	Processing data expertly	Maintains data accuracy in a single system or multiple systems	
		Organises data for ease of reading (sorting, splitting and filtering)	
		Displays proficiency in the use of spreadsheet and database programs	
		Continually maintains the quality of an information system	
		Transfers data from one system to another for processing purposes	Focuses on HR processes to ensure obtained data have integrity
		Summarises different forms of data into meaningful information	Maintains electronic records, taking into consideration information governance
		Understands that data relevant to a particular context may not be used in another context	
		Identifies gaps in processes if data quality obtained is poor	
		Identifies risks that could arise if data are not protected	
		Applies basic statistical methods to solve problems	
Translating external trends	Identifies types of employee data needed to resolve a problem		
			Applies various forms of social media for two-way communication with potential employees, employees and managers
			Utilises various tools available through social media to achieve various tasks
			Is aware of new trends and products in technology that could impact HR

The integrated competency framework can be construed in several ways: first, Factor 1, namely technologising employee processes, encompasses a majority of business process competencies, and a few data analysis competencies. Most of the data analysis competencies within this factor are of a higher order, including making

predictive inferences from data and connecting human issues in the workplace to related data and vice versa.

Considering that this factor makes a strong yet unique contribution to strategic business partnering, it appears that the survey respondents, who were HRM professionals, considered business process competencies and higher-order data analysis competencies to be more important than data-processing and leveraging technology competencies. This largely aligns with the rankings offered by the Delphi participants, who were considered HR technology experts.

Factor 2, namely processing data expertly, incorporates a large number of data-analysis competencies, most of which relate to data processing and less to higher-order data analysis. The unique contribution that this factor makes towards strategic business partnering is limited, compared to Factor 1. However, factors 1 and 2 are strongly correlated, which implies that technologising employee processes has a strong relationship with processing data expertly. Therefore, neither group of competencies can be disregarded.

Another interpretation of this finding is that there are similarities and dissimilarities in the Delphi participants and survey respondents' perceptions of the importance of certain competency themes. For example, while the survey respondents considered various business process competencies to be more important than data-analysis competencies, the Delphi participants (HR technology experts) deemed the latter to be more important than business process and leveraging technology competencies. These variations are discussed further in relation to the ranking exercise described in the next section.

#### **5.2.2.5. Rankings**

A ranking procedure was used to determine how to develop the IT competency framework. The participants in the Delphi process ranked the competencies in Round 2 of the modified Delphi process. The survey respondents indicated how important they perceived each competency to be, and the sample means were taken into consideration when identifying the rankings based on the survey responses. The comparisons are illustrated in Figure 5.3.

Figure 5.3 depicts the differences in the rankings the Delphi participants awarded to the various competencies, compared to those of the survey respondents. The figure can be partitioned into four parts: the top right quadrant shows those competencies that were ranked high by both Delphi participants and survey respondents. The bottom right quadrant indicates those competencies that were ranked high by the Delphi participants but ranked low by the survey respondents. The top left quadrant includes the competencies ranked low by Delphi participants, but high by survey respondents. Finally, the competencies ranked low by both the Delphi participants and the survey respondents are represented in the bottom left quadrant.



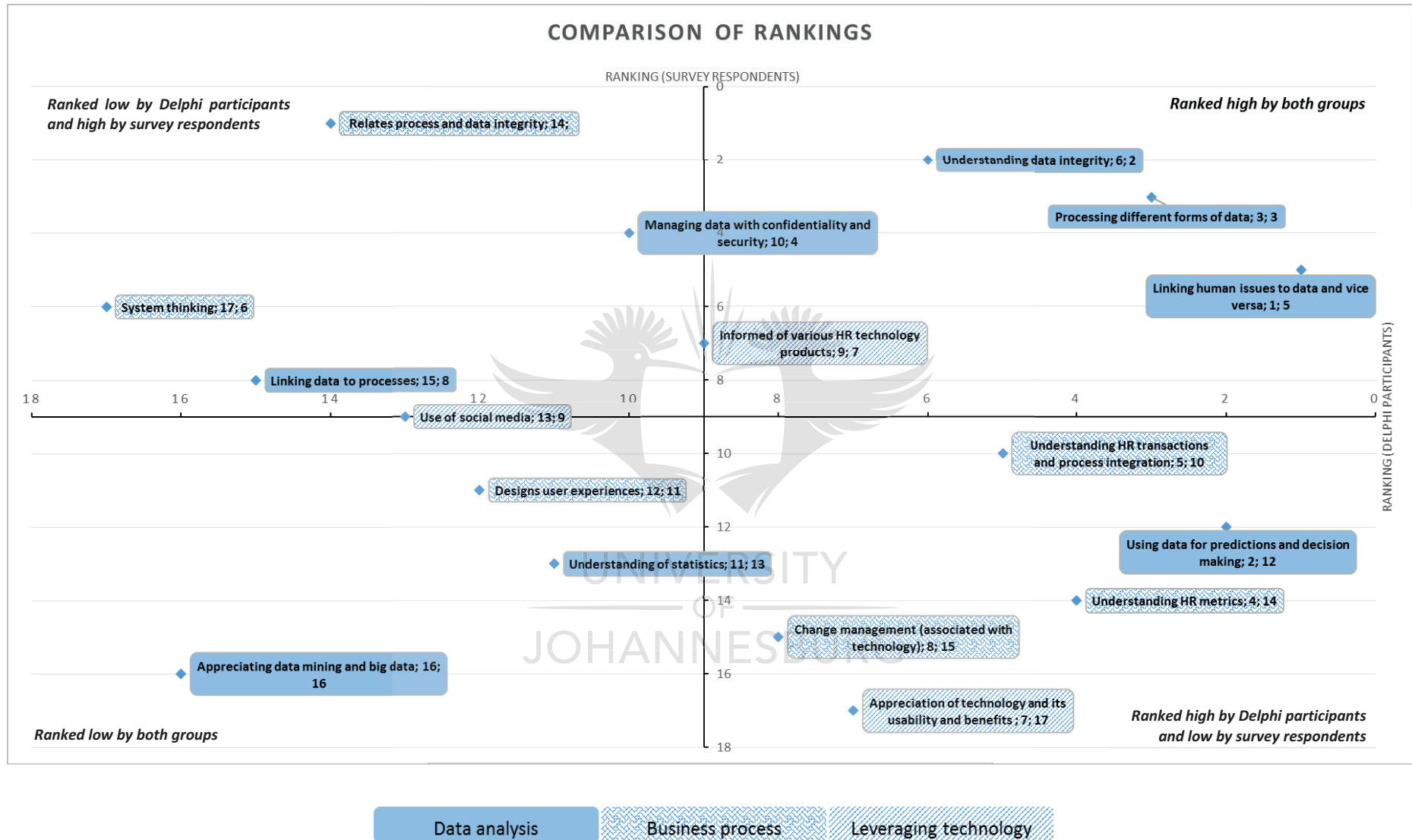


Figure 5.3. Comparing the responses of HR technology experts and HRM professionals

Based on the survey responses, the most important competency is the ability to relate process and data integrity, while the least important competency is appreciating technology, and its usability and benefits. From a competency theme perspective, although the most important competency identified resorts under business process, the next four are data-analysis competencies. In general, therefore, the most important themes seem to be data-analysis and business process competencies. While the descriptive statistics and the ranking based on the descriptive statistics describe how important these competencies are for entry-level HRM professionals, how these competencies relate to strategic business partnering is described through the factor analysis.

On observing the top right quadrant of Figure 5.3, it is evident that both groups of contributors to this study ranked only four of the 17 competencies as high. The bottom left quadrant reveals that both groups ranked only four of the 17 competencies as low. The remaining nine competencies are distributed between the two remaining quadrants.

Thus, while ranking represented an attempt to fine-tune the competency framework, it was determined that, due to the differences in rankings, the analysis could not be utilised to enhance the framework.

These rankings do, however, permit several interpretations: first, the rankings of the Delphi participants indicate that they considered data-analysis competencies to be more important than both business process and leveraging technology competencies. However, the survey respondents considered many of the competencies that the Delphi participants thought were important, to be far less so.

This has several implications: first, the difference in rankings implies that the Delphi participants, who are HR experts and senior management, held different perceptions regarding the competencies and, hence, the outcomes expected of entry-level HRM professionals than the survey respondents, who were HRM professionals, did. Some of the competencies where the differences between the ranks were fairly high, are discussed in the next few paragraphs.

Relating process and data integrity and systems thinking were two competencies that Delphi participants ranked very low and survey respondents ranked very high. Thus, it appears that HRM professionals considered these competencies to be important, while the HR experts did not. This finding may be interpreted as HRM professionals feeling that these competencies are important for them to be strategic business partners, while the HR experts felt there were more important competencies for new entrants to focus on. Relating process and data integrity clustered within the second factor during the exploratory factor analysis, thus suggesting that it may not contribute much to strategic business partnering. However, the survey respondents may have ranked this competency high because they realised that if they did not view processes with data integrity in mind, ultimately the quality of data and hence, data analysis, might be affected.

Jackson et al. (2014) note that, in order for HRM to be strategic, the function must fully embrace systems thinking. Additionally, from a factor analysis perspective, systems thinking clusters within the first factor, technologising employee processes, which indicates that it contributes significantly to strategic business partnering.

By contrast, using data for predictions and decision making, understanding HR metrics and appreciating technology and its usability and benefits were ranked very high by Delphi participants, but very low by HRM professionals. This may be because the latter group felt these are activities that must be performed by slightly more senior professionals, not entry-level HRM professionals, while the experts felt that, at entry-level, HRM professionals must already be exposed to these aspects of HR information. As these competencies cluster within the first factor, which contributes significantly to strategic business partnering, entry-level HRM professionals must definitely embrace them.

Such confusion clearly indicates that there are differences in the perceptions of various groups of stakeholders regarding the role of the entry-level HRM professional, especially when it comes to strategic business partnering. This further implies a need for further conversations regarding the roles HRM professionals must play at different levels within the organisation, so that there is greater clarity about expectations at various levels.

### 5.2.3. Linking IT competencies with strategic business partnering

While the qualitative phase, the Delphi process, was used to identify the broader themes of IT competencies that will enable entry-level HRM professionals to be strategic partners to business, the quantitative phase, the survey, was used to identify the combination of the IT competencies that would most closely relate with strategic business partnering.

The first competency category, which requires entry-level HRM professionals to technologise employee processes, refers to them designing systems, running processes and using technology with the intention of providing strategic outputs to business. In this particular factor, certain competencies resort under all three themes, namely business process, data analysis and leveraging technology. Thus, competencies from all three themes are deemed necessary for entry-level HRM professionals, if they are to act as strategic partners to business. The second competency category, Processing data expertly, also links quite strongly with strategic partnering. Without data, there is no way of strategically partnering with business. Data are the instruments through which strategic partnerships can be strengthened. Even in this factor, there are competencies that fall within both the business process and the data analysis themes. With reference to the third competency category, which refers mostly to the theme of leveraging technology, awareness and use of social media enable entry-level HRM professionals to adapt quickly to trends, making the information they provide relevant and effective. The combination of the three factors explains more than a third of the variance in strategic business partnering, which is considered to be significant.

This finding suggests that IT competencies correlate significantly with strategic business partnering. A limited number of studies have linked IT competencies and strategic business partnering. For Uti (2016), being a technology proponent is significantly but weakly correlated with the strategic partnering role of HRM professionals, although it was one of the weaker correlations when compared to other competency areas – the Pearson's correlation coefficient value was .304. Notably, most other studies found that the use of IT in HRM can increase its strategic contribution (Barrett & Oborn, 2013; Bondarouk & Ruël, 2013; Martin & Reddington,

2010), but few studies have looked at IT competencies and their link to strategic business partnering (Uti, 2016).

Uti's (2016) findings, in association with the findings of this study, can be interpreted in several ways: first, being a technology proponent is considered important for HRM professionals. However, when taking into account the other competencies expected of senior HRM professionals (being a strategic positioner, a change champion and an HR innovator), the competencies associated with a technology proponent become less significant. Junior or entry-level HRM professionals can, however, exhibit these competencies, thus making their contributions strategic and enabling them to play an important and necessary role in both the HRM function and the organisation. Thus, while senior HRM professionals may support the use of technology for both people and other organisational processes, entry-level or junior HRM professionals should focus on technologising employee processes and ensuring that the data obtained through various IT systems, are useable.

Thus, the strong correlation between IT competencies and strategic business partnering at the entry-level HRM professional stage implies that the technological aspects of strategic business partnering are expected of entry-level HRM professionals – more on this in the next section.

