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**FACTORS AFFECTING THE ACCEPTANCE AND IMPACT OF
HUMAN RESOURCE INFORMATION SYSTEMS (HRIS):
EVIDENCE FROM HR PROFESSIONALS IN
LIBYAN COMPANIES**

Fatma Hussin M. Kolatshi

A Thesis Submitted to the University of Huddersfield in
Partial Fulfilment of the Requirements for the Degree of
Doctor of Philosophy

The University of Huddersfield
Business School

June 2017

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Abstract

This thesis investigates the attitudes of human resource professionals towards human resource information systems (HRIS) in order to better understand their enablers and effects on individuals and organisations. Focusing on factors influencing HRIS acceptance, the study identifies key dimensions relating to HRIS benefits specifically perceived usefulness and user satisfaction, organisational, social, and technical drivers of acceptance, and the consequences of satisfaction with HRIS for organisational behaviour. Drawing mainly on the theory of reasoned action TRA, the technology acceptance model and the DeLoan & McLean success model, a comprehensive multidimensional model is suggested.

Data were collected from companies in the Libyan oil, gas and banking sectors and multivariate analysis was used to test the proposed theoretical framework. The findings show that top management support has a significant impact on perceived usefulness and satisfaction with HRIS. Furthermore, information quality, HRIS flexibility, ease of use, and IT staff support have considerable impacts on satisfaction with HRIS via perceived usefulness. Findings also show that social influence and the number of strategic applications also have a significant influence on user satisfaction. User satisfaction has the strongest impact on affective commitment compared to continuance and normative commitment.

The study contributes in two ways. In terms of theoretical value, this study extends and develops theory of technology acceptance by relating social interactions, organisational support, and number of HRIS applications in terms of routine and strategic contexts and organisational behaviour. Second, it expands the technology acceptance model to examine and explain the perceptions and attitudes of HR professionals towards HRIS. There is also a practical contribution as Libya is a developing country characterised by a lack of understanding about technology adoption and the impact of technology on human resources activities. The findings inform top management, HR professionals and IT staff about the current practice of HRIS in a Libyan environment highlighting the variables (enablers and barriers) which can enhance or impede individual and organizational performance.

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Dedications

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CHAPTER 1: CONTEXTUALISING THE RESEARCH

1.1 INTRODUCTION

This chapter provides an overview of the thesis. Perceptions and technology acceptance are considered to be a vital area of research where examining perceptions of users towards technology helps in evaluating the use of technology and its impact on individuals and organisations. Information technology (IT) is deemed one of the most significant motivators for change. Successful implementation of information systems helps to save time, effort, as well as facilitating access and obtaining the required information in an efficient way.

Information systems are widely used to facilitate various functions within organisations including HRM (Bal, Bozkurt, & Ertemsir, 2012) as human resource information systems (HRIS) help HR practitioners and professionals to perform their tasks effectively contributing to the success of organisations (Kovach, Hughes, Fagan, & Maggitti, 2002; Reddick, 2009)

The adoption and effective use of technology has a significant impact on the work, roles and behaviours of HR professionals in an organisation, where they become more productive and strategic partners in achieving organisational goals (Gardner, Lepak, & Bartol, 2003; Hendrickson, 2003). HR professionals are significant users of HRIS and interact with them to perform their job. These interactions lead to attitudes which in turn are reflected in organisational behaviour, for example, organisational commitment and satisfaction, which are considered important indicators of organisational effectiveness and are suggested as important dimensions of information system effectiveness.

This chapter provides an insight into the research background and definition and utilisation of HRIS. This is followed by the problem and motivation of the research, including a summary of the research questions and objectives. The importance of the research is also discussed. Finally, some methodological issues and an overview of the research organisation are presented.

1.2 RESEARCH BACKGROUND

HRIS play a significant role in facilitating and supporting the activities of an organisation's HRM department (Murdick, Ross, & Claggett, 1985; Troshani, Jerram, & Rao, 2011). HRIS can be defined as systems which consist of processes, procedures, people, and functions for

acquiring, saving, recovering, analysing, manipulating, and distributing relevant information related to an organisation's human resources (Hendrickson, 2003). Hendrickson (2003, p.381) added that "an HRIS is not limited to the computer hardware and software applications that comprise the "technical" part of the system; it also includes the people, policies, procedures, and data required to manage the human resources function". It seems that HRIS are social systems consisting of many parts including organisational, technical and individual factors which affect its performance and effectiveness. Organisations adopt HRIS for achieving three main goals, namely reducing HR cost, improvement of HR processes and services and improving the strategic value of the HR department (Obeidat, 2012; Ruël, Bondarouk, & Velde, 2007). Digital developments also facilitate traditional and administrative tasks, as well as enhance strategic activities raising the value of HRM in an organisation. (Altarawneh & Al-Shqairat, 2010; Ngai & Wat, 2006; Reddick, 2009; Troshani et al., 2011).

HR professionals depend on HRIS to satisfy their functions in different areas of HRM. Furthermore, Bhavsar (2011) believes that HRIS support different HRM processes and functions through the provision of vital information required to achieve a number of HRM functions and tasks. This reflects on the performance and role of HR professionals in facilitating HR processes and an providing more accurate services to both internal and external clients (Hussain, Wallace, & Cornelius, 2007). Also, it improves their confidence in participating and contributing in making effective decisions (Rangriz, Mehrabi, & Azadegan, 2011). Furthermore, it influences their attitudes towards jobs and behaviours impacting job satisfaction, organisational commitment, absenteeism, and turnover intentions (Maier, Laumer, Eckhardt, & Weitzel, 2013). However, implementation and usage of technology may change the performance of users, and these changes are a result of changes in the tasks, competencies, and capabilities of HR professionals (Troshani et al., 2011; Wiblen, Grant, & Dery, 2010) and surrounding environment (Troshani et al., 2011). Although substantial investments in information systems particularly in developed countries were made to gain the required benefits and returns, perceptions towards HRIS use, factors influencing them and their impact are still areas of controversy and discussion (Ruël et al., 2007; Yusoff, Ramayah, & Ibrahim, 2011).

Although Ball (2001), Ngai and Wat (2006), and Grant, Dery, Hall, Wailes, and Wible (2006) state that HRIS are used widely to manage HR activities, a literature review shows that their

use was mostly to facilitate traditional and administrative processes rather than the strategic purposes in an organisation (Cedarcrestone, 2009; Nagendra & Deshpande, 2014). Similarity, it is indicated that the use of information systems was also lower in developing countries (Kassim, Ramayah, & Kurnia, 2012). Also, limited use of information systems lowers the chance of obtaining the full potential benefit for HR departments (Kinnie & Arthurs, 1996; Ngai & Wat, 2006). One of the concerns raised in developed countries and developing countries towards the impact of information systems is whether information systems add value to the performance of human resource departments and make them more useful and effective.

As a result of these issues, IT researchers and practitioners in different regions have concentrated on studying determinants of the acceptance and adoption of information systems to know to what extent information systems meet the needs of users and assess the state of acceptance. Despite the numerous discussions about IS usage and its impact on developed countries, there are limited publications that have documented these discussions, particularly in Arabic countries (Altarawneh & Al-Shqairat, 2010; Al-Zegaier, 2005). This will help to provide a clear insight about the evaluation of technology acceptance and its dimensions in different environments in its style of management, culture, and surrounding environment. These issues highlight the importance of conducting research in the use of information systems and the impact it has on HR professionals.

1.3 THE PROBLEM, MOTIVATION AND RESEARCH QUESTIONS

Perceptions of individuals toward changes and benefits that may accrue through using technology are consequences (functions) of their perceptions of changes at organisational, social, and individual levels. Therefore, throughout IT literature, many questions related to using technology and internal and external forces affecting technology acceptance and its impacts have been raised.

Perceptions and attitudes of users (e.g. HR staff) towards utilisation and benefits of information systems can be influenced by the surrounding environment. Kavanagh, Gueutal, and Tannenbaum, (1990) state that adopting and using information technology without providing the appropriate environment does not lead to successful acceptance and adoption. This is supported by Venkatesh and Davis (2000) and Petter, DeLone, and McLean (2013) who suggested the effect of the surrounding environment (e.g. social actors, organisational

factors) on user perceptions and acceptance of information systems, and the implications of acceptance and adoption of technology at individual (increasing productivity) and organisational level (organisational performance). This means that successful implementation of information systems is not only attributed to technical issues but other requirements should be taken into account. This has been reinforced by Hu, Chau, Sheng, and Tam (1999, p. 93) who state that “in particular, these factors include three important dimensions: characteristics of the individual, characteristics of the technology, and characteristics of the organisational context”. Understanding and assessing these factors assists in evaluating acceptance and implementation of HRIS and then identifying appropriate tools and techniques to assess successful implementation. Furthermore, Gable, Sedera, and Chan (2003) and Al-Dmour, Love, and Al-Zu’bi (2013) show there is still a need for further research into the influence of environmental factors on using of HRIS.

Therefore, this calls for further enquiry about the value of HRIS from the HR professional’s perspective, the forces that affect their perceptions and attitudes, and their impact on organisational behaviour. Currently, in spite of the fact that HRIS are well known and widespread, there is a debate whether they have a major impact on the performance or effectiveness status of HR professionals in an organisation (Fisk, 1993; Teo, Lim, & Fedric, 2007). Another concern is their influence on organisational behaviour; instead of focusing on intention to use and actual use, organisational commitment, job satisfaction, and intention to leave might be other dimensions of technology acceptance.

In order to understand the acceptance and impact of HRIS implementation on HR professionals, an extensive review of the literature in the information systems domain both generally and in terms of HRIS particularly was conducted. The research showed several theories and models (reasoned action theory, technology acceptance model TAM and a success model) that explain the acceptance of technology; the factors suggested affecting the performance of information technology and the consequences of applying it. In the view of Meyer (1997, p.276), “acceptance to be a measure of the positive influence an object has on its recipient, and a phenomenon composed of two dimensions: attitude and behaviour”. Researchers have focused on factors or forces for technology use, beliefs, attitudes, and behaviours of users of systems as indicators and processes of acceptance of information systems (DeLone & McLean, 1992, 2003; Davis, Bagozzi, & Warshaw, 1989; Schewe, 1976). Therefore, in order to evaluate perceptions and acceptance of HRIS, the theoretical

framework of this study is based on common models related to IT principles and management principles. These models are discussed below.

The attitudes towards technology use are considered one of the main dimensions of technology acceptance. Among the theories adopted in IT research are theories of reasoned action and planned behaviour, which indicate that beliefs and positive attitudes towards objects lead to desirable consequences (Davis et al., 1989). The technology acceptance model (TAM) adopts these theories in order to explain and predict the phenomenon (Davis, 1989; Davis et al., 1989). Perceived ease of use, perceived usefulness and attitudes of users are considered to be one of the important dimensions in the model as well as having high reliability in explaining user behaviour and the acceptance of technology. The relationships between these dimensions are assumed and assessed by Davis and his colleagues. One of the assumptions of the model is that ease of use and perceived usefulness positively influence the attitudes of users towards the system and in turn this attitude impacts on behaviour. However, in order to predict and explain attitudes and acceptance of technology comprehensively, it has been claimed that external variables, including system features, user traits, social factors and organisational characteristics indirectly affect user acceptance by manipulating users' psychological state (Davis et al., 1989; Yeh, 2006)

On the other hand, DeLone and McLean (1992, 2003) developed a model of system success; they introduced system quality, information quality, service quality, use of system, user satisfaction, and net benefits as important dimensions and indicators of system performance. One of their assumptions is that use of a system and user satisfaction are impacted by system quality, information quality, service quality, and there is also a relationship between use of system, and user satisfaction. Also, Seddon and Kiew (1996) highlighted that perceived usefulness (which is classified as a benefit at the individual level) influences user satisfaction and these dimensions are affected by system quality, information quality, and service quality.

However, implications of acceptance of technology are also important issues needed for further research (Brown, Massey, Montoya-Weiss, & Burkman, 2002; Igbaria & Tan, 1997). Brown et al. (2002) and Maier et al. (2013) suggest job satisfaction, organisational commitment, and career commitment as affecting technology acceptance instead of actual use of system in particular when the system is mandatory. This issue will be explained below. The current study contributes to three areas related to applying information systems in HRM: examining two essential acceptance dimensions related to the benefits of using HRIS, namely

beliefs and attitudes (perceived usefulness, satisfaction) of HR professionals towards the use of HRIS, the antecedents (e.g. organisational, social, technical factors) of beliefs and attitudes of users, and the impact of their attitudes on indicators related to other personal related constructs (e.g. organisational commitment, intention to leave).

One of the purposes of the study is to explain the perceptions of HR professionals towards using HRIS by focusing on perceived usefulness and satisfaction of HR professionals with HRIS in terms of supporting their performance and professional status. Perceived usefulness is considered to be one of main variables in IT models. Perceived usefulness is defined as “the degree to which the stakeholder believes that using a particular system has enhanced his or her job performance” (Seddon, 1997, p.246). This study aims to know what value HR professionals can gain by using HRIS (or to make them more effective overall), and to examine the influence of perceived usefulness on their satisfaction with HRIS. With regard to the concept of user satisfaction, it “has also been variously associated with terms such as “felt need,” “system acceptance,” and “feelings” about a system” (Ives, Olson, & Baroudi, 1983, p.786). My argument as a researcher with regard to including the concept of user satisfaction is that satisfaction is characterised by its practical value. It is often used to evaluate or judge different objects or phenomena, for instance, “practice, condition, and service” (Jiang, Klein, & Saunders, 2012, p.356). Furthermore, the value of the concept of satisfaction is that it can be affected by the surrounding environment and it can also be an antecedent and predictor of other phenomena (Jiang et al., 2012). External or environmental factors are supposed to influence user beliefs and attitudes (Davis et al., 1989). For instance, perceptions of system quality and information quality influence satisfaction of users with HRIS (Delone & McLean, 1992, 2003). Also, positive or negative attitudes may lead to specific consequences (e.g. Job satisfaction and turnover intention (Maier et al., 2013).

Organisational, technical, and social perspectives are assumed to have an influence on beliefs, attitudes and behaviour of users (Baker, 2012; Petter et al., 2013; Venkatesh & Davis, 2000). The literature indicates the importance of environmental factors, for example, organisational factors (e.g. organisational structure, top management support, IT skills training) and social (e.g. networking activities, social interactions, subjective norms), technical factors (e.g. system quality, information quality) which may clearly explain the acceptance and adoption of technology (Jing Zhu & Liao, 2011; Ke, & Wei, 2008). In addition, Twati (2006) shows the importance of cultural issues (e.g. power distance,

collectivism-individualism, masculinity-femininity, clan culture, hierarchy culture, and adhocracy culture) in predicting and explaining technology adoption. The literature points out that further studies are needed to examine the impact of these factors on beliefs and attitudes of users towards technology. Also, it is indicated that there are few studies in the area of IS and influencing factors particularly in HRM in developing countries (Al-Dmour & Al-Zu'bi., 2014; Atiyyah, 1989). Altarawneh and Al-Shqairat (2010) highlight the importance of understanding and searching organisational and social-cultural factors and their effect on acceptance of technology in Arabic organisations. Loch and Straup (2000, p.5) identify that “cultural conflicts between the organisation and management style of western and Arab institutional leaders and workers have impacted the system development process and produce unsuccessful approaches to computer use and policy”. Accordingly, technical, organisational, and social perspectives are used to explain attitudinal behaviour which might have effect on individual action. This study will focus on various factors as there is still a need to explain and predict technology acceptance (Gable et al., 2003) and will contribute by surveying perceptions and attitudes of HR staff and then explaining their acceptance of technology.

One of purposes of this study is to determine the impact of technical dimensions on perceptions and acceptance of technology. Ease of interfacing with the system, flexibility of HRIS in meeting the requirements of HR staff, quality of information extracted from the system, as well as number of HRIS applications are assumed to have a positive impact on perceptions of HR staff towards system benefits (Haines & Petit, 1997; Lewis, Agarwal, & Sambamurthy, 2003; Seddon & Kiew, 1996). Furthermore, the support from IT staff in facilitating, changing and producing services is another important technical factor. As mentioned previously, all these dimensions influence attitudes and acceptance of individuals towards HRIS. Although these factors have been studied widely in developed countries, there is still need for further studies in developing countries.

In the context of organisational factors, top management support and computer skills will be investigated. Top management stands behind any progress or changes and developments in the firm. Financial and non-financial support, involvement, and IT knowledge are important concepts related to top management support. Therefore, this study will focus on this factor as a determinant of technology acceptance. In this context, top managers are a key factor in implementation and acceptance of technology as a result of their commitment to changes and

encouragement of technology (Al-Dmour et al., 2013; Ngai & Wat., 2006). In addition, computer skills are another dimension which influences attitudes towards adoption of technology (Al-Dmour et al., 2013; Igarria, Guimaraes, & Davis, 1995; Kossek, Young, Gash, & Nichol, 1994).

Another dimension which the study examines is social influence. The social influence factor is located under subjective norms, which are considered to be an important factor in drawing attitudes and behaviour of individual towards technology. Previous IT studies, for example, Davis et al. (1989) and Venkatesh and Davis (2000), focused on subjective norms in terms of the impact of important actors and their knowledge towards IT on attitudes and behaviour of users towards the system. Social actors can play a significant role in formatting an individual's attitude and behaviour. Few studies investigate the influence of cooperation and interaction between HR staff and technology acceptance. This study will focus on studying social influence in terms of interaction between HR staff and their IT knowledge. The cooperation between employees in HR departments and the knowledge and proposals towards HRIS plays a key role in achieving the more required benefits of the system. Where HR staff will use the system effectively, this will reflect on the usefulness of the system and as a result positive attitudes towards technology will affect organisational behaviour.

Another angle that the study will cover is the consequences of user attitudes towards HRIS, which comprise an important dimension in performance of technology and acceptance. Brown et al. (2002) consider user attitudes as a significant structure that can have a significant positive or negative impact on perceptions of a work environment. For example, they may lead to obstructing the implementation of the system, or motivating intention to quit. In this regard, users' feelings and attitudes toward information technology can influence their job satisfaction, commitment to the organisation, and intention to leave (Maier et al., 2013). Maier et al. (2013) state that further research on the impact of attitudes of user on work related consequences is required; they assume that the relationship between attitudes towards HRIS and intention to leave can be mediated by job satisfaction or organisational commitment. In this regard, use of HRIS may enhance the effectiveness of HR professionals in an organisation which in turn reflects in more attachment with an organisation. Therefore, this study explores whether the satisfaction of HR professionals towards HRIS supports their organisational commitment, which can mediate the negative relationship between satisfaction of HR professionals with HRIS and intention to leave.

An indicator of the importance of the current study is that according to the vision plan 2025 for Libya, it is a developing country that is currently transitioning to a Knowledge-based economy (k-economy). The development of a k-economy is a vital long-term solution in sustaining economic growth and competitive advantage, which in turn will help to meet Libya's 2025 goal of becoming a developed country (Abdulrahim, 2011; Monitor group, 2006).

Since the 2000s, Libya has begun to establish the foundations for developing its economy based on knowledge and adopting technology is one of its key resources for change. The oil and gas and banking sectors are among many important sectors in Libya for developing the economy, and seek to develop the work by adopting and maintaining information systems, which assist in providing accurate knowledge pertinent to HR and efficiently enhancing the role of HR professionals in these sectors (Twati & Gammack, 2006). However, the literature shows a lack of research in the use of HRIS technology in Libya and this study contributes to assess the application of technology through its focus on attitudes of HR professionals in HRM departments in the oil and gas manufacturing and banking sectors in Libya.

As such, this study identifies and examines whether HRIS add value to the performance of HR professionals in organisations. This study investigates the acceptance of HRIS by HR professionals in terms of its perceived usefulness and satisfaction, and its determinants. The impact of HR professionals' satisfaction with HRIS on organisational commitment and intention to leave are also examined.

Research questions and objectives

The research questions are:

1. Do HR Professionals accept the use of HRIS? In other words, to what extent do HRIS add value to job performance of HR professionals and enhance their professional status?
2. Does perceived usefulness influence satisfaction of HR professionals with HRIS?
3. Do external factors (organisational, social, and technical) affect acceptance of HRIS?
4. How does the satisfaction of HR professionals with HRIS influence organisational commitment and intention to leave? Does organisational commitment mediate the relationship between HR satisfaction with HRIS and intention to leave?

The objectives of the research are:

1. From question 1, this study aims to identify and examine the core measures related to benefits of HRIS for example, the perceived usefulness and satisfaction of HR professionals with HRIS.
2. From question 2, this study aims to explore the impact of perceived usefulness on the satisfaction of HR professionals with HRIS.
3. From question 3, this study aims to explore the influence of organisational factors (top management support, computer skills), social factors (social influence), technical factors (ease of use, HRIS flexibility, information quality, IT staff support, number of HRIS applications) on acceptance by HR professionals of HRIS (perceived usefulness and satisfaction with HRIS).
4. From question 4, this study aims to examine the relationships between the satisfaction of HR professionals with HRIS and organisational commitment and intention to leave.

Please see 4.4 where questions and objectives are linked to hypotheses.

1.4 IMPORTANCE OF THE RESEARCH

The current investigation contribute in two key perspectives. In terms of theoretical value, this study contributes by extending and developing the theory of technology acceptance. This research also provides knowledge to HR practitioners about HRIS in Libyan environments highlighting the potential variables which could enhance organisational behaviour. This study refers to potential variables which will help in improving technology acceptance. Accordingly, the importance of the research as follows:

1. This study examines and evaluates beliefs and attitudes of HR professionals towards using HRIS.
2. The research investigates and examines the forces which may affect acceptance of HRIS.
3. This study examines the effect of technology acceptance on organisational behaviour which is another indicator for acceptance and effectiveness of HRIS.
4. The research updates and extends knowledge in the field of information system acceptance generally and HRIS particularly by focusing on its various antecedents and impacts.

5. The study examines and explains technology acceptance of HR professionals depending on two common theories namely acceptance technology and success models
6. This study contributes to understanding technology acceptance in Arabic countries; only a few studies have been undertaken so far.
7. This study covers the lack of information about how usage of HRIS enhances the status of HR professionals through examining their acceptance of technology.
8. The findings provide an insight to applying HRIS in HRM departments.
9. The current study focus on the oil and gas and banking sectors because of their importance to the economy of Libya.

1.5 RESEARCH METHODOLOGY AND DESIGN

This study is based on previous models and theories to test hypothesised relationships using a quantitative approach. The questionnaire is built on literature and used for collecting the data. Five-point Likert scales were used to measure responses and was administered in multiple sectors in order to address the attitudes and opinions of HR professionals towards the use of technology. The oil, gas and finance sectors were selected given their recent adoption of HRIS. The rationale for selecting HR professionals stems from their interaction with the system and thus are able to provide information pertaining to their perceptions of information systems. In addition, the reason for translating the questionnaire was that the targeted respondents are natives of non-English-speaking regions. This study adopted convenience sampling, which is based on ease of obtaining participants. Any HR staff who available and using HRIS based computer in facilitating HRM activities were targeted.

In terms of validity and reliability of the measurements prior to conducting the final survey, a pre-test was carried out. This was achieved by asking numerous experts and academics in HRM and IS their opinions concerning the statements in the questionnaire. This proved a highly useful exercise as it helped to detect ambiguity in the formulation of phrases, as well as to measure the face validity of the measures. Some items were omitted while others were reformed. Moreover, Cronbach's Alpha test showed all measures had reliability greater than 0.70.

The measurement model was tested with factor analysis. The results showed that all measures were acceptable. Validation of the effect of the variables' relationships (structural model) was confirmed by multiple regression.

1.6 STRUCTURE OF THESIS

This thesis is divided into eight chapters. The current chapter provides a general introduction to the topic of the perceptions and acceptance of HR professionals of HRIS and its antecedents and outcomes. This chapter introduces the acceptance of HRIS and its benefits to HR professionals, and discusses the most important motivations and justifications for conducting this study. In addition, aims, objectives, and importance of the research are presented briefly in this section.

Chapter two provides a brief background to HRIS and their benefits and barriers, and the interaction between HRM departments and HRIS. It also connects to literature in order to provide a comprehensive theoretical framework for examining and evaluation HR professionals' acceptance HRIS and its consequences.

In chapter three, the use of technology in the Arab world, particularly in the Libyan context is discussed. This chapter discusses the adoption and acceptance of technology in Arab countries and Libya particularly highlighting some factors that have impact on acceptance of technology for example, information technology, and presenting knowledge gap relating to the perceptions and acceptance of HRIS.

Chapter four presents the conceptual model and establishes hypotheses.

Chapter five justifies the research design and discusses methodological issues for example, research paradigm, data collection methods and instruments, measurement of variables, sampling issues, ethical considerations, and statistical data analysis techniques.

Chapter six provides evidence for the measurement model and structured model for testing hypotheses.

Chapter seven discusses the results in order to evaluate and explain technology acceptance, its determinants and then determine the acceptance or rejection of the hypotheses.

Chapter eight concludes the study and provides recommendations, including summarising the research findings and discusses the contribution of this research, limitations of the study and areas for future research.

1.7 SUMMARY

One of goals of HRIS is to achieve the requirements of HR staff and the literature review shows the need for further studies to identify and examine the impact of organisational, social, technical factors on the acceptance and adoption of HRIS. The next chapter introduces the background and justification for this research through a comprehensive review of existing literature related to HRIS use and its impact.

CHAPTER 2: MODELS OF HRIS ACCEPTANCE

2.1 INTRODUCTION

Changes in the environment (e.g., technology and competition) create pressure on organisations. Organisations recognise the importance of facing changes and adopting technology for example, information technology in the management of human resources (Haines & Petit, 1997). Human Resource Information Systems (HRIS) are one of the most significant subsystems of management information systems (MIS) that support the activities of human resource management (Murdick et al., 1985). Thus, human resource management becomes one of the departments that use HRIS in order to get quality information about human resources and support HR activities and functions such as HR planning, skills development and keeping complete records of existing employees (Obeidat, 2012).