#### **5.2.4. Applicability to entry-level HRM professionals**

Taken together, the findings of this study indicate that the IT competencies required of entry-level HRM professionals may differ from those expected of their senior counterparts. Hussain and Prowse (2004) suggest that each set of HRM professionals uses HR IT differently.

This study did not investigate the IT competencies required of senior HRM professionals and HR executives. Interestingly, Selmer and Chiu (2004), in a study based in Hong Kong, found that HRM executives require competencies associated with change, innovation and crisis management, and organisational knowledge. While innovation management involves some level of technology, senior HRM professionals need more of an overview in this regard, rather than necessarily the ability to make detailed use of HR IT systems. They do, however, rely on the output of these IT



systems to effect changes, track behaviours, and capture and disseminate organisational knowledge. Thus, while senior HRM professionals may not be completely involved in HR IT systems, the outputs of such systems are crucial to their presence in the organisation. Ulrich (1998a, p. 126) agrees that the challenge for senior HRM managers is to “make sense and good use of what technology offers”.

Thus, the findings of this study suggest that entry-level HRM professionals have to focus on the technical aspects of business processes and data analysis, for several reasons: first, it affords them an opportunity to understand the business and to grapple with the intricacies of people processes. Second, it positions them as contributors to the overall HR strategy of the organisation. Also, through the effective use of technology, they can arrive at a detailed understanding of the administrative processes within the organisation, and of how the organisation functions. Another reason for focusing on IT competencies and associated expertise is that becoming proficient should make them more effective as senior HRM professionals later on in their careers.

In general, it seems that the identified competency framework is specifically applicable to entry-level HRM professionals, rather than their senior colleagues.

### **5.3. Stages of theory building**

The preceding sections of this chapter highlighted both the findings of this study and the interpretation of the various findings as a process. Before presenting the final IT competency framework for entry-level HR strategic business partners, the researcher outlines the stages followed in building this model, as a means of summarising the foregoing discussions. These stages are linked to the cycle of theory building in management research (Carlile & Christensen, 2004) (see Chapter 2 of this thesis).

By identifying competencies in the first round of the modified Delphi process, the first stage of the cycles of theory building model – identification – was accomplished (Carlile & Christensen, 2004). The competencies were carefully identified and described using behavioural indicators. Care was taken to acknowledge that further

work on theory would be based on the outcomes of this step. The IT competencies were filtered and developed in this step.

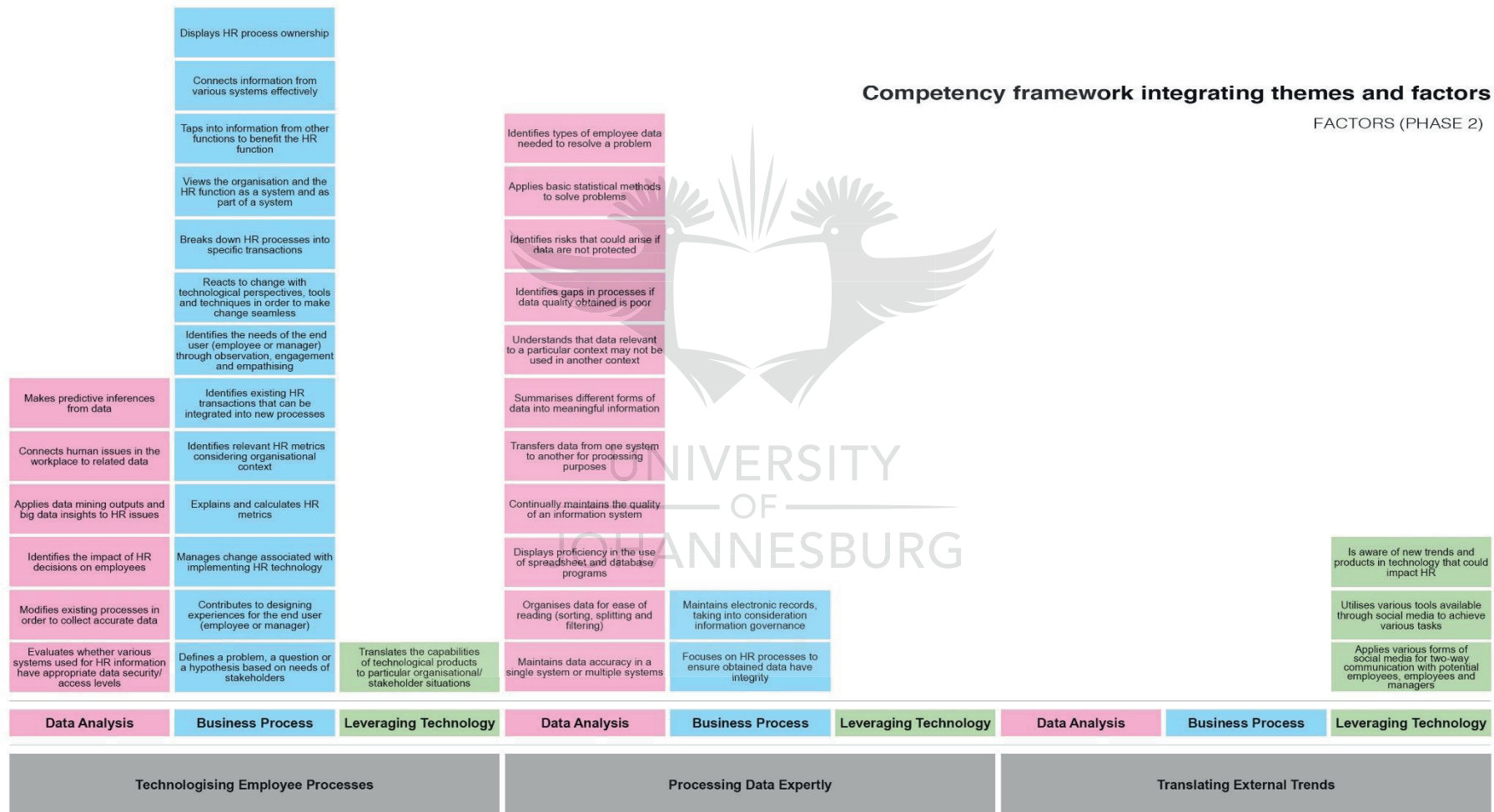
In the second stage of the cycles of theory building model – classification – several methods were used to arrive at a comprehensive approach to the classification process: first, thematic analysis was used to identify various competency themes. Second, an attempt was made to categorise the competencies based on theoretical frameworks. Third, factor analysis was used to cluster the competencies into factors. The factors and themes were then integrated for an appreciation of the complexity of the identified IT competencies. Ranking was also used to add a level of comprehensiveness to the competency framework, although it became clear that variations in the rankings provided by HRM experts and professionals led to diverse interpretations. The classification process highlighted several consequential relationships between IT competencies, the various themes and factors, and strategic business partnering. The process also highlighted discrepancies in terms of how the various contributors to this study understood IT competencies.

In the third and final step of the study, the relationship between the identified IT competencies and strategic business partnering was explored and recognised, taking into consideration the entry-level HRM professional. With this step, the competency framework was finalised and the study was concluded.

#### **5.4. An IT competency framework for entry-level HR business partners**

The overall objective of this study was to develop a framework of IT competencies that will enable entry-level HRM professionals to be strategic partners to business. Based on the data collected and the analyses performed, the completed IT competency framework is shown in Figure 5.4. The blue boxes indicate business process competencies, while the pink boxes indicate data analysis competencies. The green boxes indicate competencies associated with leveraging technology.

Figure 5.4. An IT competency framework for entry-level HRM strategic partners



## **5.5. Associating the identified IT competency framework with other models**

In this section, the IT competency framework for entry-level HR strategic business partners is compared to several other models in the area of HR and IT competencies. First, the competency framework is compared to other IT competency studies in HRM and related fields. Next, the framework is discussed within broader HR competency frameworks. Finally, the relationship between the identified competency framework and various other theories in the area of strategic partnering, IT capability and HRM aspects, is studied.

### **5.5.1. Comparison to other IT competency studies**

In 2003, Bassellier et al. developed an IT competency framework for business managers, in which they identified five areas of IT knowledge domains and two areas of IT experience. The five areas of knowledge include technology, applications, system development management of IT and access to IT knowledge, while the two areas of experience include experience in IT projects and the management of IT. While that model (Bassellier et al. 2003) refers to IT competencies for business managers in general, it does not take into consideration the HRM field and specifically what HR professionals can do with the information sourced through technology. Furthermore, the IT field has evolved significantly since that model was developed.

The above model was applied in a recent study by Poba-Nzaou et al. (2016), who investigated patterns of IT competencies for HR managers and the perceived importance thereof. The results of that study pinpoint the most important IT competency as being knowledge of basic software, which includes productivity software, email and the internet, followed by knowledge of HRISs and the vision they have of IT for HR management (Poba-Nzaou et al., 2016). In comparing the above findings with those of the current study, the most highly ranked competency was related to managing data obtained through IT systems, and ensuring that the HR processes utilised IT to collect data which were accurate and of high integrity.

In many ways, the findings of this study complement and extend the work of Poba-Nzaou et al. (2016): first, the latter study identified competencies for HR managers, while the present study determined competencies for entry-level HRM professionals

specifically. Second, in the current study, the competencies were related to strategic business partnering, while the study by Poba-Nzaou et al. (2016) was more generic in nature.

In their work, Poba-Nzaou et al. (2016) view most competencies as related to knowledge. There appears to be the expectation that entry-level HRM professionals must already have a background in HR technology and data processing before they start working for organisations, in order to be comfortable applying their knowledge and skills more practically. Such a finding has curriculum development implications for HEIs which offer HRM qualifications (see later for more details).

Poba-Nzaou et al. (2016) also point out that HR professionals in general may not be convinced of the business value of IT for HRM. Moreover, creating business value through the use of IT in HRM is, in their view, a relatively new concept that has not been sufficiently studied (Poba-Nzaou et al., 2016). Also, HRM professionals' use of technology trails behind that of other functions such as finance, marketing and operations (Ulrich, 2013).

Another study in the area looked into the analytical abilities and performance of HR professionals (Kryscynski et al., 2018). The findings of the present study augment those of Kryscynski et al. (2018), who found that HR professionals with higher analytical skills deliver higher overall individual performance – that study relates such analytical abilities to strategic business partnering capabilities. Considering that the contributors to this study identified a range of analytical skills as relevant to all entry-level HRM professionals, the findings support the Kryscynski et al. (2018) notion that analytical abilities are vital for HR generalists.

The current study thus contributes in a unique and complementary manner to research related to IT competencies, especially in the field of HRM.

### **5.5.2. Locating the findings within broader competency frameworks**

The IT competency framework identified in this study fits into most of the other, broader HR competency frameworks, although it is limited to entry-level HRM professionals.

The relationship of the identified IT competency framework with some of the popular HR competency frameworks is considered next.

#### **5.5.2.1. The HRCS competency framework**

In 2002, strategic HRM and HR technology were introduced into the HRCS model (Ulrich et al., 2016). Until now, however, the strategic positioner domain has been detached from that of the technology proponent and, more recently, the analytical interpreter (Ulrich et al., 2016). The findings from this study suggest that the two competency domains are quite closely related – at least for entry-level HRM professionals. In fact, in many other studies, being a technology proponent appears to be deemed one of the least important competencies for HRM professionals, especially when compared to strategic business partnering (Suen et al., 2011; Yeung et al., 1996).

The above notions can be interpreted in several ways: first, the HRCS competency model applies generically to HRM professionals and thus may need to be applied differently to different levels of professionalism, especially from a seniority perspective. It may therefore be worthwhile to evaluate the applicability of the HRCS model at different levels of experience. In fact, it may be a challenge to find an HRM professional who possesses all the competencies identified in that model. The same challenges apply to expectations of the type of HR graduate which HEIs must develop. Thus, filtering the competencies necessary for different levels of practice may be useful for building an HRM function that contributes strategically.

Second, while the ‘outside-in’ approach has received attention worldwide, this study indicates that, at least at an entry level, an ‘inside-out’ approach is essential. Without enough attention being paid to internal and operational activities, the processes and associated data may be flawed, leading to poor data which, in turn, cannot be used to make strategic decisions. Entry-level HRM professionals can effectively work on improving processes and the associated data that can help their senior counterparts, line managers and senior management within the organisation to make strategic decisions based on data.

For HRM professionals to be strategic partners to business, it is important that they be functional experts, especially considering their level and experience. Consequently, in order for the HRM function to be a strategic partner to business, it is important that the administrative or functional expert role, or the administrative elements of the function, receive due recognition. Furthermore, senior HRM professionals' ability to contribute as strategic partners to business perhaps stems from the fact that they were, or are still, able to fulfil functional tasks with effectiveness and efficiency.

Third, the technology proponent domain, suggested by Ulrich et al. (2012) as part of the six competency domains which HR professionals must demonstrate if they are to influence business performance, entails improving the utility of HR operations, connecting people through technology and leveraging social media tools. While these sub-factors imply that the use of technology in HR operations is important, they emphasise the outcomes of technology, which focus on connecting people. To do so, however, the focus must fall on the transactional and the data-analysis elements identified as part of this study.

Thus, while the HRCS contributes to the HRM competency field, this study enhances the model by clarifying specifically the IT competencies that will enable entry-level HRM professionals to contribute by being strategic partners to business.

#### **5.5.2.2. The SHRM model**

In the SHRM competency model, technological competencies fall into two competency areas, namely human resource expertise and business acumen. Unlike the HRCS model, the SHRM competency model identifies four career levels: early career, mid, senior and executive. The early career-level professional is described as either a generalist with limited experience or a specialist in a specific support function, who has a formal title (e.g., HR assistant or HR officer).

As mentioned previously, HR expertise is one of the competency areas within which key behaviours associated with technology are included, such as maintaining up-to-date knowledge of general HR practices, strategy and technology; demonstrating a working knowledge of HR technology; seeking process improvement through numerous resources; and utilising technologies to solve business challenges. In a

study conducted to validate the SHRM model, it was identified that all career levels considered these key behaviours to be important, albeit more so for senior than junior career levels (SHRM, 2014). When comparing the above findings with those of the present study, there seems to be a discrepancy: this study identifies these competencies as highly important at entry-level, which suggests that HR technology has evolved considerably over the past half decade, causing HR professionals to expect entry-level HRM professionals to possess related competencies.

The other competency area within which technology-related behaviours are discussed, is that of business acumen. Some behaviours include understanding organisational metrics and their correlation to business success, using such metrics to make decisions, and leveraging technology to solve business problems. This competency was also identified as more important for senior-level HRM professionals (SHRM, 2014). Again, the above findings differed from those of this study. One may argue that a business context is necessary to apply these competencies, and if that is the case, these competencies may not be applicable to entry-level HRM professionals.

### **5.5.2.3. The SABPP model**

As mentioned in the literature review, the SABPP competency model includes HR analytics and measurement. These competencies have been elaborated on in some detail. The findings of this study can, to a limited extent, contribute to the SABPP model by elaborating on the competencies required of entry-level HRM professionals.

In the next section, other theories related to e-HRM and HR technology are compared to the findings of this study.

### **5.5.3. Locating the findings within existing theories**

The e-HRM model put forward by Martin and Reddington (2010) discusses the strategic drivers of e-HR that flow from HR strategies and policies. These drivers determine the architecture of e-HR which, in turn, determines the outcomes. At the outset, these aspects of IT in HRM seem to be the responsibility of more senior HRM



professionals. Notably, many of the aspects discussed in that model did not arise in the findings of this study.

Martin and Reddington (2010) discuss the absorptive capacity of HR; and HR competencies in IT, business and management, as moderators to the adoption of e-HR architecture, which is influenced by organisational strategy. This absorptive capacity refers to the ability of HRM professionals to seek out knowledge and exploit e-HRM architecture to the full. The HR competence in IT, business and management and the absorptive capacity of HR directly relate to the findings of this study: first, competencies that were identified relate to both processes and the data obtained through such processes. This further links to both competence in IT and in business. The identified competencies also link to the absorptive capacity of HR. Without asking the right questions, or knowing how to process and analyse data, the HRM function (and the organisation, for that matter) cannot do much with the data available to it.

Martin and Reddington (2010, p. 1560) also discuss “accompanying human resources infrastructure and resources”, which include the configuration of HR roles for providing e-HR services, how HR staff and the HR function interact with IT, and the levels of e-HR competencies. This description aligns in several ways with the findings of this study: first, configuration implies that there must be a clear order of roles and responsibilities within the HRM function when it comes to providing e-HR services, and clarifying expectations around the roles of junior HRM professionals versus senior professionals and executives. Second, the interaction of HR staff with IT implies that unless HRM professionals are comfortable using IT and know how to use it effectively, e-HRM cannot be used strategically. Finally, the levels of e-HR competencies link to the view that different competencies may be expected at different levels within the HRM function, thus clarifying the need for a study which specifically looks at IT competencies for entry-level HRM professionals.

Martin and Reddington (2010), in describing absorptive capacity, discuss the capacity of the HR function to realise e-HR potential, whereby the first stage is to develop and fuse e-HR technologies with existing HR processes. The findings of the current study strongly correlate with Martin and Reddington's (2010) view of the most important category of competencies for entry-level HRM professionals, if they are to mediate between technology and HR processes. However, a note of caution is advised: without

senior HRM professionals who appreciate the capability of IT and how it can be utilised for strategic business partnering purposes, an entry-level HRM professional cannot be as effective as the organisation would wish.

The above argument links to the paradox which Lengnick-Hall and Lengnick-Hall (2006) describe: they suggest that HR functions can either acquire and assimilate e-HR knowledge or exploit such knowledge – they cannot do both. Such a paradox may imply that HEIs either prepare HRM professionals to manage processes or to apply the data they obtain through the various processes in the organisation. The competencies identified in this study point to a need to link these two silos through an entry-level HRM professional who can interpret HR processes and analyse the data obtained through such processes. An individual who can do both will be a valuable resource to an organisation, linking the two silos in which HRM functions usually find themselves operating.

Martin and Reddington (2010) discuss five cycles related to the use of HR technology in strategy: the first relates to building a business case for IT in HRM to senior and line managers. While entry-level HRM professionals may not be directly involved in this cycle, they would be involved in providing the information required to develop the business case. The second cycle relates to promoting the ideas they have, while the third relates to involving managers and employees in implementing the vision. In fact, entry-level HRM professionals may not be involved in any of these cycles. The fourth cycle relates to integrating new systems with older ones, and considers the needs of stakeholders – entry-level HRM professionals may be involved in this area, especially considering the competencies identified in this study. The fifth cycle, during which the vision and strategy are evaluated, is another process in which entry-level HRM professionals may not be directly involved.

Notably, the target group of e-HR is not the HRM function, but those outside the function (Martin & Reddington, 2010; Ruël et al., 2004). Thus, HRM professionals need to work in alignment with e-HR, not on e-HR per se.

The findings of the current study align strongly with the views of Ruël et al. (2004), that HRM functions will be more involved in strategic planning if they provide adequate, accurate and fast information. Entry-level HRM professionals can be tasked solely with

ensuring that information is readily available to senior HRM managers and line managers. The findings imply that this is a role which junior HRM practitioners need to play. Thus, while Ruël et al. (2004) propose an e-HRM model, they also acknowledge the need for a dedicated resource to work on the transactional and operational aspects of data obtained from IT. Furthermore, Ruël et al. (2004) discuss the need to standardise HRM processes, which links to the findings of the current study. Entry-level HRM professionals can assist in identifying loopholes and issues in existing processes, and suggest improvements.

The role of entry-level HRM professionals in the installation model suggested by Shrivastava and Shaw (2003) is relevant in the last two phases. In the adoption phase, the first phase of the model, the entry-level HRM professional has a minor to no role to play, especially considering the IT competencies identified in this study. More senior managers are tasked with making decisions around HR technology. The IT competencies of entry-level HRM professionals may influence decisions regarding what HR technology to use in the function.

In the implementation phase, entry-level HRM professionals can be involved as they would be able to align the HR processes with technology, migrate data into the system, and even test the software to ensure that service delivery is achieved – the three main activities in this phase (Shrivastava & Shaw, 2003). Here, the first task is to align software and HR processes with each other, which resonates strongly with the first competency category identified in this study. Notably, there is no implication that an entry-level HRM professional can do this without the involvement of senior management. However, if such competencies are inherent in entry-level HRM professionals, they can be highly involved in this phase of the technology implementation process. In fact, the success of implementation may ride on the ability of the HRM function to manage the associated change, which is also a competency identified in this study.

Shrivastava and Shaw (2003) further report that organisations often make changes to their HR processes, to fit the configuration of the IT system they purchased. Such changes work against employees and the people processes in an organisation, as contextual aspects are sometimes ignored when making the process compatible with the IT system. If context is foregrounded, then core software may need to be recoded,

leading to the instability of the system, delays and cost overruns (Shrivastava & Shaw, 2003). It is therefore important that HRM professionals with a sound understanding of business processes work with IT to ensure that business logic is successfully encoded into HR technology. The IT competencies identified in this study – specifically those related to linking employee processes to technology – can be vital in this phase.

Migrating data into a new system is another important activity in the implementation process. For Shrivastava and Shaw (2003), inputs from HR analysts (in the form of reinterpreting existing data or calling for new data) are needed in this phase, but tend to be overlooked if junior HRM professionals are ignorant of the intricacies of data processing. If entry-level HRM professionals possess the data-processing competencies identified in this study, they will be able to contribute to this part of the process. Thus, the need for data-processing competencies is further corroborated.

For Shrivastava and Shaw (2003), the delivery of software functionalities is what motivates the implementation of HR technology, not the delivery of business results. This may be because HRM professionals do not assert that, ultimately, the implementation of technology should lead to improved HR operations. The lack of focus on HRM operations and the overemphasis on strategic HRM may actually work against the profession in the long term.

Even in the institutionalisation phase, the implemented HRM technology must constantly be modified (Shrivastava & Shaw, 2003). In this phase, entry-level HRM professionals with the identified IT competencies can be utilised to identify any obvious gaps in data collection and in analysing the data collected, to determine whether or not the outcomes expected of the HRM function – subject to the expectations of stakeholders – are continually being achieved.

Shrivastava and Shaw (2003) add that some organisations fail to reap the benefits of technology because they try to use it for more advanced goals, before mastering basic operations. Again, the IT competencies identified in this study indicate that entry-level HRM professionals can achieve such mastery prior to utilising the system for more advanced reporting and predicting purposes.

## 5.6. Implications for the HRM profession

The findings of the study have several implications for the HRM profession. At the outset, there were numerous discussions in the field regarding the role of HRM in the organisation and how that function is expected to contribute strategically. Importantly, Haines III and Lafleur (2008) and Boudreau (2014) argue that HR cannot play a strategic role because of the limiting burden of administrative and transactional tasks. At a minimum, if (as the findings of this study suggest) entry-level HRM professionals are capable of using technology to take on administrative tasks with an understanding of HR processes and the information obtained through these processes, then senior HRM professionals should be able to contribute strategically.

Haines III and Lafleur (2008) also note that investing in IT does not lead to effective use of the systems purchased. Their study highlights the need for strong HR administrative units that develop and deliver HR practices. While automation helps to build stronger HR units, there also need to be dedicated HRM professionals working on these aspects of the IT systems. While business has forged ahead through technological changes, there has been little innovation in the way the HRM function is organised and operates (Martin & Reddington, 2010). Thus, it is in the best interests of HRM leaders that the profession evolve beyond its traditional structures. If entry-level HRM professionals display the competencies identified in this study, the prediction is that they will be of strategic value to the organisation.

The findings of the current study support the literature, in that technology has had a substantial impact on the HRM profession (Bondarouk & Ruël, 2013): first, several IT competencies were identified through the Delphi process. Moreover, the high mean values and corresponding low standard deviations associated with the IT competencies in the survey are indicators that IT competencies are indeed prized within the HRM function, specifically for entry-level HRM professionals. Further, the identified IT competencies have a significant impact on strategic business partnering, which is considered a large component of an HR professional's work, especially in recent times (Ulrich et al., 2013).

### **5.6.1. Impact of IT on strategic HRM**

Jiang and Messersmith (2018), in their meta-review of strategic HRM, point out that organisations must develop strong systems in order to send clear signals to employees, which can then affect the latter's attitudes and behaviours in a predictable manner. IT is usually the platform on which sound HRM systems function. Thus, a strong awareness of HR processes (Jiang & Messersmith, 2018) will be useful, but in the absence of knowing how to integrate these processes using IT, strategic HRM will merely remain an aspiration for that function.

Jackson, Schuler and Jiang (2014) describe strategic HRM as HRM systems and their interrelationships with other elements of the organisational system, of which technological and social processes are the primary elements. Thus, the literature confirms that technological processes are imperative to strategic HRM. The findings of the current study support this view, but take the point further by suggesting that entry-level HRM professionals can be employed to administer technological processes within their function. They can ensure that the processes being implemented achieve the purposes for which they were set up in the first place. Furthermore, key performance indicators for entry-level HRM professionals can be generated from the competency framework developed in this study.

In the next few sections, the findings of the study are related to various activities within the HRM function. The associated implications for the HRM profession are also discussed.