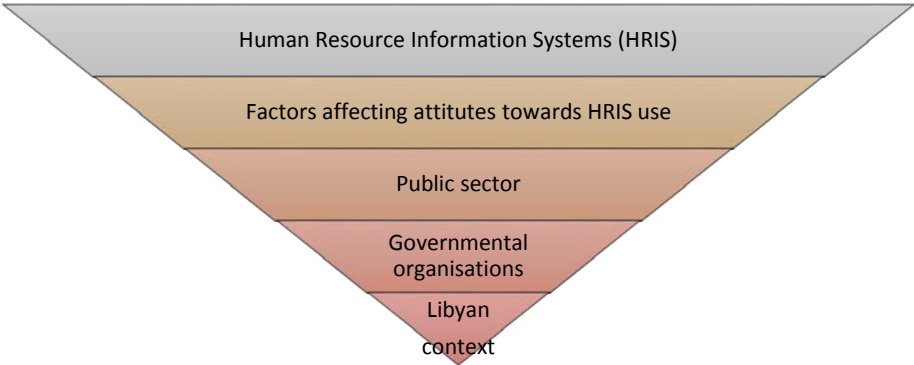
HR professionals consider one type of end user, where “end users are defined broadly as those persons who interact with a computer as part of their job but are not programmers or analysts” (Yaverbaum, 1988, p.76). Theoretically and empirically, user perceptions, beliefs and satisfaction, are considered the most important measures of acceptance and success system. It can also be used to examine behavioural issues which can be stimulated by many stimuli; including quality of system, participation of IS staff, data quality and security, and participation in the development of system (Brown et al., 2002). For example, productive employees, who are more satisfied with the system and job, are impacted by the ability of an organisation’s information system to contribute to managing HR and creating effective interaction between them and technology, and allocate technical resources (Cheney & Dickson, 1982).

In general, information systems consist of many components (e-infrastructure, people, processes etc.). For example, users, consumers and the characteristics of the system can affect system use. Moreover, user knowledge and ability may influence system performance and its success. Importantly, using information systems has implications at various levels for instance, users, organisations, and societies. Information systems provide many benefits for example, improving administrative efficiency, increasing productivity and high quality services (Altarawneh & Al-Shqairat, 2010; Reddick, 2009; Troshani et al., 2011) and can influence important attitudinal outcomes such as job satisfaction and organisational commitment.

Investigation of HRIS usage has received growing attention. In recent decades, researchers have studied acceptance of HRIS in order to capture a general framework of predictors and impact. Evaluation of HRIS is related to many concepts, including technology acceptance which is connected mostly to attitudes of users and user satisfaction, factors that affect the acceptance of information technology, and the implications and consequences of using IT. User beliefs and satisfaction have been identified (e.g. Davis, 1989; DeLone & McLean, 2003) as the most important effective indicators of information system acceptance. Many models have been established in order to identify the concepts, measurements, and factors which may affect degree of satisfaction, user behaviour and other consequences. This study uses the TAM model and the success model in order to establish a framework for HRIS acceptance showing the factors affecting perceptual measures of HRIS benefits and its impact. The importance and relevance of acceptance models lie in creating a comprehensive model of HRIS acceptance from the point of view of HR professionals using them.

This chapter covers several concepts connected with HRIS such as its definition, components and history and establishes theoretical foundations of technology acceptance. These theoretical models identify the most important factors affecting attitudes towards use which is considered to be the most important measure of acceptance and effectiveness of an information system. Other impacts of using HRIS such as outcomes related to work are also covered. Figure 2.1 depicts a literature cone that summarises the key issues raised in the literature review.

Figure 2.1 Literature cone representing key issues in the literature



Source: author

2.2 DEFINING INFORMATION SYSTEMS AND HUMAN RESOURCE INFORMATION SYSTEMS (HRIS)

Murdick (1985, pp.6-8) describes a system simply “as a set of elements joined together for a common objective”, and says that a systems approach aims to achieve two important purposes including “developing and managing operating systems (e.g. money flows, personnel systems), and designing information systems for decision making”. In recent years, information systems have received more attention as a result of their importance.

Decision makers in organisations consider investment in information technology (IT) and use information systems effectively as resources or tools to achieve competitive benefits (Tansley, Newell, & Williams, 2001). Information systems become the base of all the functional activities of organisations such as production, marketing, finance, and human resource management for facilitating business processes and operations, producing productions and services with high quality, and supporting business decision making (Bal et al., 2012). They can service different levels in organisations which employ many types of IS such as transaction processing systems (TPS), management information systems (MIS), decision support systems (DSS), executive support systems (ESS) which service operational, managerial, and strategic levels. TPS support business processes and operations at the operational level. MIS and DSS depend on the output of TPS to support business decisions. ESS mainly depend on outcomes of MIS and DSS for making decisions at a strategic level (Hussain, 2004; Wickramaratna, 2009).

2.2.1 Historic development of HRIS

HRM is not excluded from information systems that facilitate several HRM activities and improve the performance and roles of HR professionals. An HRIS is a subsystem of MIS which covers several functional activities and is a functional information system like, sales and marketing information systems a manufacturing and production information systems, and finance and accounting information systems (Loudon & Loudon, 2002). In addition, many researchers have tried to shed some light on the historical background of HRIS (Ball, 2001; Becker & Huselid, 2006; Bhuiyan, Chowdhury, & Ferdous, 2014; Hussain et al., 2007; Kavanagh, Gueutal, & Tannenbaum, 1990) and continue to do so. Earlier studies provide an historical perspective to HRIS, but have failed to present it in a clear chronological manner.

Consequently, the chronology of HRIS development according to the five development stages of industry is summarised.

The origins of HRIS date back to pre-World War II (Bhuiyan et al., 2014). During this time, the term “personnel management” was widely used, and eventually became a separate function of organisations. During this period, more intention was given to employee welfare. Government had a significant influence on HR practices and regulations related to personnel. However, employers were immune to government intervention, for example, the exploitation of human effort and unsafe working conditions were more common at the time (Kavanagh et al., 1990). Moreover, in the personnel function, employee information was recorded via record keeping, since automation and computing technology were not available.

In the post-war period, the role of psychological and social factors such as work norms and appreciation of work achievement as motivators was appreciated. Around the same time, there was more focus on management and development. For example, the Armed forces had developed a number of new training, selection, leadership and management development techniques in addition to the introduction of job description classification systems to evaluate individual employee performance and termination. Moreover, with these changes and the focus on personal development, there was a trend to the idea of computing technology potentially storing and retrieving employee information (Battaglio, 2014).

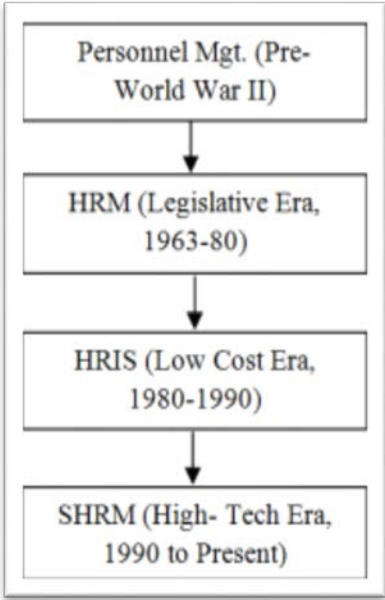
During the legislative period between 1960 and 1980, the terms human resource (HR) and human resource management (HRM) emerged (Hussain et al., 2007). However, HR departments carried a burden of responsibility for meeting the increased requirements of governments relating to workers or legislative compliance. This called for the gathering, analysis and reporting of large amounts of data to legal bodies. As a result, there was much demand for HR departments to invest in computing technology as a means to efficiently and effectively process information. With cost reductions in computing technology as well as increasing compensation costs for employees and emergence other demands related to employment opportunity, occupational safety and health administration leading to HRIS (Ball, 2001). The main purpose of HRIS was to keep administrative records.

During the 1980s and 1990s, there was decreasing cost of computing technology and more powerful HR software and HRIS became more important and prevalent to HR departments at the time (Kavanagh et al., 1990). Furthermore, during the 1980s, the important shift from

simple record keeping to sophisticated analytical tools to support management decision making took place. This was not limited to larger companies as smaller enterprises also invested in similar technology. The quick development of information technology in the 1980s and 1990s resulted in HRM becoming more strategic, thus enabling HR professionals to gain competitive advantage, improve organisational performance and improve knowledge management (Bhuiyan et al., 2014). Strategic human resource management (SHRM) emerged.

To sum up, the origins of HR, HRM and HRIS all started pre-World War II and are grounded in personnel management. Traditional HRM was used during the legislative period of the 1960s to the early 1980s and e-HRM was used during the low cost period of the 1980s to the early 1990s. Also, HR professionals adopted more strategic roles in addition to traditional approaches to HRM. This is known as strategic human resource management (SHRM). HRIS have been considered the force that can support HR professionals in adopting more strategic roles in order to become more competitive. Figure 2.2 illustrates the chronology of the evolution of HRIS.

Figure 2.2 Chronology of HRIS (pre-WWII to present day)



Source: author

2.2.2 Definitions of HRIS

There are many definitions related to HRIS. Kavanagh et al. (1990) define HRIS as systems used for providing information relating to HR through obtaining, storing, manipulating, analysing, retrieving, and distributing and for facilitating different HR activities. Kovach et al. (2002) define an HRIS as a systemic procedure for collecting, storing, maintaining, and recovering data regarding organisational features and their human resources. Hendrickson (2003) states that an HRIS is a complex organisational information system that includes software applications and hardware, and this does not constitute the main part of the system, as there are also procedures and policies, people and data to achieve the HR functions. He emphasises that information systems must be effective to assimilate the policies and procedures used to manage human capital and facilitate technical operations. Similarly, Al Eithawi (2006) defines an information system as a set of facilities (computers and accessories), informatics (management databases and operations systems), and humans (employees, programmers, and customers) which operate in a complementary way to support decision making at all levels in the organisation.

Beadles, Lowery and Johns (2005) define HRIS as systems for gaining, saving, processing, examining, regaining and disseminating information relating to the organisation's workforce. Human resource information systems can be identified as an assistive technology which consists of systemic procedures and functions such as gathering, saving, recovering, analysing, manipulating and distributing appropriate and pertinent information to HRM in organisations (Lippert & Swierez, 2005; Troshani et al., 2011).

HRIS are defined as software that can be based alone or integrated and on web-channels assisting HR functions to comply and interact with HR requirements such as planning, staffing, performance evaluation and management, training and career development (Kovach et al., 2002). HRIS can be any technology which is essentially utilised to attract and provide data relating to employees like current and historical employee details, hire, payroll, benefits, training and development, performance tracking and appraisal, and absence (Bal et al., 2012; Obeidat, 2012; Reddick, 2009). Currently, using the internet and emerging applications e-self-service has contributed to increasing value of HRIS.

On the whole, an HRIS is a set of material (e.g., software, hardware, databases and communication system) and intangible elements such as procedures, individuals, and other

intangible elements, which work and are linked together. HRIS contribute to gathering, storage, classification, analysis, retrieval and dissemination of quantitative and qualitative information relating to existing and potential employees for planning, making decisions, controlling, coordinating, and evaluating performance and others functions of human resource management at the appropriate place and time. An HRIS is an important unit in an organisation's structure (McLeod & DeSanctis, 1995; Wickramaratna, 2009).

2.3 HRIS as set of components of input, process, outputs and applications of HRIS

The basic theory of information systems is based on systems theory produced by Buckley as a general framework to understand any phenomenon by disassembling its elements and components to understand the relationships between them. A system is an integrated whole which consists of a set of parts that are connected, interacting, and integrated with each other properly in order to achieve a specific goal, and this system consists of inputs, outputs, processes and feedback.

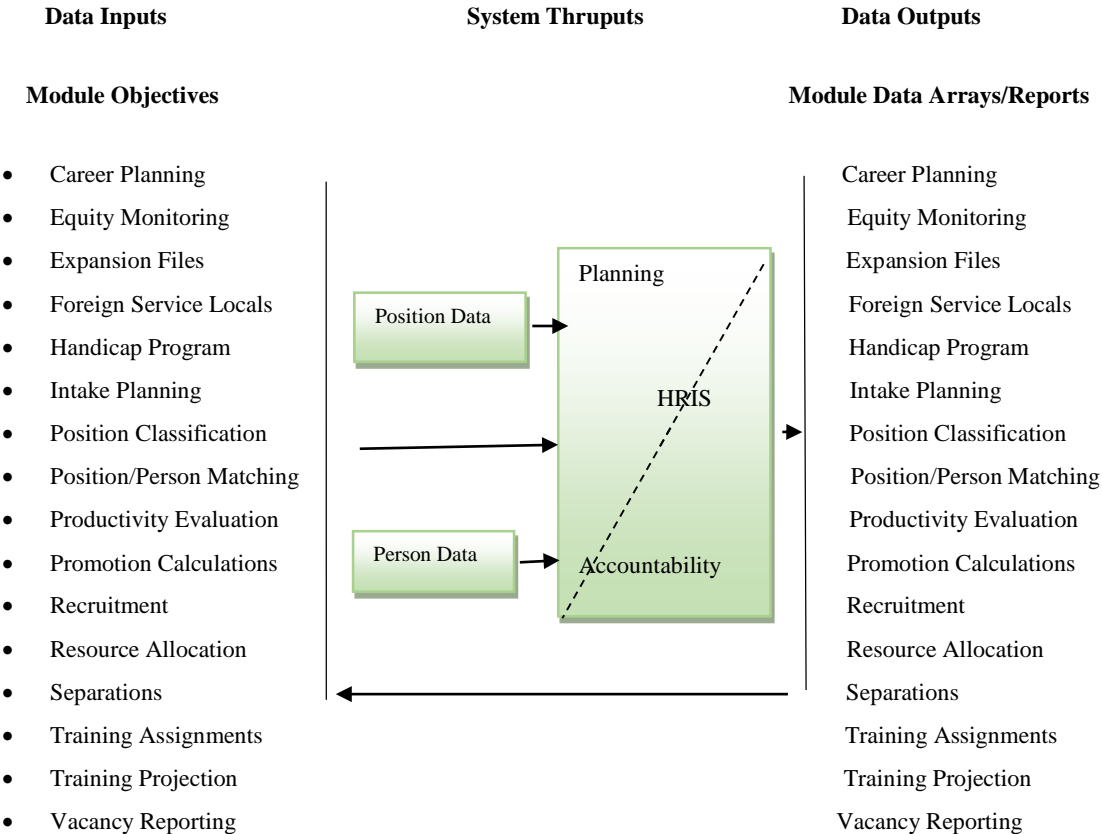
2.3.1 The Hyde-Shafritz model of integrated input and output modules

Hyde and Shafritz (1977) were amongst the first to contribute to a conceptual framework for organising and assessing human resources information systems. During their study for the Department of State in the USA, Hyde and Shafritz (1977) produced sixteen integrated database modules related to HR activities which help interchange data. These modules were listed as inputs and outputs in HRIS model (Figure 2.3). They viewed HRIS as modules consisting of inputs, processing, outputs, and feedback loops, where model goals, data relating to position and employees are recorded and processed. Also, Simon (1983) describes HRIS as a model which consists of many functions including input, maintenance, and output. Input contains many capabilities relating to the input of data to HRIS, such as identifying sources of data, time of obtaining data, and ways of processing data. The second function is related to processes of dealing with and modifying the human resources database for example, adding and changing records. The final function is output which relates to producing the required information (McLeod, & DeSanctis, 1995).

Fisher, Schoenfeldt and Shaw (1990) identify nine major application areas of HRIS namely planning, job analysis, equal employment opportunity (EEO), recruitment, selection, training and development, performance appraisal, compensation and benefits and organisational exit.

The two basic applications which are related to HR activities are planning and job analysis, and these applications aid in providing information for planning the firm's requirement of qualified human resources, another important HR application- equal employment opportunity (EEO) is related to providing data in terms of sex, age, race for monitoring and other applications deal with employee data starting from recruitment to exiting the organisation (McLeod & DeSanctis, 1995).

Figure 2.3 Human resource information systems



Source: Hyde, A.C., & Shafritz, J.M. (1977). HRIS: Introduction to tomorrow's system for managing human resources. *Public Personnel Management*, 6(2), 70-77. p.76

2.3.2 McLeod and DeSanctis model-applying resource-flow theory to the HRIS

McLeod and DeSanctis (1995) noted the role of HRIS in flowing human resources through an organisation. HRIS is linked with the resource flow theory. Organisations seek to achieve long and short-term goals, the human resource is considered to be a valuable asset that contributes in realising such goals, therefore, in order to provide qualified human resources, many HR activities need to be performed. Providing the required human resources includes

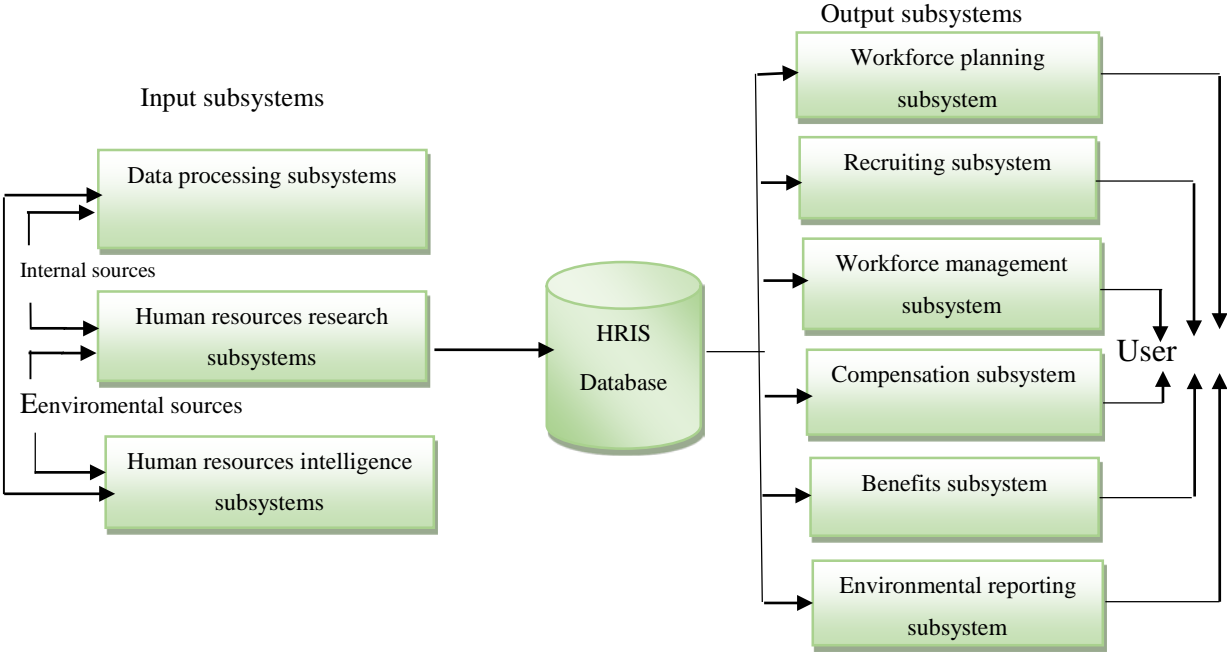
many HR activities, starting from planning human resources until termination of employment, where the planning function has an essential role in the flow of HR resources and assists in providing the current and future requirement of manpower. Also, the management of employees consists of many activities relating to existing employees for example, training and development, evaluation of performance, compensation.

The components of a resource-flow HRIS model

McLeod and DeSanctis (1995) also state that it is important to incorporate views of HRIS (e.g. Hyde and Shafritz, Simon, and Manzini and Gridley) which consider HRIS as input processing, and output components with theory of a resource-flow.

McLeod and DeSanctis (1995) indicate that the model is built depending on previous contributions in HRIS. The model elucidates a system as inputs, processes, and outputs and its applications in various HR activities. The model (Figure 2.4) shows three parts of HRIS according to a resource-flow view, namely inputs subsystems connected with input, database of HRIS, and six outputs subsystems which convert data into information and provide it to beneficiaries inside and outside the organisation.

Figure 2.4 A resource- flow HRIS model



Source: McLeod, R. Jr., & DeSanctis, G. (1995). A resource-flow model of the human resource information system. *Information Technology Management*, 3(3), 1-15.

1-Input subsystems

Data can be gained through internal and external sources and is entered into the database. There are three input subsystems namely, data processing, human resource research and human resource intelligence. Users are individuals and organisations both inside and outside the firm. With regard to a data processing subsystem, this gains personnel data from internal and external sources. This system consists of systems that process data relating to employees for facilitating and dealing with daily transactions connected with the flow of workers in an organisation for instance, promotion data, and payroll data. A human resource research subsystem is responsible for providing data that assists in achieving HR activities for example, selection of qualified employees, purposes of job analyses and succession planning. The human resources intelligence subsystem provides intelligence data and information related to the surrounding environment (e.g. economic information, policies and rules of government, data related to employment firms, and competitors) which are used to plan HR activities and face changes in surrounding environment.

2- The HRIS database

This element stores data and information obtained through input subsystems, and can be located in an information system department or HR department. It is a set of data elements that is organised, controlled, and integrated logically. The database consists of employees' data, and other data relating to external institutions.

3- Outputs subsystems

The model shows six sets of applications in HRM. Various categories of software can be located in output systems which convert data from the database into the required outputs. These different applications enable organisations to manage various activities related to the workforce for instance, planning future HR requirements, predicting wages, analysing jobs, as well as applicant tracking, planning for developing skills and treating inefficiency, also, succession planning, and reward and compensating. The environmental reporting output subsystem meets the requirements of other institutions such as government by informing and providing reports about policies and procedures pertaining to personnel.

However, many studies (e.g. Altarawneh, & Al-Shqairat, 2010; Ngai & Wat, 2006) have demonstrated that HRIS has been used more for administrative purposes (e.g. payroll, compensation) rather than in advanced uses for example, workforce management and planning. According to McLeod and DeSanctis (1995), the intention of HRIS is to develop strong planning systems, as well as responsive information output systems, and ensure that HRIS databases remain current and up-to-date, thus enabling HRIS to support management in their workforce-related activities which will reflect the performance of an HR department. Applications of HRIS aid in achieving goals for example, cost control, client satisfaction, productivity improvement and innovation, service improvement and, improving strategic alignment (Broderick & Boudreau, 1992; Ruël et al., 2007).

2.4 BENEFITS AND BARRIERS OF HUMAN RESOURCES INFORMATION SYSTEMS

2.4.1 Benefits of HRIS

Over the past years researchers have focused on explaining system use and its role and advantages. On the whole, information systems have been adopted and used in different departments and levels. Adopters of IS aim to improve their services through changing or improving methods of work and facilitating communication for accurate and quick responses internally and externally (Broderick & Boudreau, 1992).

2.4.1.1 Organisational benefit

At an organisational level, the HR department is the main beneficiary and user of HRIS. Most organisations have recognised the importance of adopting and using HRIS to support and manage their HR and business effectively. As a result of recognising the importance of human resources in achieving competitive goals, the role and job of HR departments have been changed (Hussain et al., 2007; Mayfield, Mayfield, & Lunce, 2003).

These contributions also contribute to achieving various advantages in terms of profitability and productivity. With this context, Hendrickson (2003) indicates that HRIS assist in increasing efficiency and effectiveness in performance of HR activities automatically. Efficiency can be achieved through reducing cost by facilitating more transactions and appropriate timeliness by using technology productively. HRIS also aim to increase

performance and effectiveness by reducing the administrative burden and simplifying and accelerating the processes of HR, also making the performance of HR tasks more precise and complementary. For example, using computer-based training and web based recruitment can facilitate getting better qualified employees (Hendrickson, 2003). This is reinforced by Haines and Petit (1997), Kundu, Malhan, and Kumar (2007), and Gupta (2013) who concluded that using HRIS assist in providing greater information accuracy, and support daily operations and in reducing the burdens and costs. Also, Al-Tarawneh and Tararwneh (2012) state that HRIS help in drawing up many consistent policies and programs, for example, the policies of labour and employment, payment, promotions and motivation that help to achieve organisational objectives. They can combine different organisational process in different departments by analysing employees and organisational information and providing accurate and consistent information (Obeidat, 2012). As well as, this is supported by Obeidat (2012) and Mayfield et al. (2003) who emphasises that HRIS are useful in terms of making all HR activities are integrated and communicated together, and this means providing information at any time and place and solving structured and unstructured problems in surrounding environments accurately.

Furthermore, HRIS help to increase competitiveness by developing and enhancing HR procedures and activities and supporting strategic organisational roles (Haines & Petit, 1997). For example, HRIS provide strategic planners with accurate information that helps them to forecast future workforce demand, and also provides information about competitive salaries (Obeidat, 2012; Troshani et al., 2011).

Another advantage is knowledge management. In this respect, Obeidat (2012) indicates that the purpose of an HRIS is for knowledge management, meaning that organisations employ HRIS is to control personnel data. Similarly, Argyris and Schon (1996) explain that an HRIS support knowledge management by developing organisational learning, as well as facilitating “double loop learning feedback” that encourages communication, decision making and organisational transformation (Mayfield et al., 2003, p.143).

An HRIS is an essential element in the work environment contributing to increasing organisational effectiveness. Effective use of HRIS leads to improving productivity, job satisfaction, and organizational commitment. It is an important source for information and providing services. HRIS facilitate different activities related to managing employees

effectively (e.g., training and development, payroll, performance management amongst others) (Obeidat et al., 2014; Sanayei & Mirzaei, 2008).