#### **5.6.1.1. Workforce planning**

The findings of this study align with the views of Vosburgh (2007), who asserts that without handling the operational and transactional aspects of HR well and completely, none of the organisation's strategic and transformational work will have the required effect. This applies strongly to workforce planning, as information regarding the past and current situation needs to be in place, prior to plans being made for the immediate and distant future.

In the absence of administrative functions, workforce planning (traditionally considered a task for senior HRM professionals) has entered the agenda of entry-level HRM professionals. While they may not make decisions around workforce planning, these entry-level professionals may be responsible for providing information that enables senior management to make related decisions. The findings of this study indicate that one of the outcomes expected of entry-level HRM professionals is the ability to deliver accurate and consistent data that can be used for decision making in the organisation. Furthermore, accurate data can only enhance the reputation of the HRM function. As Participant 12 in the Delphi process commented:

*“There was an incident where the head of HR in our organisation was asked for the headcount. The number he had was different from the number that the CFO had. Ultimately, the executive committee went with the number that the CFO gave. How embarrassing would that have been for the head of the people function?”*

Thus, the IT competencies identified in the study align well with the HR function of workforce planning, and translate into a foundational competency set that is required of entry-level HRM professionals wishing to serve as strategic business partners.

#### **5.6.1.2. Recruitment and selection**

In order for organisations to have a competitive advantage in the labour market, they must be able to attract scarce and critical talent. This is especially relevant in the South African environment, where there is an obvious skills shortage. The adoption of technology is becoming a necessity for employers (El Ouiridi et al., 2016). Van Esch, Black and Ferolie (2019) note that potential candidates are more likely to apply to organisations that use AI in their recruitment process. Thus, most organisations are embracing technology when it comes to recruitment and selection.

The above discussions relate to the findings of this study. If entry-level HRM professionals who assist in recruitment and selection processes are unaware of social media and trends which incorporate technology, they will not be able to utilise such technologies to the benefit of the organisation. Furthermore, since entry-level HRM professionals are expected to work at the back end of such technology, they should

be able to manage such processes and the information obtained from those processes. Thus, IT competencies are not only necessary, but also elemental for using recent technologies effectively in recruitment and selection. The expectations of entry-level HRM professionals, from an IT perspective, are foundational. Senior HRM professionals might still be expected to handle more complex aspects, for instance, which systems to use.

#### **5.6.1.3. Training and development**

IT has caused major changes in the field of training and development. Bell, Tannenbaum, Ford, Noe and Kraiger (2017) explain that technological advances in training and development focus on the employee or the end user, therefore the HRM function makes a limited contribution to it, especially with regard to HRM professionals at the entry level. This study did not identify any specific IT competencies related to the training and development required of entry-level HRM professionals.

Nevertheless, the IT competencies identified in this study relate to strategic business partnering. From a training and development perspective, the findings imply that the role of entry-level HRM professionals would be to ensure that the associated processes run smoothly, that the data collected from these processes are accurate and consistent, and that the collected data are analysed for reporting purposes. The competencies identified here are necessary for the HRM function to report on the return on investment an organisation would derive from various training and development initiatives.

#### **5.6.1.4. Performance and remuneration management**

One area within the HRM field that technology has largely influenced, is payroll. While payroll may not directly contribute to strategic business partnering, structured approaches to remuneration and performance, benefits analysis and customisation all represent strategic contributions (Jackson et al., 2014). The current study identified foundational IT competencies related to processes and data which would be useful in this sub-function of HRM, as accuracy and integrity are important and highly regarded within the payroll environment.



### 5.6.2. Non-IT competencies

From the first round of the Delphi, and the analysis thereof, besides the IT competencies which were discussed in detail in earlier chapters of this study, several non-IT competencies were identified. Due to the exploratory nature of the study, these findings need to be reported, therefore a brief discussion follows.

The experts identified competencies that included financial knowledge, project management, knowledge of teams and teamwork, communication competencies and learning competencies, although they were specifically asked about technological or IT-related competencies. Such feedback may either be because there was a heavy overlap between the IT-related and other competencies they expected of HRM professionals, or because they expected an altogether different set of competencies, due to advances in technology.

Participants may have focused on the competencies expected of entry-level HRM professionals due to advances in technology, instead of focusing specifically on technological competencies. While technological advances imply that HR professionals must have related competencies, such expectations may be redirecting HRM professionals. This observation, in conjunction with earlier findings, implies that HRM professionals should focus more on the application of technological products in their field, than on the technological products themselves.

Furthermore, the focus of competency development within the HR function should be on behavioural, learning and business competencies, as much as on technological competencies. While findings pertaining to non-IT competencies are of interest, they do not directly answer the research question posed in this study. For this reason, the codes associated with non-IT themes were set aside for the rest of the study. Such exclusion does not imply that the identified non-IT competencies are unimportant for entry-level HRM professionals and strategic business partnering. In fact, the research collaborators' references to non-IT competencies point to the multidisciplinary nature of HRM, which is discussed next.

### **5.6.3. HRM as a multidisciplinary function**

Several interpretations can be linked to the categorisation of the competencies identified in this study: first, the categories imply that it is not so much the actual use of technology that will enable the strategic business partnering of HRM professionals, but the application of the technology that causes it. These findings explain the attention HRM researchers give to HR metrics and analytics, rather than to the use of HR technology itself (Dulebohn & Johnson, 2013; Huselid, 2018). In fact, the studies associated with the use of HR technology seem to hail as much from the fields of computer studies, information systems management and business management, as from HRM (Biesta, 2010; Hussain & Prowse, 2004; Khan & Tang, 2017; Madhuchhanda & Kumar, 2009). This further implies a multidisciplinary approach to HRM, which is different from how HRM has been approached in the past (Halaweh, 2018).

The multidisciplinary approach required of HRM does not only relate to technology. In the first phase of this study, the participants in the Delphi process mentioned a wide range of competencies that cannot be identified as IT-related or, more broadly, technology-related, despite being specifically asked about IT competencies. The identified competencies were categorised by associating them with learning, communication, knowledge of teamwork, project management, financial knowledge, design and reporting. The identification of non-IT competencies implies that the IT competencies identified in this study cannot be used in isolation – they should be used in combination with several other competencies that are typically associated with different disciplines.

### **5.6.4. Outcomes expected of the HRM function**

Competencies are described as the knowledge, skills and attributes an individual requires to perform a particular task (McClelland, 1973; Spencer & Spencer, 1993). This section of the thesis focuses on the latter part of this description, which is the performance of tasks. Here, the focus is on the outcomes expected of an entry-level HRM professional, in respect of the identified IT competencies.

The findings of this study imply that only when an IT system is used for information and transformation within the HRM function, does it truly contribute to strategic business partnering (Gardner et al., 2003). Thus, the implication is that the adoption of IT in HRM should lead to changes in the outcomes expected of that function. The outcomes expected of e-HRM, which have been tabulated previously, can be classified as both transactional and transformational (Martin & Reddington, 2010). Positive transactional outcomes include reduced costs associated with HR transactions, improved responsiveness to managers' and employees' needs, and increased self-efficacy among managers and employees. Negative transactional outcomes include a reduction in HR headcount, managers perceiving that they are doing HR's job, work overload and the displacement of existing HR staff. Positive transformational outcomes include greater accountability on the part of managers for people management, increased acceptance of self-development among employees, improved two-way communication within the organisation and the spill-over of information from HR into other areas of business (Martin & Reddington, 2010). Negative transformational outcomes include reduced face-to-face contact between HR staff and employees. Admittedly, these are organisational outcomes, and do not necessarily relate to the change in outcomes expected of HRM professionals due to the use of IT in HRM.

#### **5.6.4.1. Evidence-based employee advocacy**

The findings indicate four possible outcomes which are expected of entry-level HRM professionals who use technology: the first relates to improving the operational efficiencies of employee processes; the second to using data to solve people problems; the third to providing data for strategy formulation and decision making; and the fourth to responding to changes in technological trends, both external and internal to the organisation.

Taken together with the related literature, the findings of the current study indicate that the outcomes expected of the HRM function in an organisation is the realisation of evidence-based employee advocacy. Strategic HRM implies that the HRM function contributes to organisational success through the achievement of its business strategy. Many authors suggest that organisational success comes at the cost of

employee dissatisfaction (Stark & Poppler, 2017; Yusoff et al., 2012). Organisational goals and targets usually consider investors' needs, more so than those of employees..

There is, however, also the view that the needs of both the organisation and its employees can be achieved simultaneously, and not at the expense of the other (Dundon & Rafferty, 2018). By presenting employees' perspectives, the narrative that organisational success does not have to come at the cost of employee success can be strengthened. Thus, technology provides a platform and data an instrument for the HRM function to offer evidence-based arguments that employee success can equate to organisational success. One of the most important competencies which the contributors to this study identified, regards linking human issues to data, and vice versa. Dundon and Rafferty (2018) acknowledge that evidence-based management may provide a way forward to address such matters. However, if its professionals do not have the competencies to utilise technology to create the abovementioned narrative, HRM will continue to be reduced to a purely administrative function, feeding the pro-market and hyper-individualistic outlook and starving the employee agenda (Dundon & Rafferty, 2018).

Stark and Poppler (2017) discuss that, before strategic HRM became highly publicised as a way of thinking about the management of employees, it was popularly viewed as employee relations, personnel management and labour relations. These appellations conveyed a sense of humanism, whereby employees were viewed as having rights. Thinkers within these early approaches recommended internal functions that considered roles to be employee-centric, and focused on creating and maintaining systems that serviced the needs of the workforce.

More recently, however, the various approaches mentioned above have blended into the concept of HRM, a function internal to the organisation that supports the organisational value chain by ensuring that employees acquire both the competencies and voice necessary to enhance the employment relationship (Godard, 2014; Stark & Poppler, 2017). The HRM approach acknowledged that an advocate of employee welfare is necessary to manage human resources.

Certain authors argue that organisations succeed at the expense of employee success. Stark and Poppler (2017) state that it is increasingly difficult for HRM professionals to reconcile their efforts to represent the investor and management, with attempts to advocate employees' interests. While technology may be used as an instrument for organisational success, the role of HRM professionals must continue to be about ensuring that employee satisfaction or success is not overlooked. In fact, technology and data can be used to drive the employee agenda. It is this connection that the HRM professional should identify – the ability to link employees' needs with organisational needs. This can only be done if the HRM professional asks the right questions and ensures that data are managed ethically and with integrity.

IT has caused major changes in society, and in the way people function in society and in organisations. From an IT perspective, HRM professionals thus have an opportunity to make evidence-based decisions, instead of relying on gut feelings. One of the reasons why this function may not be considered to add value, is its reliance on instinct and its inability to collect evidence to support a gut feeling. Without embracing the opportunities to gather and use data collected by means of technology, the function is again at risk of being ignored, and being treated as an administrative, and not strategic component of the business.

#### **5.6.4.2. Data-driven HRM**

While the use of technology has led to a reduction in HRM professionals' administrative tasks, the findings of the current study indicate that entry-level HRM professionals need to concentrate on the operational aspects of employee processes, to ensure that the administrative aspects thereof are achieved. Many of the IT competencies identified as part of this study are associated with improving operational efficiencies and ensuring that associated processes run smoothly and efficiently. Again, the drive towards operational efficiencies comes from a data-driven HRM perspective. The participants in the Delphi process expected entry-level HRM professionals to be able to identify any loopholes in the HRM process, to ensure that the data collected from such systems and processes are accurate and consistent, and suitable for use in further analyses.

### 5.6.5. Role of the new HRM professional

This study aimed to reduce the limitations of the research reported by Poba-Nzaou et al. (2018), by determining which IT competencies will enable entry-level HRM professionals to be strategic business partners. This study identified that it is not so much by using technology that those professionals can contribute strategically, but by integrating technology in employee processes and processing the data obtained through such technology. These IT competencies are fundamental to an HRM professional's work. In fact, the literature implies that, for the HRM function to be strategic, entry-level professionals need to ensure that HR processes are updated by using technology, and that the data processed through these systems are useable.

In the absence of these competencies, strategic partnering may be a distant aspiration for the HRM function, which may continue to contribute administratively and, to an extent, operationally. Furthermore, this study has indicated that IT competencies are almost foundational in nature. While the identified competencies may not be sufficient to promote entry-level HRM professionals as effective strategic partners, they are necessary even for other competencies to be effective. In the absence of these IT competencies, the other identified competencies may be inadequate.

A greater focus on internal processes does not mean that entry-level HRM professionals must ignore the higher-level strategic aspects of this function within the organisation. They must constantly be aware of the strategic role more senior HRM professionals might play. This also means that senior HRM professionals must potentially mentor entry-level colleagues, so that the latter understand the strategic role of the former (Oh, Blau, Han, & Kim, 2017). Bedell et al. (2007) suggest that acquiring capabilities associated with strategy and IT will facilitate career beginnings for the graduate.