2.4.1.2 Individual benefits

On an individual level, HRIS also help to meet the needs of many organisational stakeholders such as HR professionals, line managers, individual employees, customers, suppliers and regulators (Hendrickson, 2003). Using HRIS can be a major sources of change where using information systems contributes to improving performance of HR professionals and improves their standing (Hussain & Prowse, 2004; Hussain et al., 2007). This fits with Bondarouk and Ruël (2013) who suggest that effective use of HRIS impacts on the roles of HR departments: staff advocate, capital developer, functional expert and strategic partner. In other words, these contributions give two advantages; administrative expert and strategic or partner business associate. These roles can be supportive in three ways namely the publishing of information, automation of transactions and transformation (Lengnick-Hall & Moritz, 2003). Publishing of information supports the provision of accurate and consistent information and advice to HR management; where the internet and intranets provide employees with information about rules and procedures, and recent events. The automation includes automating HR transactions and integration of workflow, where traditional and paperwork way replaces by electronic input and using intranets and extranets for combining HR activities (Panayotopoulou, Vakola, & Galanaki, 2005). This helps in supporting roles of HR professionals in terms of staff advocate, capital developer and functional expert. HRIS provide information about HR which helps meeting requirements of employees and contribute to developing human capital through supporting training and development (Bondarouk & Ruël, 2013). The transformation form is conducted in firms by reforming the HR department as a strategic partner through liberating HR staff from operational tasks to focus more on strategic tasks. Completing non-strategic tasks in a faster and cheaper manner, and with less reliance on HR staff creates the opportunity to focus on new ways to add value to the organisation, for instance, intellectual capital (Lengnick-Hall & Moritz, 2003; Panayotopoulou et al., 2005; Reddick, 2009). For example, using e-self-service, e-mail, and websites helps to collect and disseminate HR data and save time of HR professionals and makes them focus on more essential issues (Kovach et al., 2002).

Also, Hendrickson (2003, p.382) states that HR professionals depend on HRIS to achieve their job functions for example, “regulatory reporting and compliance, compensation analysis, payroll, pension, and profit sharing administration, skill development and skill inventory, benefits

administration, etc”. HRIS also assists in “quick response and access to information, improving data control, allowing for fewer errors, reducing paperwork, tracking and controlling the different HR functions, and helping to make more informed decisions” (Ngai & Wat, 2006, p.306).

HRIS has not only impact on HR practitioners but also managers and employees (Mayfield et al., 2003). HRIS also enable managers and employees to access information. HRIS provide managers relevant information and data for performance appraisal and management, skills assessment and development, recruitment and retention, team and project management and make decisions. HRIS applications like web-based access and self-service options help employees to access and modify their information, for example, information about programmes of training, retirement, annual health plan, welfare plan, compensation statements, checking lists of vacancies (Hendrickson, 2003; Reddick, 2009). They also supply data and information to other institutions for example, government and legal agencies (Bhavsar, 2011; Reddick, 2009).

On the other hand, although using technology increases productivity and effectiveness of HR professionals, it can create more challenges. Automating HR activities can create pressure on HR professionals to keep abreast of information technology developments, which in turn makes them adopt a more strategic approach in their role, as opposed to a traditional one (Ulrich, 2000; Hendrickson, 2003; Lengnick-Hall & Moritz, 2003). Table 2.1 provides a summary of the above benefits.

Table 2.1 Summary of HRIS Benefits

Organisational	Individual
Increasing profitability and productivity	Improves performance and productivity of HR professionals
Increasing efficiency and effectiveness in performance of HR activities	Supports training and development
Cost reduction	Time saving
Increasing information accuracy	Encourages strategic thinking
Facilitating daily operations	Enables HR staff to add value to the organisation
Establishing consistent programs and policies	Improves communication between HR staff
Increased competitiveness	Meeting needs of organisational stakeholders
Encourages knowledge management	Promotes easy access to information for HR staff
Supporting inter-organisational communication and integration	Provides management with easy access to relevant information ranging from staff performance to employee assessment and development

2.4.2 Barriers of HRIS

Although employing and using HRIS has many benefits, it may face several barriers which could affect the effectiveness and efficiency of an HR department.

2.4.2.1 Organisational barriers

Ferdous, Chowdhury and Bhuiyan (2015) found that internal resistance, staff shortages, conversion costs, costs of infrastructural development, maintenance issues and ineffective return on investment (ROI) are the most significant organisational barriers to employing HRIS. These particular barriers can affect organisations both on a financial and technological level. For example, organisations yielding a poor ROI will more than likely lose money, based on the organisation not getting the intended value from the HRIS, which they have heavily invested in. Furthermore, a shortage of IT personnel is another barrier affecting organisations in the event of implementing an HRIS. A lack of competent and experienced personnel forces organisations to hire external support at a high cost (Batool, Sajid, & Raza, 2012). Internal resistance, on the other hand, has to be the most influential barrier to HRIS implementation due to staff inertia and potential rejection of the system. For example, there could be a number of staff members who disagree with the implementation of the system, since they are comfortable working in the traditional environment, and thus fear that their role may change as a result (Ferdous et al., 2015).

2.4.2.2 Individual barriers

At an individual level, Altarawneh and Al-Shqairat (2010) argue that using HRIS could present many barriers, for example, the lack of support from managers to use technology, lack of care and attention to information and its technology, a lack of top management support and their commitment to technology, the expensive cost of establishment and maintenance of HRIS, lack of clarity of the basic concepts of information systems among administrative leaderships, absence of qualified and trained employees in HR department in the field of information technology. Furthermore, Beatty (2001) emphasised the importance of various factors in order to make information systems productive and supportive in the transition of HR departments to a more strategic partner such as HR staff and their experiences and competencies and culture of the HR group among others. Noor and Razali (2011) added other barriers such as the lack of a project team's experience, low participation of users in the

development of HRIS, insufficient change of data, and a lack of information. They argued that organisations cannot utilise HRIS if they do not deal with these negative issues. They emphasised the importance of assessing information systems in order to make them work effectively. Table 2.2 provides a summary of the barriers to HRIS implementation.

Table 2.2 Summary of HRIS Barriers

Organisational	Individual
Organisational internal resistance	Lack of support from managers to use technology
Staff shortages	Lack of care and attention to information and its technology
Conversion cost	Lack of top management support and their commitment to technology
Cost of infrastructural development	Expensive nature of establishing and maintaining HRIS
Maintenance issues	Lack of clarity of basic concepts of information systems among administrative leaderships
Ineffective return on investment (ROI)	Absence of qualified and trained IT employees in HR department
	Lack of a project team's experience
	Low participation of users in the development of HRIS
	Insufficient change of data
	Lack of information

The barriers and enablers of HRIS implementation occur at both an organisational and individual level. Organisational based barriers and enablers suggest the impact HRIS will have on the organisation in general and the HR department, whereas individual based barriers and enablers affect stakeholders working within the HR department, such as HR professionals and management. It can be deduced that increased performance (organisational) and overall productivity among HR professionals (individuals) are the most significant enablers of HRIS as they allow them to work more efficiently with a system that can deliver the automation of various system activities in a timely manner. However, there are cases where stakeholders will reject the technology based on a lack of support

(individual), leading to internal resistance of HRIS (organisational). These are identified as the two most significant barriers to HRIS implementation.

Furthermore, in the context of the current study, governmental organisations will also face similar barriers and enablers at some point. Chakrabortya and Mansor (2013) assert that government organisations have a reputation to uphold, since they have a responsibility to the support people, and thus would want to implement a system that can help work towards this goal. An HRIS was found to increase competitiveness and reputation across various private organisations (Ferdous et al., 2015), so government organisations should be no exception. However, this may not be as challenging for developed countries as it is for developing countries such as Libya. Libya in the post-Gaddafi era is currently facing a civil war and conflict, and resources, particularly technological resources are scarce (Cruickshank, Robertson, Lister, & Karadsheh, 2015). Therefore, this presents a huge challenge for the Libyan government to implement HRIS which calls for better understanding which the current study attempts to provide.

2.5 THEORETICAL VIEWS OF HUMAN RESOURCE INFORMATION SYSTEMS

HRIS have been viewed from various angles for example, economics, computer science, psychology and general management. Researchers have produced several models and theories (e.g. technology acceptance model (TAM), D & M success model, reasoned action theory (RAT), planned behaviour theory (PBT), and social theory) in order to describe and find an explanation for adoption HRIS and factors affecting using and its consequences. Since the 1970s, researchers have focused on studying the utilisation of resources, attitudes of users towards meeting their requirements, and determinants of technology acceptance and its impact. Financial approach (return on investment from technology) is one way of measuring HRIS performance and its impact (Haines, 1997). However, it has been criticised because of the difficulty in controlling other external variables, and ignoring other significant criteria and user requirements e.g., service quality, and convenience (Teo & Wong, 1998; Husein, 2015). Therefore, other measurements are often suggested for measuring success and effectiveness of HRIS and its impact such as user attitudes or satisfaction (Haines, 1997; Husein, 2015; Teo & Wong, 1998). This is reinforced by Davis (1989) who emphasises technology acceptance as a proxy for evaluation of the investment in technology.

In order to understand the acceptance and implementation of HRIS, an extensive review of the literature was conducted. The search shows several theories and models that explain acceptance. These theories are adopted for explaining attitudes and behaviour of adopters at individual level and social level, for example, theory of reasoned action, user resistance theory, and social network theory. The following perspectives are adapted in IT research to identify and explain user perceptions towards technology.

2.5.1 Different perspectives related to technology acceptance

2.5.1.1 Attitude-behaviour perspective

Schewe (1976) explains users' attitudes and behaviour according to the theory of reasoned action; he states that an attitude is a feeling about what is favourable or unavoidable toward an object or entity. He explains that perceptions and beliefs of individuals about information systems provide information about matters, and those beliefs have an impact on the attitudes of individuals which shape behaviour. The attitudes of users towards systems are formed through their perceptions about the system and its features, and the characteristics of environment that is surrounding for example, top management, financial support, programmers.

2.5.1.2 Technology resistance perspective

Explaining and evaluating the attitudes of users towards change and information system use can also be linked with resistance theory. This perspective is contrary of technology acceptance as resistance impedes acceptance. This theory explains why people have negative attitudes and resist or reject technology, and what factors prevent and discourage them from using technology (Laumer & Eckhardt, 2012). Lapointe and Rivard (2005) show that users as individuals or as individuals in a group will form expectations about outcomes of using information systems and they may resist the system if there are threats; users will initially make an evaluation with respect to the exchange between a system's features and initial conditions at individual and organisational level. Also, Markus (1983) shows that people resist if they perceive that using a system will not support their position of power. Resistance to technology can be according to an equity theory perspective. Awareness of equity plays an important role in the acceptance or refusal of technology, according to the net benefits that can be gained through system use. People evaluate the changes in term of their efforts and

outputs and matching such benefits with other users (Laumer & Eckhardt, 2012). This could interpret the relationship between ease of use and HRIS benefits gained, where a perception by the user that the system is not easy to use leads to less benefit, such as less time for performing more important or strategic tasks, leading to resistance. Using technology can mean more responsibility towards IT and IT skills and knowledge which can shape negative attitudes towards HRIS.

2.5.1.3 Social influence perspective

Another perspective that contributes to further insight related to acceptance and adoption of technology is a multilevel perspective (Tscherning, 2012). The social network is another dimension used to explain and interpret acceptance and adoption of technology as depending on decisions at individual level does not give a good insight (Lu, Yao, & Chun-Sheng, 2005). Understanding the theoretical workings of interactions between individuals and social network can help explain IT adoption. People interact through their discourses that contribute to sharing information, norms, rules and then reflect their point of view towards things (Putnam & Fairhurst, 2001). It is argued that interactions and dynamics between individuals and networks influence attitudes and behaviour towards technology (Coleman, 1990). Tscherning (2012, p.411) explains that there are many social network theories that contribute to the explanation of the interaction between individuals and their social network that explain the behaviour of an adopter, for example, “social network analysis, homophily, self-interest and collective action, contagion influence”.

Social network analysis is based on understanding the relationship between all entities of a network, and represents how such units interact and affect each other (Brass, 1995; Tscherning, 2012). Basically, the higher the number of direct links the greater the person's chances of receiving and distributing knowledge about information technology systems (Granovetter, 1973). Relations are based on ties which are based on the importance of actors and can be defined according to measures of centrality, degree, prestige and others; where these ties contribute in the diffusion of technology (Brass, 1995; Tscherning, 2012). For example, Venkatesh and Davis (2000) show that image and social influence have a positive effect on acceptance of technology (perceived usefulness and use of system). Another concept linked to social networking is homophily which explains attitudes and behaviour of users in a social perspective. Users' attitudes and behaviours are influenced by others who are similar to them which influences communication so that the beliefs and attitudes of a

social network become homogeneous and results in easy sharing of information, experience, and interactions (Tscherning, 2012). Tscherning (2012) explains that homophily is based on two theories: social comparison and social identity. “Social comparisons - comparisons between the self and others - are a fundamental psychological mechanism influencing people's judgments, experiences, and behaviour” (Corcoran, Crusius, & Mussweiler, 2011, p.119). Social comparison theory assumes that similarity among people in their beliefs and features makes interaction amongst people easier and reduces differences and conflict in the workplace (Kristof, 1996; Monge & Contractor, 2003; Tscherning, 2012). Social identity is linked with two important mechanisms: cognition and evaluation, social identity is based on the hypothesis that people recognise themselves according to a social framework, where a person’s self-concept is derived from their recognition of the membership of a social system and its importance (Tajfel, 1974). Similarity between people can facilitate diffusion of information about IT which in turn formats positive attitudes about technology (Tscherning, 2012). In this respect, HR professionals interact with each other according their IT knowledge and HR knowledge which could affect system use and outcomes.