With the right IT competencies, entry-level HRM professionals have an opportunity to become change agents within their function. While senior HRM professionals focus on business interactions, their entry-level colleagues can assist them by providing data and evidence to support their views and opinions. Such partnerships can be established if there is a mentoring relationship, and if entry-level HRM professionals are given an opportunity to work with both technological processes and data.

The need for a different kind of HRM workforce (from the administrative support environment found in the HRM function) is advanced in the literature: as Lawler III and Mohrman (2003) note, while HR technology facilitates a shift in HR activities, the competencies of HRM staff will determine whether the new model is successful.

Changes will not necessarily only occur in the roles of HRM professionals, but also in their identities (Barrett & Oborn, 2013). In the process of being strategic, HRM professionals seem to be ignoring employee advocacy. Furthermore, there may be significant pressure from line managers and senior management to focus on what works for the business, without considering employees. Employee advocacy should not be ignored, but must go hand in hand with strategic business partnering. Thus, employee advocacy and business partnering should not be viewed as opposite ends of a spectrum, but rather as complementary. Both can be done effectively, using data.

#### **5.6.6. Career pathing of HRM professionals**

The findings of this study suggest that, to be truly strategic, HRM professionals must first appreciate, and then become experts in, the operational aspects of their careers or jobs. This would require them to focus on operational elements, instead of trying to contribute to the strategic partnering aspect of their roles, which involves understanding the business and linking findings with the business function of which they are partners.

If senior HRM professionals take up the role of strategic business partners, their entry-level colleagues can become strategic instruments. Consequently, they will be indirectly (yet strategically) partnering with business. Expecting a junior entrant to the field of HRM to understand the ins and outs of a business, to the extent that a seasoned or senior HRM professional does, is too demanding. Instead, while senior HR business partners interact with the business and appreciate the business aspect of HR and the HR aspect of business, entry-level HRM professionals can become strategic instruments who facilitate their strategic business partnering roles.

The abovementioned situation may not be relevant in small, new and start-up organisations, where entry-level HRM professionals may not have senior partners to shadow. In such instances, if they focus on the IT competencies identified here, they

can progressively become strategic instruments to the executive team and, in doing so, also strategic partners.

For the HRM function to strategically partner with business, entry-level HRM professionals must be treated as strategic instruments within the HR function. They must be empowered to develop operational expertise, especially with the aid of technology, so that they may empower the function as a whole. Senior HRM professionals can then focus on business issues and the role the HR function can play in addressing or resolving such issues.

The operational foundation can also enable entry-level HRM professionals to become strategic partners to the business, once they have gained experience in the operational aspects of their function. One cannot be a strategic partner to business without being an expert in the operational elements of the function. Thus, the operational expertise that entry-level HRM professionals develop over the first few years in the field, will enable them to become strategic business partners in time.

Developing certain HRM practitioners with a strategic outlook, certain others with an operational point of view, another group with an employee focus and yet others with a change management perspective, may not strengthen the profession as a whole. Starting them off with an operational mind-set and developing their other competencies, over time, will enable the HRM profession to contribute to business from a strategic partnering perspective.

#### **5.6.7. Maturity of the HRM function**

HRM may have evolved as a practice over years, to what is now referred to as strategic HRM. In the larger scheme of things, the evolution of HRM practices in different organisations may vary. Thus, while some HR business partners may use IT regularly and decisively, others may be using it haphazardly and without intent. This study was completed at a cross-sectional point in time, with different HR practitioners at different maturity stages in respect of their use of IT in HR. Unless outcomes are clear from the outset, HRM professionals may not be able to utilise their competencies effectively. Only when they implement with an end outcome in mind, can entry-level and senior HRM professionals continually use the data available to them.



Several consulting firms, including Bersin by Deloitte, have proposed maturity models related to the HRM function. While there are subtle differences among them, the models imply that, at the most basic operational level, HRM functions are compliance-driven, detached in functionality and focus on fulfilling mandatory HR requirements (Bersin & Associates, 2011). At the next level, the HR strategy focuses on improving and standardising processes, reporting either passively or proactively. As they move into more of a strategic maturity level, analytics become integrated and predictive (Bersin & Associates, 2011). While these maturity models have not been tested scientifically, they do provide an indication to organisations of the maturity of their HRM functions.

The competencies identified in this study suggest that maturity levels in respect of the use of IT in HRM may be quite low in South Africa. The survey responses showed that entry-level HRM professionals' roles relate to ensuring that HR processes run smoothly, and that accurate data are collected. The fact that the Delphi participants recommended expanding junior practitioners' reporting competencies, supports this view. Further, both the Delphi participants and the survey respondents agreed that entry-level HRM professionals only need a basic understanding of statistics. Thus, while there are exceptions to the rule, it appears that the HRM functions in most South African organisations are operating at lower levels of maturity.

#### **5.6.8. HRM practice in South Africa**

With a large number of smaller organisations and operationally active professional bodies, the HRM fraternity in South Africa has an opportunity to work together in developing HRM metrics and sharing information (Abbott, 2011) regarding which metrics can be analysed centrally, to help all involved organisations practise data-driven HRM.

A study by Abbott (2011) identified that the business partner role of the HRM professional is becoming predominant in South Africa, while traditionally, the HRM function rejected definitions which viewed human beings as a means to an end, due to the history and developing nature of this country. This does not, however, mean that a local HRM professional cannot be both strategic and people-based at the same

time. By being sensitive to external issues, and devising strategies to manage the impact of such issues, HR professionals can be highly effective. This study found that entry-level HRM professionals must be aware of, and utilise, technology in their function, not to undertake complex calculations and reduce employees to mere numbers, but to improve the effectiveness of HR processes and ensure that proper people decisions are made, based on accurate data. In fact, the findings of this study suggest that technology can be used for the benefit of employee and employer alike.

#### **5.6.9. Role of the SABPP**

The mission of the SABPP is to lead and give a credible voice to the HR profession, based on clear standards of governance, quality assurance and professionalism in HRM and people practices in the workplace (SABPP, 2019). Considering this mission, the SABPP has developed standards and a competency model to describe the skills HR practitioners must possess, in order to implement the standards. Strategy, analytics, measurement, and HR service delivery are included within the HR capabilities indicated in the SABPP HR competency model. Also indicated within the core competencies are Citizenship for future: Innovation, Technology and Sustainability, and Interpersonal Communication. These competencies were, however, unpacked in a rudimentary way, as there have been no studies to detail the competencies necessary within these broader categories.

The SABPP can use the competencies identified in this study to flesh out several competency categories within the National HR competency model. Furthermore, the SABPP can verify that entry-level HRM professionals who apply to become members have the identified competencies, thus allowing the board to determine the appropriate level of membership. Additionally, when accrediting HEIs that offer HRM programmes, it is recommended that the SABPP verify that final-year students at least partially display the competencies identified here.

Professional bodies in general, and the SABPP in particular, can play a role in ensuring that organisations use HR technology efficiently. There is a conundrum that context-specific analytics will prevent effective benchmarking with other organisations. This may actually deliver a solution as to where to start the journey of bringing HR analytics

into an organisation. If an entity can begin with the basics, and identify a rudimentary set of analytics, this can benefit the organisation as a whole. HEIs and professional bodies can play a role in identifying basic sets of analytics to kick-start this process. The SABPP can be instrumental in standardising HR metrics, especially through its audit processes. Also, the reputation of the HR fraternity can be improved by such standardising, in a process similar to that employed in the accounting and construction fields.

## **5.7. Conclusion**

In this chapter, the findings from the two phases of this study were integrated, to develop a cohesive IT competency framework for entry-level HRM strategic business partners, thereby addressing the primary research question. The findings indicated differences in perceptions regarding IT competencies and the role of entry-level HRM professionals in organisations. Chapter 6 outlines how the main and sub-questions posed in this study were answered, and evaluates the research in its entirety, specifying what implications the findings have for the HRM profession, for HR higher education and for organisations.



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## Chapter 6: Conclusions and recommendations

### 6.1. Introduction

Following the integration and analysis of the findings obtained across the two phases of data collection in this study, a clear picture emerged of the IT competencies which entry-level HRM strategic partners require. Consequently, an IT competency framework, to enable entry-level HRM professionals to be strategic partners to business, has been developed.

This final chapter of the thesis summarises how the findings were utilised to answer the research questions. The theoretical and practical contributions of the study are then deliberated, detailing the implications of the study for both organisations and HEIs. Following this, recommendations for further research in the area are presented, which link to the strengths and limitations of this study.

### 6.2. Research question and objectives

The research question that this study aimed to answer was:

What IT competency framework will promote strategic business partnering by entry-level South African HRM professionals?

The overall research question was further broken down into the following research sub-questions:

1. What IT competencies must entry-level South African HRM professionals possess, to be strategic partners to business?
2. How can the identified competencies be categorised into a competency framework?
3. To what extent do the identified IT competencies enable entry-level South African HRM professionals to be strategic partners to business?

The overall objective of this study was to develop a framework of IT competencies to enable South African HRM professionals who are recent entrants to the field, to serve as strategic partners to business.

### **6.3. Linking the findings to the research questions**

In this section, the various findings of the study are linked to the sub-questions and the final objective.

The findings from the first phase of the study revealed that several IT competencies are necessary for entry-level HRM professionals to serve as strategic partners to business. The second major finding was that, in general, competencies related to the business process theme and data analysis were considered more important than those associated with leveraging technology. Another significant finding was that the identified IT competencies were highly correlated with strategic business partnering.

These findings are explored further in the next sections.

#### **6.3.1. Findings relating to research sub-question 1**

The first sub-question that this study answered was:

What IT competencies must entry-level South African HRM professionals possess to be strategic partners to business?

In other words, the first sub-objective was to identify and describe which IT competencies such professionals must possess, if they are to be business partners who can make a strategic contribution.

An analysis of the first round of the Delphi process led to the identification of IT competencies associated with strategic business partnering, according to the participants. Here, the findings enabled the identification and description of IT competencies, as indicated in tables 4.1, 4.2 and 4.3. The competencies were thematically ordered as relating to business process, data analysis and leveraging technology. The study incorporated responses from HRM leaders, HR technology

experts and business managers in the first phase, where consensus was achieved. Those findings were verified by the consistency with which HRM professionals with varied levels of experience responded to the survey in the second phase.

Through this study, 27 IT competencies, further broken down into 34 IT behavioural indicators, were identified. Thus, the objective of identifying which IT competencies entry-level HRM professionals must possess to become strategic business partners, was achieved.

The findings suggested that HRM professionals need to know how to work closely with IT, especially when designing, deploying and maintaining various HR IT systems. The more HRM professionals understand both data and technology, the more improved HR technological systems can be. From an employee's perspective, such improvement would be associated with user experience. From a line manager, senior manager and HRM perspective, this would be associated with better data analysis, which will ultimately lead to improved reporting, better predictions and enhanced decision making.

According to the findings of this study, at entry-level, business process competencies and data competencies seem to be more crucial than competencies related to use of technology. Thus, for entry-level HRM professionals, complex coding or a grasp of the back end of IT systems is not as necessary as the ability to ensure that the data being inputted into the system are accurate, consistent and shows integrity. Furthermore, the ability of HRM professionals to take the data obtained through such systems and analyse them is vital, as are perspectives, which testify to a problem-solving attitude, employee advocacy and mindfulness of business goals.

Besides the 27 IT competencies, the study identified several non-IT competencies that become prominent in the presence of IT. IT competencies might not enable strategic business partnering in isolation. Moreover, several IT competencies, as a whole, had IT and non-IT aspects to them, which made them almost more complex and multidisciplinary in nature. The findings indicated that an IT expert cannot merely replace an entry-level HRM professional. In this instance, the non-IT competencies were not considered for further analysis, as the aim of the study was to develop an IT competency framework.

### **6.3.2. Findings relating to research sub-question 2**

The second sub-question related to the categorisation of the identified IT competencies into a competency framework. Consequently, the second sub-objective was to build a framework comprising the identified competencies for entry-level HRM professionals. Qualitatively analysing the data obtained in Phase 1 and quantitatively identifying the factors into which the various items obtained during Phase 2 clustered, enabled the development of the IT competency framework. Furthermore, the participants' rankings of the competencies in Phase 1 and that of the survey respondents in Phase 2, were also incorporated.