2.5.1.4 Resources based perspective

Generally, resource based theory has been applied in many disciplines including strategic management, human resource management (De Saá-Pérez & García-Falcón, 2002), and information systems (Taher, 2012). The resource based view refers to the ability of an organisation to create value in markets and keep a competitive position in relation to its ability to manage special resources effectively (De Saá-Pérez & García-Falcón, 2002).

Various researchers have considered HRIS according to the resource based view (RBV) (e.g. McLeod & DeSanctis, 1995; Wade & Holland, 2004). Researchers use the RBV to describe and identify the benefit and role of information systems in organisations. Towards the end of the 20th century, RBV appeared in IS research although its advantages and disadvantages were not studied comprehensively (Wade & Hulland, 2004). The majority of studies focus on identification of significant resources and investigated its influence on many issues relating to organisations for instance, superiority in the marketplace, sustainable competition, and productivity (Taher, 2012).

Ross, Beath and Goodhue (1996, pp. 31-36) identify three categories of resources namely “a highly competent IT human resource, a reusable technology base, a strong partnering

relationship between IT and business management”. With regard to IT staff, its dimensions include “IT skills, problem-solving orientation and business understanding”. Technology assets include physical IT assets such as hardware, software, databases, system architecture, and servers. Relationship resources contain many dimensions, for example, “business partner ownership”, IT project liability, and top management support in IT development. It is further suggested by Ross et al., that competitive advantage can be achieved through IT processes which are identified in “planning ability, cost-effective operations and support, and fast delivery”.

Likewise, Christensen and Overdorf (2000) define resources as one of key factors to determine the capabilities of an organisation to respond to opportunities in the marketplace and threats. They define resources a set of tangible and intangible IT assets (e.g. hardware, network infrastructure, software patents, relationship with venter and customer) which are important assets in the processes of producing products or offering required services. Wade and Holland (2004, p.109) added that capabilities can be defined as “the ability of an organisation to transform inputs into outputs of greater worth”, while Taher (2012, p.158) defines capabilities as a “processual ability to direct resources and their interactions in a manner that will contribute to the advancement of organisational performance” Capabilities can include informal and informal processes of interaction and communication, as well as skills like technical and management ability or processes systems like, development or integration (Wade & Holland, 2004). Therefore, capabilities can help to assess organisational performance though staff competencies and capabilities.

In regard to this, the value that can be gained does not depend on just the collection of resources (IT and non-IT), but also on the quality of resources and how the organisation utilises them (Wade & Hulland, 2004). Resources are not the main issue, the question is how do these resources (IT and non-IT) interact and affect performance? This raises two important issues; features of resources and capabilities of management.

To sum up, these psychological and social explanations contribute to investigating and explaining technology use and impact. The issue of use of information systems have received attention (e.g. Bailey & Pearson, 1983; Cyert & March, 1963; Davis, 1989; DeLone & McLean, 1992, 2003; Evans, 1976; Ives et al., 1983; Keen, 1980). User satisfaction as a measure of the success of a system can be attributed to Cyert and March (1963) who show that enhancing user satisfaction can be through the system's success in achieving the user's

requirements in an organisation's work environment (Cheung & Lee, 2005). Also, Evans (1976) states that a low level of satisfaction will lead users to find other sources to meet the information requirements. IT research focuses on studying drivers of user beliefs, attitudes (satisfaction), and behaviour in order to assess information systems and its outcomes. The models of Davis et al. (1989) and DeLone and McLean (2003) are used widely and their proposals have motivated IT research over 30 years (Urbach & Müller, 2012).

2.5.2 Theoretical foundations of HRIS acceptance (integrative perspective of TAM and system success model)

Most concern towards using information systems is whether they improve efficiency and support performance and competitive position. This can be realized through successful implementation. Therefore, understanding the process of acceptance or what factors influence the acceptance of technology is a very important issue for improving implementation and usage of technology (Al-Harbi, 2011). In particular, "computer systems cannot improve organisational performance if they aren't used" or the use is low (Davis et al., 1989, p. 982). Researchers are focusing on the importance of user attitudes or satisfaction on the grounds it is one of the important dimensions of system success and supporting the competitive situation. This construct (as an important measurement for assessment perceptions and acceptance technology) has been studied through several theories for example, attitude-behaviour theory which studies its determinants and outcomes. Technological investments by firms can be acceptable and satisfactory wherever the requirements of the user are achieved. Therefore, researchers, organisations, and designers are interested in understanding technology acceptance for predicting user responses, and then improving their responses and reactions by developing the properties of the system and procedures and creating an appropriate regulatory environment (Davis et al., 1989).

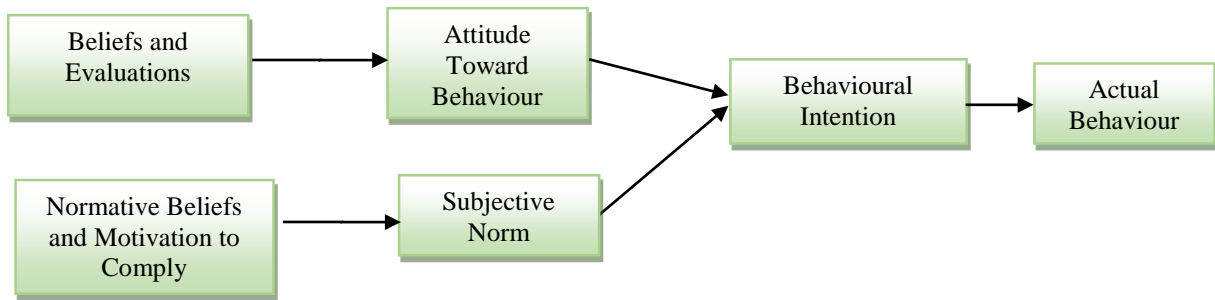
In other words, researchers have studied and evaluated the value of information systems to users and factors affecting successful acceptance. As such, the next sections consider several models developed (e.g., technology acceptance and system success models) in order to establish the theoretical foundations for explaining attitudinal dimensions towards technology use and its outcomes.

2.5.2.1 Technology acceptance models (Davis et al.)

For establishing a comprehensive framework that contributes to identifying HRIS acceptance, this study mainly depends on technology acceptance model and reasoned action theory. This discussion is supported by the D & M success model. For understanding and explaining the issues surrounding the process and outcomes pertaining to IS implementation and performance, Davis (1989) devised the technology acceptance model which is commonly used to investigate and explore acceptance. Acceptance of technology is based on many foundations related to psychology, sociology, and information system (IS) (Bradley, 2012). Various theories (e.g. theory of reasoned action and planned behaviour) are used in order to establish and explain the conceptual framework of technology acceptance (Chau & Hu, 2001).

In 1989, Davis proposed the Technology Acceptance Model (TAM) in which ignoring the system or refusing to use it is an obstacle to successful systems (Davis & Bostrom, 1993). Researchers who are interested in conducting research on the success of information technology find that understanding why people refuse or accept technology is an important issue that is worth studying and the TAM is still used to study the acceptance of technology. As shown in Figure 2.5, Davis's technology acceptance model is built on beliefs, attitudes, and behaviour. The model was built on a theory of reasoned action (TRA) (Fishbein & Ajzen 1975) which asserts that the act of an individual to perform a specific behaviour is determined by their behavioural intention which is motivated by two important factors; the positive and negative attitude of the person and subjective norms relating to specific referent individuals (e.g. peers, subordinates, or superiors). The subjective norm is determined by the perceived expectations and experiences of specific referent individuals about behaviour, and motivation of a person to comply with these expectations (Brown et al., 2002; Chuttur, 2009). A person's attitude is determined by their beliefs about the expected and/or experienced consequences of the action and his or her evaluation of the value and importance of these consequences and the theory contributes to understanding the various dimensions and factors which lead to attitudinal and behavioral differences between people.

Figure 2.5: Adapted model of Theory of Reasoned Action from Davis et al. (1989) p.984



According to the theory of reasoned action, the TMA model shows that perceived usefulness and perceived ease of use influence an attitude towards use of a system, which affects behavioural intention to use, which in turn influences actual system use. Also, perceived usefulness is affected by ease of use, and perceived usefulness has a direct impact on behavioural intention to use (Davis, 1989; Davis et al., 1989). In contrast to TRA, TAM shows the importance of beliefs affecting behavioural intention to use directly or indirectly via user attitudes. Figure 2.6 show the mechanism of the TAM. This processual view of technology was also supported by Doll and Torkzadeh (1998, p.173) who consider attitude or user satisfaction as an important element in judging system success. They describe system success as causal series (“system-to value chain”) beginning from casual factors, “to beliefs, to attitudes, to behaviour (system-use), to the social and economic impacts of IT” (see Figure 2.7).

Figure 2.6 The general model of technology acceptance (TAM) - Davis et al. (1989) p.985

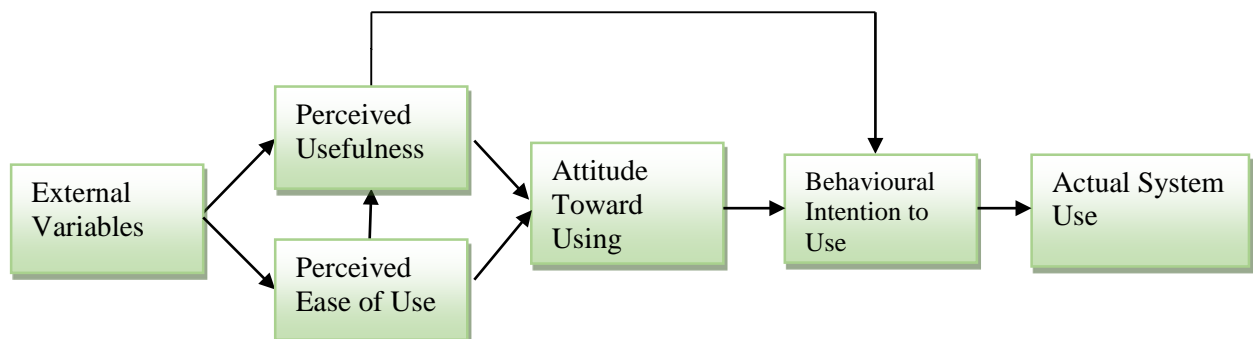
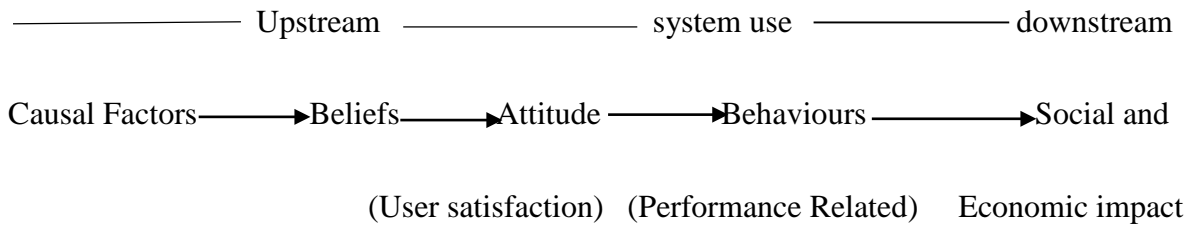


Figure 2.7 System-to-value chain



Basically, the technology acceptance model (TAM) includes attitudes towards using technology as one of the important dimensions that influences the use of a system. Sabherwal, Jeyaraj, and Chowa (2006, p.1852) state that a “user’s attitude toward information systems is defined as a user’s affect, or liking, for ISs and for using them”. It is also defined as a person’s positive or negative feeling about performing the actual behaviour (Chuttur, 2009). Davis shows that there are two specific and important reasons that make people accept or hesitate to use technology: the first is that people tend to use a particular application, while they believe that this application will enable them to perform their jobs better (Davis, 1989). This factor is called perceived usefulness (PU) and several studies have emphasised the impact of perceived usefulness on person’s attitudes and intention to use (e.g., Davis, 1989; Husein, 2015; Keil, Beranek, & Konsynski, 1995). Perceived usefulness (PU) is defined as “a person’s expectation that using the computer will result in improved job performance” (Davis, Bagozzi, & Warshaw, 1992, p.1112). The second factor is that people may be convinced that the application is useful, but at the same time they believe the system is difficult to deal with and use and that can affect perceived usefulness and influence non-use of the application. This factor is called perceived ease of use. Perceived ease of use is how far users perceive the target system to be as effortless as possible. (Davis et al., 1989). In other words, users would expect the system to be free from effort. Hence, this framework relating to attitudinal behaviour contributes to interpreting and explaining the differences in attitudes towards the same systems between different users.