The 27 IT competencies identified in answering the first research question were arranged into three themes – business process, data analysis and leveraging technology – based on the functional areas in which these competencies may be used. Following an exploratory factor analysis of the survey responses obtained from the HRM professionals, the competencies clustered within three factors: technologising employee processes, processing data expertly and translating external trends. Technologising employee processes predominantly included business process competencies, a few data-analysis competencies, and one competency associated with leveraging technology. Processing data expertly mainly incorporated data-analysis competencies and select business process competencies. Translating external trends only included competencies associated with leveraging technology. Thus, an IT competency framework was developed based on the qualitative and quantitative categorisations.

### **6.3.3. Findings related to research sub-question 3**

The third research sub-question related to the extent to which the identified IT competencies will enable entry-level South African HRM professionals to be strategic partners to business. There are two aspects to this question: first, the role of these professionals was explored, following by an investigation into the link between the identified IT competencies and strategic business partnering.

The evidence from this study suggests that entry-level HRM professionals are expected to focus on internal HR processes, as well as day-to-day operational

activities. As the results show, they can contribute to strategic business partnering to a moderate extent. In other words, by focusing on their functional and operational roles, they will be able to contribute as strategic business partners. The relationships between the identified IT competencies and strategic business partnering were identified through the multiple regression analyses conducted on the survey responses in Phase 2. It was found that the identified IT competencies explained 34 per cent of the variance in strategic business partnering – a considerable proportion.

Thus, the study showed that the identified IT competencies explained a significant amount of variance in strategic business partnering, which means the identified IT competencies are necessary for entry-level HRM professionals who wish to contribute by serving as strategic business partners.

#### **6.4. Contribution to theory**

The empirical findings detailed and deliberated in chapters 4 and 5 indicate that HR IT has an integral role in enabling the HRM function to contribute strategically. The present study adds to the growing body of research that proposes that the HRM function must be enhanced, taking into consideration diverse practices and processes, in order for it to make a strategic contribution.

This study identified the unique role entry-level HRM professionals could play in enabling the HRM function to partner with business, strategically speaking, using IT as an instrument to do so. Specifically, the study focused on the IT competencies expected of entry-level HRM professionals. The principal theoretical implication is that entry-level HRM professionals can contribute to strategic business partnering by technologising employee processes, processing data expertly and translating external trends. While the first two functions incorporate business process and data analysis competencies, translating external trends incorporates competencies associated with leveraging technology.

These findings have significant implications for understanding how IT is used within the HRM function, taking into consideration the different seniority levels of professionals who have different strategic purposes. This study strengthens the idea that diverse IT competencies are required of HRM professionals at different levels,



especially if they intend to contribute strategically to the organisation. However, this study focused only on entry-level HRM professionals.

The findings also highlighted the importance of functional and operational activities and the contribution these make to the strategic capabilities of the HRM function. Strategic business partnering must not be viewed as distinct from functional roles (Boudreau & Ramstad, 2005). The findings indicated that the strategic and functional aspects of the HRM profession can be mutually beneficial. With a reduction in administrative tasks, thanks to technology, the distance between functional and strategic tasks can be reduced considerably. Thus, strategic business partnering cannot occur successfully in the absence of functional and operational effectiveness.

Furthermore, the strong correlation between strategic business partnering and the IT competencies identified in this study imply that partnering must not be viewed as something that is expected only of HRM professionals who interact with employees and line managers. As HRM is a people-related function, partnering with business is an integral role of all professionals in this field. Thus, partnering must not be viewed as the responsibility of only a select few, but rather as relevant to all HRM professionals, irrespective of sector, responsibility and other contextual characteristics.

HR competency studies are deemed to be fairly advanced, due to the number of research projects in the area and the length of time they have taken (RBL Group, 2012; SHRM, 2014). Several competency frameworks denote competency categories as disjointed or mutually exclusive (HRCS, 2014). By contrast, the results of this study showed that strong correlations exist among various competency categories – and possibly among other competency categories. Taken together, these findings strengthen the view that HRM is multidisciplinary in nature. Consequently, an HRM function should take a multidisciplinary approach to HRM when structuring its team and functioning, and must include HRM professionals with complementary competencies, instead of trying to identify all the identified competencies in specific individuals. Additionally, competency discussions continue to focus strongly on strategic competencies. However, by focusing too much on strategic aspects and not enough on functional aspects, the HRM function may end up not doing either effectively. It is therefore important to clarify the responsibilities of each HRM role.

The findings of the study, if applied, will not independently cause the necessary transformation of the HRM function from administrative to strategic. The abilities of senior HRM professionals to be involved strategically with business, the overall alignment of the HRM function to the business, and the willingness of line managers to involve the function in strategic decision making are all factors that may contribute to it being truly strategic.

Although this study focused on the development of an IT competency framework, the findings have implications for HEIs and organisations, while being of value to entry-level HRM professionals looking to upskill themselves to adapt to the new world of work and to the challenges of the fourth industrial revolution. The findings reported on here, support the idea that HEIs can contribute substantially to the larger HR profession, by developing the identified competencies. The implications for higher education are discussed in detail in the next section.

## **6.5. Contribution to practice**

The findings reported on here, make a direct contribution to organisations with HRM functions and to HEIs that offer HRM qualifications. In particular, this research undertaking contributes to the development of knowledge linked to the competencies required of entry-level HRM professionals looking to serve as strategic partners to business. The practical benefits and value of the study are discussed in two parts: the first section investigates the implications for organisations, while the second looks at the implications for HEIs.

### **6.5.1. Implications for organisations**

Having provided an IT competency framework for entry-level HRM professionals, organisations might use it to ensure that they hire the right entry-level HRM professional, especially if they would like their HRM function to contribute strategically to the organisation. In general, HRM professionals with analytical abilities were found to show higher overall individual performance, creating greater value for both the external and internal stakeholders of the organisation (Kryscynski et al., 2018).

Second, hiring the right individual may not be sufficient. Organisations might consider incorporating the identified competencies into their performance management processes. Several environmental elements need to be in place, if entry-level and senior HRM professionals are to utilise IT to contribute strategically to business (more on this later).

It is also important for HR technology organisations to encourage the development of HR analytical skills at entry level, if they plan to purchase more evolved HR technology. Many organisations choose to purchase basic HR technology, as their HRM function may not have the capability to use advanced versions, therefore there is no return on investment in employing more complex technology.

#### **6.5.1.1. Recruiting HRM professionals**

In general, organisations can use the IT competency framework developed in this study as a guideline when hiring entry-level HRM professionals, especially if they wish their HRM function to contribute strategically. However, as indicated previously, most South African HEIs may not currently be developing the right type of HRM graduate. Furthermore, both knowledge and skills may be developed at tertiary institutions, while attributes are more personal in nature. Therefore, based on the findings of this study, the recommendation is that organisations hire applicants based on whether they display the required attributes and (at least partially) the required knowledge and skills. Kryscynski et al. (2018) advise recruiters to signal clearly to HRM job applicants any expectations regarding their quantitative abilities. They also advise HRM leaders to follow through by hiring applicants with the necessary skills. Organisations can then provide these individuals with an opportunity to further develop their skills and knowledge, through training and other experiential opportunities.

#### **6.5.1.2. Environmental elements contributing to strategic involvement of HRM**

Many complex and persistent obstacles are linked to developing HRM functions driven by strong analytical rigour (Wiblen, 2016). Certain constructive approaches to training and practice have, however, been proposed for dealing with the issue, including

providing entry-level HRM professionals with access to technology so that they can gain a level of comfort with it and change organisational expectations. The environmental elements relating to context and continuous learning, that could contribute to the strategic involvement of HRM, are discussed in the next sections.

## **Context**

Organisational factors such as size, the nature of the business and organisational culture were not taken into account in this study. Based on the feedback of the survey respondents, most IT behavioural indicators had a mean that could be rounded up to four on the Likert scale, with low standard deviations. This implies that most competencies were marked as important for entry-level professionals. Such a high value suggests that those professionals, irrespective of the business context they find themselves in, must understand the foundational concepts of using technology within HR processes and data processing. In another study, no interaction effects were found between industry, company and job-level variables and analytical abilities (Kryscynski et al., 2018).

In most competency studies, context is deemed a limitation (Selmer & Chiu, 2004). Depending on the sector, the maturity of IT systems in use in the organisation, its size and other factors, the requisite competencies may differ. It is a known fact that technology has infiltrated our lives in many ways, therefore even a small organisation without many resources still has basic technology available for use. Moreover, IT consulting firms and the availability of software on cloud and other interfaces are making various administrative HR processes more efficient and cheaper. It was therefore deemed important to identify which core competencies need to be developed in entry-level HRM professionals, so that they can use the technology made available to them, specifically in the role of strategic partners to business.

Solely ensuring that entry-level HRM professionals have the right competencies will not guarantee the effective use of HR technology in an organisation. Several other inhibitors have been identified, including the preference for personal interaction over cold automated responses, a lack of faith in the ability of the HRM function to use technology effectively, a lack of support from top management and the fear of change

(Shrivastava & Shaw, 2003). Mainly by developing the right type of newcomer to the field of HRM, with the competencies to manage those inhibitors, can HR technology be better utilised for strategic business partnering.

Once the implementation of HR technology is complete, newly created thought process must be maintained. Entry-level HRM professionals can help to maintain a system and integrate it with other/new systems, if any more are incorporated. This may be difficult, especially when HRM professionals themselves consider data-driven HRM to be taking away HR jobs (Hussain & Prowse, 2004).

### **Continuous learning**

Organisations must examine whether entry-level HRM graduates possess the competencies identified in this study, when hiring. However, most South African HEIs currently do not offer modules and topics related to HR and IT. Organisations that hire undergraduate HRM professionals may need to provide the necessary training and development opportunities, if they expect them to contribute strategically in the short term (Johnson & King, 2002). Therefore, organisations may need to develop and provide their HR graduates with training associated with the competencies identified here. Kryscynski et al. (2018) expect organisations to facilitate the relevant training in analytical skills and to ensure that HRM professionals receive regular opportunities to exercise their analytical abilities. They also report that many organisations have started establishing training programmes for their HRM functions. Furthermore, organisations could collaborate with HEIs to determine suitable developmental opportunities for both entry-level and senior HRM professionals.

#### **6.5.2. Implications for higher education**

The findings of this study provide an array of insights for those HEIs that offer HRM qualifications. In general, HEIs impart theoretical and practical knowledge, depending on how the curriculum is designed. While such institutions also try to develop skills in their students, institutions with higher student numbers are sometimes limited to only providing theoretical knowledge, as they do not have the capacity or the resources to enable students to apply such knowledge.

With the advent of IT, however, it is recommended that HEIs rather focus on imparting higher levels of knowledge and on developing skills. For example, a student can obtain knowledge of a performance system by reading about it, or watching videos and other artefacts. Applying that knowledge to either use or develop a performance system will, however, strengthen his/her associated skills. With the right use of technology, tertiary institutions can concentrate on developing both skills and knowledge. Thus, educators must focus on inculcating skills in the classroom, once a student has shown sufficient knowledge of a particular concept. The recommendation made here, is that HEIs should test for knowledge and then focus on developing skills.

Attributes, by contrast, are considered to be innate or practised (Spencer & Spencer, 1993). If an attribute is not innate, then an opportunity to practise the competence on a regular basis may potentially enable the student to develop a skill into an attribute – something which is only achieved through persistent practice and application (Bartram, 2012).

Depending on the purpose of an analysis, competencies can be viewed in two different ways: whether one is trying to identify a competency or to develop it. When identifying the competencies required for a job or task, many researchers discuss knowledge, skills and attributes as mutually exclusive types of competencies (Spencer & Spencer, 1993). Thus, individuals must possess a specific set of (possibly unrelated) knowledge, skills and attributes to be deemed competent to perform the job. Thus, viewing a particular competency as knowledge, as a skill or an attribute specifically, and not in combination, enables one to break down and simplify the competencies required to fulfil a particular task or responsibility.

However, when trying to develop competencies in oneself or others, there may be value in viewing knowledge, skills and attributes as a hierarchy. If a particular competency is considered a knowledge type, then only knowledge needs to be developed. If a competency must be developed as a skill, then first the knowledge must be developed and then the associated skills (Dreyfus & Dreyfus, 1980). While imitation or trial and error may be ways of developing skills, a skill will only develop once the student has clarity about the purpose or goal thereof. Similarly, practising a skill repeatedly can make it an attribute, depending on how often one utilises that skill.

Working backwards, this means that HEIs can attempt to develop knowledge and skills associated with the findings in this study, so that entry-level HRM professionals possess the competencies required for strategic business partnering. When it comes to attributes, tertiary institutions can make students aware of them, and relay the associated knowledge and skills to them.

Unless students are given an opportunity to develop the necessary knowledge, skills and attributes at university level, once they start working in an organisation, they will not be able to consider contextual factors, as they will lack the basic competencies to do so. Only if they have the competencies required at a basic level, can they apply the context in identifying solutions to the various problems this creates in a work environment. This is all the more important in the current (and possibly a future) scenario, where change is constant and rapid, and an understanding of context makes decision making more efficient.

Currently, studying HRM from a management perspective encourages students to view issues from a line manager's perspective, instead of considering all stakeholders, especially employees (Dundon & Rafferty, 2018). For strategic HRM to be effective, its operational aspects must be fully functional and error-free. As most entry-level HRM professionals start operating in either an administrative or operational role, developing the competencies pinpointed here, will enable them to handle the collection, manipulation, analysis and presentation of data more effectively and efficiently.

While this study identified the competencies necessary for strategic business partnering, other IT competencies may be expected of an HR technology specialist, who would look at how technology can best be used within that function, given the needs of the business. However, the findings of this study are related to an entry-level HRM generalist, not an HR technology specialist.

#### **6.5.2.1. Suggestions for curriculum change**

The important role HEIs can play in students' understanding of a concept, is to lead them through the various sources of knowledge in a structured and principled fashion. In other words, those institutions construct the scaffolding of knowledge by teaching the basics first, then guiding students to higher levels of knowledge.

HEIs that award qualifications for those interested in pursuing an HRM career must provide students with opportunities to develop related competencies. With the need for data-analysis competencies, financial knowledge, business process capabilities and design perspectives, due attention must be given to the subjects taught in undergraduate and postgraduate curricula, how such content is integrated into HRM, and the type of student who pursues an HRM qualification.

The identified IT competencies are strongly correlated and fundamental for entry-level HRM professionals who wish to become strategic business partners. It is therefore suggested that these competencies be developed at the graduate level. While organisations and HR technology providers offer specific training, it may be context specific and not focus on HRM as a function.

Furthermore, the findings of this study indicate that HRM graduates do not need a complex or deep understanding of technology. What seems to be more important is that entry-level HRM colleagues must be exposed to the use of technology in various HR processes, and to how the resulting data is managed. They do not need to know highly sophisticated data-analysis techniques either, but should rather be exposed to more fundamental concepts pertaining to the processing of data, such that data can be used for rigorous decision making. Furthermore, they must have a solid understanding of the HR functional processes and how IT can be incorporated into existing processes.

HEIs in South Africa must ideally expose HRM students to at least an HRIS/e-HRM application during the course of their qualification. Although this may be done by introducing a stand-alone module in the curriculum, it is advisable that the e-HRM application be integrated into existing modules (Jones & Hoell, 2005). For example, in a workforce-planning module, students can be shown what data are collected in this regard, what IT systems are used to collect and process such data, and how the system can be used for reporting, decision making and predictions. The same dataset and application/system can be used with additional data, to show students how to report on recruitment and vacancies. By appreciating the use of data for making decisions at university level, HRM graduates will be well prepared to manage IT applications in the organisations in which they work. Furthermore, it is suggested that



HR simulated environments be introduced at tertiary institutions, so that pre-graduates can become comfortable utilising technology.

#### **6.5.2.2. Type of student**

For HR practitioners to truly appreciate the value of technology and strategic business partnering, they must first understand the value of data. This is perhaps where teaching HR with a strategic perspective becomes crucial. For a student to appreciate data and technology, an understanding of mathematics is essential. Furthermore, graduate programmes in HR must equip students with analytical skills (Heneman, 1999). In fact, programmes that overemphasise leadership skills produce graduates who lack the rigor needed to be seen as role players by management (Heneman, 1999).

For example, one of the IT competencies identified in this study is the understanding of HR metrics. Entry-level HRM professionals are expected to explain and calculate HR metrics, and to identify those that are relevant to their organisation's context and specific requirements. Such a finding suggests that they must know what the components of a metric are, where they can obtain information related to those components, and how those must be used in calculations to obtain the metric. This implies that, before starting work at a corporate organisation, newcomers to HRM should be comfortable with technology, mathematics and statistics. These findings therefore have implications for HEIs, specifically those offering HRM qualifications.

If HR professionals who are in the field do not think that IT competencies are important, part of the reason for this might be because of their background and development. Entrance into HRM programmes at most universities in South Africa, even today, does not require a high mathematics score. Also, the curricula of these qualifications have very little analytical content. HR professionals who graduate, thus transition into the industry without an understanding of analytics and how it can contribute to strategic business partnering. This is all the more reason to incorporate IT competencies into the HRM field, especially for new entrants, so that they can move into industry and slowly but surely alter the way HRM is performed.

In many instances, HR professionals know what they need, in order to become strategic business partners, but because they have been 'disadvantaged' by the fact that their respective universities did not teach IT competencies, they remain unskilled at what they know they need to do. This leads to frustration among both HRM professionals and line managers, as well as a loss of reputation within the function.

Krystynski et al. (2018) suggest that HEIs must clearly signal to prospective applicants what expectations they have of the latter's quantitative abilities. This may be challenging, as the field of HRM has historically attracted individuals with limited training in quantitative methods and, in some instances, even a possible distaste for such methods (Krystynski et al., 2018; Roberts, 2008; Ulrich & Dulebohn, 2015).

The entry requirements of HRM professionals must therefore change. The new professional requires an analytical viewpoint. While there may still be an appetite for such a student, the IT competency framework identified in this study demands a new type of student with an analytical and a problem-solving mentality.

#### **6.5.2.3. Higher education in South Africa**

This study recommends that technological competencies be developed in HR graduates at South African HEIs. These competencies may be developed either through the introduction of a stand-alone module on HR technology and systems, or by integrating HR technology into existing modules. By enabling HRM graduates to utilise IT, and making them comfortable with the basics of data processing, they will be comfortable using the systems and data available to them, to support data-driven HRM.

Heneman (1999) remarks that, in the future, more HR generalists will be required rather than specialists. While experts will still be required, they will be expected to have specialist postgraduate qualifications in specific areas. Furthermore, they will be required in specialist firms, not in typical organisations which expect the HRM function to add value to the business.

The development of the identified IT competencies alone will by no means be sufficient to ensure that HRM practitioners are capable of serving as strategic partners to

business. As this study identified, HRM graduates must also possess several non-IT competencies. Abbott (2011) emphasises the need for such graduates to have an understanding of ethics, and of the socioeconomic context in which the country functions.

## **6.6. Recommendations for future research**

Although HRM competencies have been studied for a while, and continue to be studied, several aspects of the field, which are linked to this study, need to be interrogated in formal research undertakings. These are explored next.

### **6.6.1. Organisational factors**

The current study did not take into consideration organisational factors such as the size, nature of the business and organisational culture, which fell outside of the scope of this undertaking. An investigation into the relationship between the identified IT competencies and the various organisational factors will be useful for determining whether the IT competencies required of entry-level HRM professionals vary, depending on organisational factors such as those mentioned earlier.

### **6.6.2. Competencies within the HRM profession**

Three major recommendations are made in this section: first, this study identified those IT competencies that will enable entry-level HRM professionals to be strategic business partners. Since HR technology can enable strategic partnering within the HRM function at all levels, it is recommended that the IT competencies required of mid-level and senior HRM professionals be studied in detail.

Second, an unexpected finding was the identification of non-IT competencies, which clearly aligned with the identified IT competencies. Certain non-IT competencies may have become prominent in the presence of IT. A further exploration of the non-IT competencies required of HRM professionals, the relationships between IT and non-IT competencies, and the linking of non-IT competencies to strategic business partnering, will be of value to the HRM profession as a whole.

Finally, the study implies that competency categories may be interrelated. In this instance, business process and data analysis competencies were found to be highly correlated. This has implications for the way HR work is distributed among various professionals in the HRM function, and the way HR IT is taught at HEIs. In the same way, high correlation between various competency categories will have similar implications for both organisations and tertiary institutions. Thus, it is recommended that the correlation among various competency categories in diverse competency frameworks be studied further. Such investigations can help to determine which competencies are complementary in nature.

### **6.6.3. Application in higher education**

The identified IT competency framework can be utilised to develop curricula, as discussed previously. It would be of value to determine the role of the curriculum in delivering HRM graduates who can become strategic business partners. Furthermore, as suggested, various instructional strategies can be employed to develop the IT competencies identified here. A range of theoretical and practical activities and related outcomes can be utilised. It is important that such activities be evaluated from an educational perspective. In addition, the effectiveness of such strategies in developing entry-level HR strategic partners are areas for formal research and investigation.

The use of technology in HRM qualifications is another area that must be closely scrutinised. Using technology at different levels of complexity may develop diverse competencies in HRM graduates. It is recommended that the effects and outcomes of such use of technology be studied comprehensively. The assessment of the identified competencies is another area that might deliver interesting findings.

### **6.7. Strengths of the study**

This study constructed a theory based on methodical and systematic data collection and analysis, identifying particular IT competency themes and competencies that will enable entry-level HRM professionals to serve as strategic partners to business. The competencies identified in the qualitative phase of this study were confirmed during the quantitative phase. Further, HRM professionals with disparate experience levels

and educational backgrounds verified the competencies identified by senior HRM professionals, HR consultants and HR technology experts, thereby guaranteeing that the voices of various stakeholders were heard. These strategies ensured the comprehensiveness and breadth of the study.

From a methodological perspective, the integration of mixed methods facilitated a rigorous grasp of the findings. Second, incorporating both open-ended and numeric responses provided well-rounded answers to the questions posed. Qualitative and quantitative data were collated during data analysis, to arrive at a comprehensive IT competency framework.

Linking the identified IT competencies to strategic business partnering enabled the development of a focused competency framework. Previous studies have identified a wide range of IT and other competencies. While those frameworks are detailed and comprehensive, they also are demanding of entry-level HRM professionals. This study clarified those IT competencies that entry-level HRM professionals must focus on, in order to strategically partner with business. The study identified competencies that are almost foundational, allowing those professionals to contribute to the HRM function and the organisation as a whole. Without an understanding of these competencies, entry-level HRM professionals may not be able to apply other competencies they have developed, as IT is basically used in every sub-function of the organisation.

This study can play a role in helping organisations to identify the ideal prospective HRM employees, and in designing the right developmental opportunities for their HRM functions, to enable both the professionals and the function as a whole to contribute strategically. Furthermore, the competency framework might guide HEIs that offer HRM qualifications, as their degrees and/or certificates can be based on the competencies identified in this study.

Moreover, it is envisaged that the study will help to prepare HRM graduates professionals for the new world of work, arising from the fourth industrial revolution. While a future without jobs may be a possibility, such a future still is distant. The study found that HRM professionals can work with (and not against) technology, to make their strategic contribution a success.

## 6.8. Limitations of the study

This study has several limitations. By clarifying these, the researcher acknowledges the constraints on research design and methodology, and the impact those may have had on the findings. In this section, the various limitations are deliberated, to explain their implications for the findings, and clarify how they were addressed, where possible. In some instances, limitations may have affected the conclusions drawn from the study.

Organisational context is a significant consideration when identifying competencies (Campion et al., 2011). A contextual factor that must be taken into consideration is the technological maturity of people processes in the organisation. This study did not take into account organisation-specific needs, the nature of the industry or other contextual factors – something which is arguably a limitation.

Several categories of stakeholders are crucial to the development and functional effectiveness of HRM professionals. While attempts were made to consider most stakeholders, employees' perspectives were not sought in this study at large. This is a limitation as employees are important stakeholders, in the view of HRM professionals.

Furthermore, there are debates about whether focusing on competencies is the right approach to developing HRM professionals. In many instances, because competencies are developed specific to a context, applying them in another context may prove ineffective (Caldwell, 2008). Thus, while the identified competencies are relevant in the South African environment, they may not be of as much value in another country.

One of the major limitations of the modified Delphi technique pertains to consensus. First, there was a considerable drop in the number of participants in the study: from the first to the second round, there was an 18 per cent drop; from the second to the third there was a 22 per cent drop. Since such attrition is expected in Delphi processes, the researcher had originally identified 30 potential participants to cater for this eventuality (Bolger & Wright, 2011). Nonetheless, such a fall in the numbers may be considered a limitation of the study.

The questionnaire used in the second phase of the study had 57 items (excluding demographic items). Lengthy questionnaires may have some inherent limitations, mostly associated with incompleteness and the tendency of respondents to lose concentration in the course of answering the questionnaire. In fact, of the 280 responses collected, only 252 were finally used. Furthermore, of the 252 questionnaires used, only 232 were deemed complete. In addition, survey responses were collected using an online and a hard copy questionnaire (distributed by hand). These differences may have influenced the responses.