However, for example, TAM was criticized because of its narrow role in explaining acceptance. In line with this criticism, TAM was linked to the theory of planned behaviour (TPB) which Mathieson (1991) used to explain acceptance of technology. Mathieson (1991) shows that TPB theory supposes that attitudes, subjective norms, and perceived behavioural control work as predictors of intention and real behaviour. Perceived behavioural control is defined as an individual's recognition of the extent to which opportunities and resources are

available for conducting specific behaviour. Perceived behavioural control is subject to control beliefs along with perceived facilitation. On the one hand, a control belief can be considered as an awareness of available skills and abilities that are necessary for conducting behaviour, while perceived facilitation is the degree to which an individual assesses the significance of those resources and opportunities to achieve specific outcomes. Therefore, individual recognition of access to such resources and opportunities could influence the individual's beliefs and behaviour. In addition, the literature has highlighted the importance of other factors such as demographic factors (e.g., gender, and experience), subjective norm, information quality and system features in explaining and affecting attitudinal and behavioural dimensions. The need to investigate issues is still raised (Venkatesh et al., 2003; Wixom & Todd, 2005).

However, Davis et al (1989) dropped attitudes from the model because they did not impact intention to use and were not influenced by perceived usefulness whereas perceived usefulness did influence intention to use (Al Shibly, 2011; Venkatesh & Morris, 2000). In other words, an employee's perception of the advantages of the system in supporting their role may lead to continue using a system even though they have a negative attitude towards it (Davis et al., 1989; Taylor & Todd, 1995). However, Karahanna, Straub, and Chervany (1999) conducted a study to distinguish and understand the process of adoption over time (pre-adoption and post-adoption). The results show that potential adopters and users of information technology vary on their antecedent attitudes, subjective norm, and behavioral intention. Also, the results indicated the importance of attitudes on post intention adoption and its role in predicting intention to use in this phase. Perceived usefulness also has a role in predicting attitudes in both phases. Shih (2004) showed that user attitudes towards using the internet are important indicators of performance during the information use stage and the attitude is influenced by perceived usefulness, ease of use, and the relevance of information needs of individuals. Ma and Liu (2004) conducted a meta-analysis of 26 studies to understand the applicability of TAM to different technologies as a whole and found a strong relationship between ease of use and perceived usefulness, also attitudes towards use are influenced positively by perceived usefulness. On the other hand, there is a weak relationship between ease of use and attitudes towards use. The need for further investigation into these relationships is still required. Chuttur (2009) shows that TAM includes a limited number of variables related to beliefs and attitudes towards system use and Benbasat and Barki (2007,

p. 212) added that “TAM-based research has provided a very limited investigation of the full range of the important consequences of IT adoption.

In contrast, other models such as the D & M success model (1992), which is shown in Figure 2.8, consider information and system characteristics as essential dimensions in evaluating the performance of information systems and user satisfaction is considered to be one of surrogate indicators of IS acceptance and performance (Igarria, 1997). However, this model was critiqued for ignoring quality service which is considered to be an important dimension in evaluating information systems (Myers, Kappelman, & Prybutok., 1997; Pitt, Watson, & Kavan., 1995). In 2003, DeLone and McLean also developed and updated version of the model (1992) in order to provide the comprehensive framework. Based an analysis of previous studies that tested and extended their first model they developed their second model and asked for investigating the relationships. DeLone and McLean (1992, 2003) produce six interrelated dimensions for measuring the effectiveness and success of the system: namely, system quality (e.g., ease of use), information quality, service quality, use of system, user satisfaction, and net benefits which include individual impacts, and organisational impacts. They identified these variables as dimensions of IS success adoption and effectiveness of information systems and system use as an objective measure, and user satisfaction as a subjective measure toward system and information characteristics. Petter et al. (2013, p.11) define system use as “the degree and manner in which staff and customers utilise the capabilities of an information system”. For example, "amount of use, frequency of use, nature of use, appropriateness of use, extent of use, and purpose of use”.

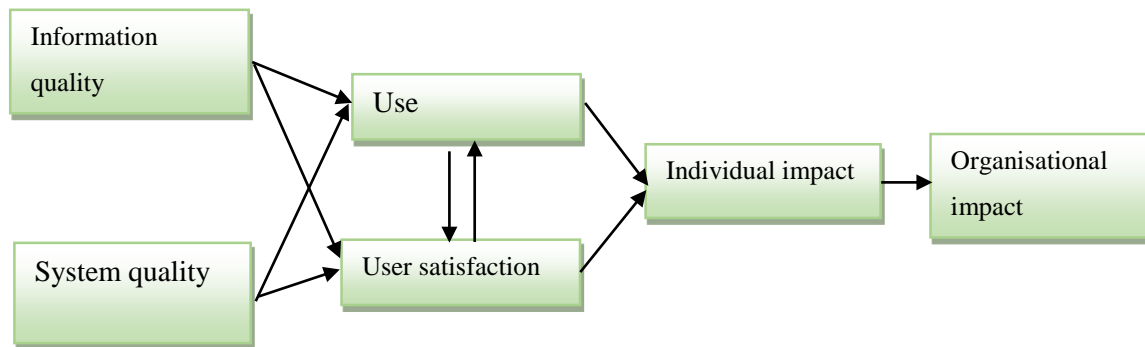
Various studies deem user satisfaction as a significant proxy and measure of information system success because of its applicability and its value in predicting outcomes of application of technology (Al Shibly, 2011; Jiang et al., 2012; Zviran & Erlich, 2003). User satisfaction is defined in many ways. For example, Ives et al. (1983, p.785) consider user information satisfaction (UIS) as a mechanism for evaluating the adoption of an information system and its effectiveness and performance and define it as “the extent to which users believe in the efficiency of the information system available to them in meeting their information requirements”. Another definition reflecting a characteristics-based approach (Bailey & Pearson, 1983) defines it according to the psychological or emotional perspective and argues that satisfaction is a result of one’s feelings or attitudes toward information system abilities. Bailey and Pearson (1983) also identify user satisfaction as the most important indicator for

measuring system success and they recognise 39 factors that measure user satisfaction. Ives et al. (1983) tested Bailey and Pearson's instrument, and reduced its length and obtained four factors; executive development program (EDP) staff, information product, vendor support, and knowledge or involvement of user.

Seddon and Kiew (1996) and Seddon (1997) consider user satisfaction as evaluating various individual, organisational, and societal consequences of IS use subjectively. They mention that user satisfaction measures the net benefits of pleasure or displeasure based on the accumulation of stakeholders' (individuals, groups of individuals, managers, and society) perceptions of information systems. With regards to measurement of user satisfaction, Seddon and Kiew (1996) concluded that in their exploration of the factors that Bailey and Pearson (1983) and Ives et al. (1983) provide, these measure the independent variables that were likely to result in overall satisfaction, as opposed to user satisfaction itself. Also, Seddon and Kiew (1996), and Almutairi and Subramanian (2005) defined many measures for evaluating user satisfaction for example, feelings of users about system adequacy, system efficiency, system effectiveness, and overall satisfaction. Davarpanah and Mohamed (2013), and Beadles et al. (2005) measures user satisfaction according to user feelings in regard to meet the expectations, and needs, where HRIS may be a source of fulfilling routine and strategic requirements and improving value and power of HR in an organisation. Further, more assessment is based on the ability of HRIS in facilitating and supporting the HR competencies which is the extent that people have of knowledge about business, knowledge and delivering HR practices, technology expertise and are effective change agents (Bell, Lee, & Yeung., 2006)

DeLone and McLean's model (2003) supposes that system use and user satisfaction are impacted by system quality, information quality, service quality and there is a relationship between system use, and user satisfaction. Individual impacts and organisational impacts are associated with system use and user satisfaction, and eventually the organisational impact is influenced by individual impact.

Figure 2.8 Model of DeLone and McLean



Source: DeLone, W.H., & McLean, E.R. (1992). Information systems success: The Quest for the dependent variable. *Information Systems Research*, 3(1), 60–95. p.87

However, Seddon and Kiew (1996) agreed with model of Davis et al. (1989) towards the importance of users' beliefs in forming user attitudes and behaviour. They criticized and tested and developed Delone and Mclean's model and replaced use of system with usefulness of system. Seddon and Kiew (1996) and Seddon (1997) explain that use is an ideal alternative for usefulness in the event of systems usage, and where use is not a prerequisite. This in turn provides a simple objective measure of success. Nevertheless, in the event of the system not being used or where usage is a prerequisite, it can therefore be argued that usefulness can still measure success, although use does not. In the same context, Sabherwal et al. (2006) contend the ideas of Seddon (1997) who perceived system use as behaviour that gives the net benefits from using the system. Perceived usefulness is considered to be value measure in voluntary and non- voluntary usage contexts (Rai, Lang, & Welker, 2002; Seddon, 1997). According to the Seddon and Kiew (1996) model, user satisfaction can be affected by perceived usefulness and these two constructs can be influenced by three constructs; system quality, information quality, and importance of the system.

Perceived usefulness as a measure of evaluating was also suggested and supported by Lewis et al. (2003) who argue that individual beliefs reflect the development of their cognitive structures after collecting, processing, and synthesising information pertaining to IS/IT, as well as integrating individual assessments of several outcomes related to technology use. Moreover, beliefs are known to significantly influence subsequent individual behaviours toward IS/IT and Rai et al. (2002) argue that perceived usefulness is related to individual effects on Delone and McLean models (1992, 2003), where perceptions of usefulness occur due to individual evaluations of an IS. Users interact and use the system to perform their job

productively and effectively. Therefore, this calls for further investigation into the belief formation process (Lewis et al., 2003). The literature indicates that there are few studies investigating antecedents (e.g., system and information attributes) which may influence beliefs, attitudes and system usage (Al Shibly, 2011; Venkatesh et al., 2003; Wixom & Todd, 2005).

However, previous models (e.g. Davis 1989, Davis et al. 1989; DeLone & McLean 1992, 2003) are criticised because of focusing on technical aspect. It is claimed that explaining acceptance of technology by focusing on only IT characteristics does not give the whole picture. The need to include other factors has been raised. For example, subjective norm is supposed as one of key social factors. It was not added in TAM as a major predictor of specific behaviour (Hung, Ku, & Chang, 2004; Venkatesh & Davis, 2000). Davis and his colleagues argue that subjective norm was not defined clearly and had uncertain theoretical status that it may have an indirect influence on behaviour via individual attitudes (due to internalisation and identification processes), as well as a direct influence on behaviour (due to compliance) away from their perceptions of the system (Davis et al., 1989). Therefore, social influence has become a new issue that requires further research. Consequently, and corresponding to this criticism, Venkatesh and Davis (2002) extended their model by adopting the subjective norm, where they assumed that social actors can play a significant role in formatting an individual's attitude and behaviour.

Therefore, for understanding technology acceptance, Davis et al. (1989), Pijpers, Bemelmans, Heemstra, and Montfort (2001), Legris, Ingham, and Collette (2003) added that external and extra variables which include system design features, user traits, task characteristics, social factors and organisational characteristics would indirectly influence user acceptance by influencing the psychological dimensions of users. Furthermore, DeLone and McLean (2013) updated their model and highlight the impact of external factors, for example organisational and social factors, on system success of which user satisfaction is one of its measures and they show the need for further research with regard to these factors and explaining the relationships. In the same vein, the literature indicates the importance of external factors (e.g., social and cultural factors) that contribute to explaining the acceptance and adoption of technology (Ke & Wei, 2008; Twati, 2006). Culture can affect technology adoption for example; the attitudes of senior executive towards technology can affect a

decision to adopt new technology, with regard to non-industrialized countries senior executives could consider technology as expensive (Altarawneh & Al-Shqairat, 2010).

Currently, other outcomes of the implementation of information systems instead of system use or in addition to use have become another issue which needs further research. However, it is claimed that system use does not play a major role in measuring the impact of systems on users and the performance of systems particularly in mandatory computing environments. The need to include other constructs instead of use has been reinforced in the literature (Brown et al., 2002; Gatian, 1994; Maier et al., 2013). This was reinforced by Seddon and Kiew (1996). Particularly, it is difficult to measure the use of an application in an environment where use is mandatory since TAM is intended to measure usage in a voluntary environment (Brown et al., 2002). Also, measures of use could be based on self-reports instead of a measure of real practice (Chuttur, 2009; Lee, Kozar, & Larsen, 2003). On other hand, objective measures of use (e.g., number of reports and queries, and the number of file updates) are difficult to measure because they require preparation and financial investment and users may change their use if they know they are being measured. Also, the number of reports/queries issued by decision-support systems does not reflect the quality of decisions. Thus, these measures could not reflect performance or acceptance of technology (Zviran & Erlich, 2003, p.82). However, Brown et al. (2002) state that theoretically and empirically, user satisfaction is the most important measure of system acceptance and performance, when IS use is voluntary or compulsory and it is essential to understand its consequences.

Although the original TAM did not include consequences of system use, technology acceptance literature suggests work-related consequences (e.g., stress, or job satisfaction). As mentioned above, user satisfaction could be interpreted according to a set of factors and it also could lead to other outcomes. With this respect, the importance of user attitudes emerges from their role in predicting system use and other impacts on individuals and organisations. This is in line with the DeLone and McLean (1992, 2003) models, which assume net benefits (individual and organisational impacts) are important indicators of system success and they can be influenced by user satisfaction. Net benefits are defined as the extent to which information system are contributing to the success of the different stakeholders (DeLone & McLean, 2003) and defined in terms of what is valuable (benefit) and is not value (cost) from the use of technology (Seddon, 1997). Importantly, the need for investigating the link between user satisfaction and outcomes related to performance-related

behaviour has been raised (Au et al., 2002) for example, decision making performance (Al Shibly, 2011; Gatian, 1994), decision-making productivity (Gable, Sedera, & Chan, 2008) or other indicators related to organisational behaviour (e.g., job satisfaction, organisational commitment) (Ang & Koh, 1997; Sanayei & Mirzaei, 2008).