## 6.9. Conclusion

Before attempting to use people data to contribute strategically to an organisation, the HRM professionals working within this function must be sure about the quality, consistency, accuracy and integrity of that data. Without confidence in the collected data, making an effective strategic contribution may be difficult. The entry-level HRM professional may be crucial in ensuring that the data obtained can be utilised strategically. The competencies identified here, indicate that if junior HRM professionals focus on technologising HR business processes and are capable of processing data proficiently, with an awareness of how to translate external technological trends, they can contribute to strategic business partnering to a large extent. Several contextual factors – including the competencies of senior HRM professionals – can affect the ability of the HRM function to make a strategic contribution. However, ensuring that entry-level HRM professionals possess the competencies identified in this study can facilitate strategic business partnering. HEIs, corporate organisations and professional bodies have a role to play in ensuring that the right entry-level HRM professional is developed and supported. If so, data-driven and strategic HRM can aid the function in addressing the future challenges facing the world of work.

Industrial revolutions not only influence the way business operates, but also the operations of organisational functions, work psychology and organisational culture. This study signals that a new intellect is required of the HRM professional, if businesses seek to be equipped for the fourth industrial revolution. With a process-orientated perspective and an analytical outlook, and without disregarding its

foundation of employee advocacy, the HRM function can evolve to facilitate how organisations navigate the fourth industrial revolution.





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## Appendices

### APPENDIX A: Delphi Round 1

#### Delphi Round 1 – Information technology competencies for entry-level human resource management professionals

Welcome to the first round of the Delphi process.

The study aims to develop a **framework of IT competencies that would enable entry-level South African HRM professionals to contribute as strategic partners to business**. This round should take approximately 30 to 45 minutes to complete. You have until **24<sup>th</sup> of September 2017** to complete and submit your considered responses. Reminders to complete the questionnaire will be sent closer to the due date.

#### Question 1

**What are the IT competencies (knowledge, skills and attributes) that would enable entry-level South African HRM professionals to be strategic partners to business?**

Please refer to the Introduction document for some guidelines on answering this question.

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#### Question 2

## What related questions would you like to ask the rest of the panel?

Your questions will be included in the 2nd round questionnaire.



A large, empty rectangular box with a black border, intended for entering questions. A faint watermark of the University of Johannesburg logo is visible in the center of the box. The logo features two stylized birds facing each other with an open book between them, and the text 'UNIVERSITY OF JOHANNESBURG' below it.

### Next steps

Once all responses are received, data will be collated and analysed. The frequency count of various themes/competencies and other codes derived from the answers will be used to identify the competencies.

After the feedback to the first questionnaire is analysed, you will be sent the second online questionnaire. You can expect the second questionnaire 3 weeks after you send the responses to the 1<sup>st</sup> questionnaire.

### Contact information

If you have any queries or concerns, you are welcome to contact Renjini Joseph at [rjoseph@uj.ac.za](mailto:rjoseph@uj.ac.za).



## APPENDIX B: Survey questionnaire



### Questionnaire: IT competencies for entry-level HRM strategic partners

3 September 2018

Dear Sir/Madam:

I am undertaking a research project to determine the information technology (IT) competencies that would enable entry-level human resource management (HRM) professionals to be strategic partners to business. To this end, will you please complete the following short questionnaire regarding the relationship between IT competencies and the ability of entry-level HRM professionals to be strategic partners to business? Your response will enable us to identify and potentially develop the IT competencies in entry-level HRM professionals.

For the purpose of this questionnaire, IT refers to the use of technology for processing all forms of electronic data. Strategic partnering refers to the mutually beneficial and collaborative relationship between the entry-level HR professional and the employee or line manager with the ultimate aim of achieving organisational objectives. Entry-level professionals refer to professionals who have just entered the HR profession and has worked in the function for less than 3 years.

Please do not enter your name or contact details on the questionnaire. Your answers to the questions remain anonymous. Summary results of this study will be published as part of a doctoral thesis and in the form of articles in scientific journals. The questionnaire should take less than 15 minutes to complete.

Once completed, please hand me the completed questionnaire. You can email me a scanned version – your anonymity may be compromised, but your information shall be kept confidential. Should you have any queries or comments regarding this questionnaire, you are welcome to contact me at [rjoseph@uj.ac.za](mailto:rjoseph@uj.ac.za) or 011 559 4503.

Thanks and warm regards,  
Renjini Joseph  
Lecturer and PhD Candidate

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CIRCLING (O) THE RELEVANT BLOCK OR WRITING DOWN YOUR ANSWER IN THE SPACE PROVIDED.

**EXAMPLE of how to complete this questionnaire:**  
Your gender? If you are female:

Male	1
Female	2

**A** This section of the questionnaire refers to background or biographical information. I am aware of the sensitivity of the questions in this section and assure you that the information will remain anonymous. The only reason for collecting this information is to allow me to compare groups of respondents. Your co-operation is appreciated.

1. Gender			4. Your highest educational qualification?		
Male	1		Grade 11 or lower (Std 9 or lower)	1	
Female	2		Grade 12 (Matric/ Std 10)	2	
2. Age (in complete years as of last birthday)			Post-Matric Diploma or certificate	3	
			Baccalaureate Degree(s)	4	
3. For how many years have you worked in the field of HR?			Master Degree(s) and/or Post Graduate Diploma(s)	5	
< 1	1		Doctoral Degree(s)	6	
1-3	2				
3-5	3		5. Do you have a qualification in HR?		
5-8	4		Yes	1	
8 +	5		No	2	
			Currently busy	3	

**B** Indicate to what extent you agree with the following statements.

	Not at all	To a slight extent	To some extent	To a good extent	To a great extent
1. Using information technology can enable an entry-level HRM professional to be a strategic partner to business.	1	2	3	4	5
2. Entry-level HRM professionals must attend to day-to-day operational activities.	1	2	3	4	5
3. Entry-level HRM professionals must focus on long-term strategic activities.	1	2	3	4	5
4. Entry-level HRM professionals must focus on internal HR processes.	1	2	3	4	5
5. An entry-level HRM professional can be support a business manager in strategy execution.	1	2	3	4	5
6. An entry-level HRM professional can be a tactical partner to a senior HRM professional.	1	2	3	4	5

**C** Please indicate how important the following competencies are in enabling entry-level HRM professionals to be strategic partners to business.

	Not important	Slightly important	Moderately important	Important	Very important
<b>Strategic business partnering competencies</b>					
7. Coordinates HR processes to increase operational efficiency.	1	2	3	4	5
8. Provides line managers and senior HR professionals with required information to formulate strategy.	1	2	3	4	5
9. Engages with employees to understand their needs.	1	2	3	4	5
10. Partners with line managers to develop people solutions for business problems.	1	2	3	4	5
11. Builds relationships of trust proactively.	1	2	3	4	5
12. Communicates business strategy through various means.	1	2	3	4	5
13. Understands the functioning of the business or business unit that they work for.	1	2	3	4	5
14. Focuses on day-to-day actions needed to deliver operational and strategic expectations.	1	2	3	4	5
15. Develops relationships needed between business units and other departments.	1	2	3	4	5
16. Assists in creating a culture that allows employees to operate well.	1	2	3	4	5
17. Tracks the implementation of strategies.	1	2	3	4	5
18. Obtains strategy evaluation feedback from the business.	1	2	3	4	5
<b>Data analysis competencies</b>					
19. Identifies types of employee data needed to resolve a problem.	1	2	3	4	5
20. Identifies the impact of HR decisions on employees.	1	2	3	4	5
21. Connects human issues in the workplace to related data.	1	2	3	4	5
22. Makes predictive inferences from data.	1	2	3	4	5
23. Organises data for ease of reading (sorting, splitting and filtering).	1	2	3	4	5
24. Summarises different forms of data into meaningful information.	1	2	3	4	5
25. Displays proficiency in the use of spreadsheet and database programs.	1	2	3	4	5
26. Maintains data accuracy in a single system or multiple systems.	1	2	3	4	5

**C** Please indicate how important the following competencies are in enabling entry-level HRM professionals to be strategic partners to business.

	Not Important	Slightly Important	Moderately Important	Important	Very Important
<b>Data analysis competencies (continued)</b>					
27. Understands that data relevant to a particular context may not be used in another context.	1	2	3	4	5
28. Identifies risks that could arise if data are not protected.	1	2	3	4	5
29. Evaluates whether various systems used for HR information have appropriate data security/access levels.	1	2	3	4	5
30. Applies basic statistical methods to solve problems.	1	2	3	4	5
31. Continually maintains the quality of an information system.	1	2	3	4	5
32. Identifies gaps in processes if data quality obtained is poor.	1	2	3	4	5
33. Modifies existing processes in order to collect accurate data.	1	2	3	4	5
34. Transfers data from one system to another for processing purposes.	1	2	3	4	5
35. Applies data mining outputs and big data insights to HR issues.	1	2	3	4	5
<b>Business process competencies</b>					
36. Explains and calculates HR metrics.	1	2	3	4	5
37. Identifies relevant HR metrics considering organisational context.	1	2	3	4	5
38. Breaks down HR processes into specific transactions.	1	2	3	4	5
39. Identifies existing HR transactions that can be integrated into new processes.	1	2	3	4	5
40. Connects information from various systems effectively.	1	2	3	4	5
41. Manages change associated with implementing HR technology.	1	2	3	4	5
42. Reacts to change with technological perspectives, tools and techniques in order to make change seamless.	1	2	3	4	5
43. Maintains electronic records taking into consideration information governance.	1	2	3	4	5
44. Focuses on HR processes to ensure data obtained has integrity.	1	2	3	4	5
45. Displays HR process ownership.	1	2	3	4	5
46. Identifies the needs of the end user (employee or manager) through observation, engagement and empathising.	1	2	3	4	5
47. Contributes to designing experiences for the end user (employee or manager).	1	2	3	4	5
48. Defines a problem, a question or a hypothesis based on needs of stakeholders.	1	2	3	4	5
49. Views the organisation and the HR function as a system and as part of a system.	1	2	3	4	5
50. Taps into information from other functions to benefit the HR function.	1	2	3	4	5

**C** Please indicate how important the following competencies are in enabling entry-level HRM professionals to be strategic partners to business.

Not Important      Slightly Important      Moderately Important      Important      Very Important

Use of technology competencies					
51. Identifies issues, obstacles and opportunities related to technology.	1	2	3	4	5
52. Develops technology-integrated solutions to problems.	1	2	3	4	5
53. Evaluates various technological alternatives.	1	2	3	4	5
54. Visualises data and processes.	1	2	3	4	5
55. Is aware of design principles when designing webpages, apps and other technological solutions.	1	2	3	4	5
56. Prepares reports that convey a meaningful narrative from the data or business case.	1	2	3	4	5
57. Communicates technical and general information using various presentation methodologies (oral, written, illustrative).	1	2	3	4	5
58. Proficient with presentation software, story-telling and word processing applications.	1	2	3	4	5
59. Is aware of new trends and products in technology that could impact HR.	1	2	3	4	5
60. Applies various forms of social media for two-way communication with potential employees, employees and managers.	1	2	3	4	5
61. Utilises various tools available through social media to achieve various tasks.	1	2	3	4	5
62. Is aware of legal implications of using data and IT systems.	1	2	3	4	5
63. Enables the flow of information across organisational functions using technology.	1	2	3	4	5
64. Utilises technology to improve existing systems.	1	2	3	4	5

Thank you for completing this questionnaire. You may return the questionnaire now.

## APPENDIX C: Introductory note

University of Johannesburg  
P O Box 524 Auckland Park 2006  
Tel: + 27 11 559 4593

1 June 2018

Dear Sir/Madam:

I, Renjini Joseph, am undertaking a research project to determine the information technology (IT) competencies that would enable entry-level human resource management (HRM) professionals to be strategic partners to business. To this end, please will you complete the following short questionnaire regarding the relationship between IT competencies and the ability of entry-level HRM professionals to be strategic partners to business? Your response will enable us to identify the IT competencies that universities must develop in HRM professionals, in turn making HRM graduates employable and effective.

For the purpose of this questionnaire, **IT refers to the use of technology for processing all forms of electronic data.**

Please do not enter your name or contact details on the questionnaire. Your answers to the questions remain anonymous. Summary results of this study will be published as part of a doctoral thesis and in the form of articles in scientific journals. The questionnaire will take less than 15 minutes to complete.

Once completed, please hand me the completed questionnaire. You can email me a scanned version – your anonymity may be compromised, but your information shall be kept confidential.

Should you have any queries or comments regarding this questionnaire, you are welcome to contact me at [rjoseph@uj.ac.za](mailto:rjoseph@uj.ac.za) or 011 559 4593.

Thanks and warm regards,

Renjini Joseph  
Lecturer and PhD Candidate  
University of Johannesburg



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