2.6 DIMENSIONS OF PREVIOUS MODELS AND STUDIES RELATED TO HRIS

From the previous discussion there are several models that investigate the impact of technology and there is some similarity between them. For example, Rai et al, (2002) show that the assumed relationships in the D & M (1992, 2003) model and Seddon's (1997) models are consistent with assumptions of TRA and TAM. Perceptions of system quality (e.g., ease of use), and information quality influence user satisfaction directly or indirectly via perceived usefulness.

However, despite limitations of the original TAM model, the literature shows the reliability of the model's dimensions (e.g., perceived usefulness, and perceived ease of use) as core universal variables for predicting technology acceptance in various user populations (Chuttur, 2009; Davis et al., 1989; Lee et al., 2003) and different computing applications (different types of technologies) for example, "general-purpose systems, office systems, communication systems, and specialized business systems" (Bradley, 2012; Chuttur, 2009; Igbaria et al., 1997; Lee et al., 2003). TAM constructs can also be used in explaining and predicting user perceptions and adoption of a wide range of information systems whether the user has experience or is a new adopter (Taylor & Todd, 1995). Although satisfaction with HRIS has been discussed widely regarding measurement, for example, attributes of information system (e.g., information and system quality), or benefits/needs, equitable fulfilment the construct is deemed a substantial surrogate to measure acceptance and performance of information systems (Au et al., 2002).

Positive evaluation could result in greater satisfaction with technology and more loyalty to it. This research depends on these streams to identify and assess HRIS acceptance and its impact on HR professional which is characterised by limited research. In particular investigation of perceptions and attitudes of HR personnel towards HRIS is still an underdeveloped field characterised by a scarcity of studies. Furthermore, although previous studies have examined perceptions of line managers and employees, few studies have investigated the cognitions of HR professionals (Pianayotopoulou et al., 2007). This is

supported by Bondarouk and Ruel (2009) who suggest the need to investigate particular HRIS stakeholders such as HR personnel. This study contributes to gaining knowledge from HR professionals about HRIS use depending on a wide perspective instead of focusing on limited users or beneficiaries. Particularly, the literature review presents issues regarding using technology for unsophisticated and sophisticated purposes. Another point is that although various outcomes or benefits have been reported in theory there is a lack of empirical evidence (Marler, 2009; Ngai & Wat, 2006; Ruel et al., 2007). The failure in achieving the required impacts on organisations and HR departments can lead to an increase in human resource management costs (Marler, 2009; Qteishat, 2014).

The assimilation of HR professionals into HRIS and their abilities to cope with them are considered important. Therefore, the researcher investigates user attitudes towards HRIS (which is an important element in process implementation and development the technology) and their consequences for understanding HRIS acceptance. This study contributes to understanding variations in the attitudes of HR professionals towards system use by focusing on fundamental factors have been raised in IT research. (Sections 2.6.1 highlight issues related to HRIS use in more details).

Therefore, this study aims to identify HRIS acceptance by focusing on beliefs of HR staff towards HRIS (e.g., perceived usefulness) and satisfaction and their enablers. According to the previous discussion, these constructs are presented as perceptual measurements of technology benefits. Seddon and Kiew (1996), Seddon (1997) and Rai et al. (2002) emphasise the value of perceived usefulness and user satisfaction because they are conceptually meaningful and relative. As mentioned previously, perceived usefulness is a concept linked to reward that individuals gain from information systems use. This study aims to examine HR professionals' perceptions about particular experienced consequences of using HRIS. HR staff evaluate and form positive beliefs towards HRIS linked to its use. Information systems assist HR staff in performing their tasks related to HRM and to provide accurate services to managers and employees and this in turn could influence satisfaction of user towards technology. In other words, a user's belief towards the value flowing from using HRIS and supporting his or her performance is reflected in satisfaction of HR professionals with HRIS in terms of support their status. Schewe (1976) states that an attitude is a feeling about what is favourable or unavoidable toward an object or entity. In this meaning, satisfaction is a

consequence of the interaction of an employee with an HRIS directly where according to his or her experience with HRIS and the affective attitude towards it, a value judgement results.

Using HRIS aims to achieve various goals for example, improving organisation image, HR image, HR satisfaction, and HR processes (Panayotopoulou et al., 2007). Utilisation of HRIS assists in meeting HR staff requirements where they can facilitate administrative activities and contribute to HR strategic activities. This is supported by Hussain et al. (2007) who asserts that using HRIS contributes to facilitating day to day tasks, decision making, and HR planning and forecasting. Lengnick-Hall and Moritz (2003, p.368) argue that “getting nonstrategic tasks done faster, cheaper, and with less reliance on HR staff creates the opportunity to focus on new ways to add value to the organisation”. In this study, HR staff satisfaction with HRIS is measured according to affective feelings concerning the contribution of HRIS towards performing their routine and strategic tasks and supporting their status or professional standing.

In turn, individual perceptions towards HRIS use could be interpreted through organisational, social, technical, and individual factors. Section 2.7 discusses these factors.

Currently, the impact of technology acceptance dimensions (e.g. user satisfaction) on other variables has been raised for example, effectiveness of HRM (Bondarouk & Ruël, 2013; Husein, 2015), job satisfaction and organisational behaviour (Ang & Soh, 1997; Maier et al., 2013). In other words, does adjustment of users towards HRIS influence other sociological phenomena in addition to intention to use? This will be discussed the section 2.8.

2.6.1 Practical studies in HRIS

HR researchers have focused on studying use of information systems in HRM in order to identify and examine the impact and acceptance of HRIS. This investigation is to develop understanding of status of use and influencing factors which could explain the phenomenon of acceptance and impact of HRIS. In order to have a clearer insight about this subject area, this section reviews past and current literature pertaining to the practicalities in HRIS. Here, the researcher has deduced three key themes from the literature to provide clearer insight of the reality or practicalities of HRIS; HRIS implementation and usage to support organisational roles, administrative use, and attitudes towards HRIS acceptance.

2.6.1.1 HRIS implementation and usage to support organisational roles

Early studies discuss the application of HRIS to support organisational roles (Ball, 2001; Haines & Petit., 1997; Hannon, Jelf, & Brandes., 1996; Kinnie & Arthurs, 1996; Martinsons, 1994; McLeod & DeSanctis, 1995; Murdick & Schuster, 1983; Ng, Skitmore, & Sharma, 2001).

One of earliest studies (Mathys and LaVan, 1982) showed that 40% of organisations did not employ HRIS. HRIS usage for planning and development roles was shown to be relatively low, while other areas, such as accounting and payroll was high (Hannon et al., 1996; Ng et al., 2001). Likewise, these results are consistent with Murdick and Schuster (1983) and Haines and Petit (1997) who concluded that various personal departments fall when they come to planning and implementing HRIS due to the high cost, limited knowledge and complexity of the technology. However, even though there were low development rates among HRIS technology was still evolving at the time. However, McLeod and DeSanctis (1995) argued that HRIS adoption was 73.5% and companies implemented HRIS for supporting workforce planning, recruiting, workforce management, and compensation applications. These claims are further supported by studies which explore the impact of HRIS on organisational roles (Kinnie & Arthurs, 1996; Haines & Petit, 1997). Studies show that HRIS began to emerge as an effective system to support HR departments, in 1990s. This decade was characterised by the high tech era (Ball, 2001; Becker & Huselid, 2006; Bhuiyan et al., 2014; Hussain et al., 2007; Kavanagh et al., 1990).

However, Ball (2011) claimed that despite the rapid development of HRIS in the 1990s, HRIS is more common among larger rather than smaller organisations due to high implementation costs, and that training and recruitment are used less frequently in HRIS. The study concluded that HRIS tailors more to administrative ends as opposed to analytical ends. This leads to the next theme, which is the use of HRIS for administrative ends.

2.6.1.2 Administrative Use

Some studies have cited the use of HRIS for administrative purposes (Bondarouk & Ruel, 2013; Hussain et al., 2007; Reddick, 2009). Hussain et al. (2007) noted that the use of HRIS reduces staffing levels of everyday administrative tasks, while maintaining quality work performance, thus creating a more efficient working environment. Similarly, Reddick (2009)

who explored the critical success factor of HRIS found that the technology maintains the ability to attract, hire, retain, and maintain talent, as well as support workforce administration to optimise workforce management. However, Bondarouk and Ruel (2013) postulate that HRIS not only support administration on a productive level, but also on a strategic level. they found that HRIS helps to free HR staff from administrative burdens, which in turn gives them the opportunity to undertake important strategic people management activities, which is more critical in their role. It can be deduced that although administrative use of HRIS has been cited in the literature, there appears to be limited use of the technology in strategic or sophisticated purposes, which therefore questions individual attitudes and acceptance of HRIS within organisations.

2.6.1.3 Attitudes towards HRIS Acceptance

Some studies have studied the impact of attitudes of users towards using HRIS on other phenomenon instead of use (Maier et al., 2013; Ruel et al., 2007). Ruel et al. (2007) found that attitudes, such as perceived quality of content and structure of HRIS influences the effectiveness of HRM technical and strategic. Other attitudes towards HRIS include cost reductions, enhancing HR service level and providing the HR department space to become a strategic partner. However, Maier et al. (2013) also found that attitudes of HR professionals towards HRIS are influenced by perceived usefulness, ease of use. Job satisfaction and turnover intention are affected by attitudes toward HRIS, where job satisfaction fully mediated the relationship between altitudes and turnover intention. Here, individual experiences appear to shape users attitudes towards systems use and thus will determine whether they will accept or reject HRIS. Attitudes towards HRIS acceptance are an understudied area that requires much attention. This is a perfect fit for the current study, since it aims to look at the individual attitudes and perceptions of HRIS in Libyan governmental organisations.

In sum, a number of researchers have focused on studying the status of using HRIS and examining applications of HRIS to know to what extent HRIS are used and support HR staff role in organisations. The results indicate that although use is limited to administrative or unsophisticated purposes, there was some sophisticated use (Bondarouk & Ruel, 2013; Hussain et al., 2007; Reddick, 2009). Other researchers have focused on studying factors that influence the acceptance of HRIS. Although some factors have been investigated such as ease of use, quality information and training, there is a need for further investigation to examine

the influence of other factors on dimensions of technology acceptance (perceived usefulness, attitude towards using HRIS or satisfaction with HRIS). Few investigations have addressed outcomes of attitudes of users towards using HRIS. Therefore, the current study is needed given the lack of focus on not only the attitudes and perceptions towards HRIS usage on a general level, but also in the context of Libyan governmental organisations, where HRM and IS play a key role in enhancing organisational effectiveness. The next chapter attempts to investigate HRIS usage in developing and Arab countries to help establish a further focus for investigation.

Table 2.3 provides a summary of the above reviewed studies all of which reflect the extent to which influencing factors and HRIS impacts have been highlighted through empirical studies.

2.7 FACTORS AFFECTING THE ACCEPTANCE AND INFORMATION SYSTEM PERFORMANCE

There are many internal and external factors in the surrounding environment of an organisation which can affect acceptance and performance of the system. Although some factors have been mentioned above there are others. Murdick et al. (1985, p.242) emphasise that acceptance and adoption of information systems requires a suitable environment including “top management support, organisational and policy considerations, personnel needs and personnel availability, the natural human reaction to change, and cost-benefits analysis”. Murdick et al. (1985) highlight the importance of the external environment and Yeh (2006) explains that in order to understand the system and its impact, many factors should take into account for instance, individual, social, and organisational factors. These will be explained in the conceptual model used in this study.

However, the literature indicates the need for further study for investigating the impact of these factors on a system’s performance (Al-Dmour & Al-Zu’bi, 2014; Chakraborty & Mansor, 2013; Ke, & Wei, 2008). Furthermore, few studies have been conducted in developing countries where this area can face challenges and problems that inhibit using technology. Among these obstacles are the large number of routine procedures, bureaucratic thinking, poor coordination between units, restricted access to technology and not keeping up with technical developments.

2.7.1 General administration and organisational perspective

The administration and organisational perspective includes the regulatory environment and its features. In an organisational context, there are many factors to consider: the organisational framework of system modules and rules, policies that control work in HR activities, authorities, powers, and complementarity between departments (Laudon, & Laudon, 2002). Jing Zhu and Liao (2011, pp.2-3) identify various factors for example, “organisational maturity, organisational structure, organisational culture/climate, organisational resources, internal technology, departmental responsibilities and interdepartmental integration”. For example, clear organisational formalisation reflects the maturity of an organisation, which has a positive effect on HRIS performance and the success of information systems (Wang & Tai, 2003). The style of bureaucracy can hinder the use of technology, where using technology requires a degree of flexibility and simplification of procedures. Centralization has a significant and negative impact on the strategic IS planning alignment (Lee & Pai, 2003). Also, Haines and Petit (1997) show that internal support through general managers, directors and IT specialists has an essential role in helping HR professionals. They found that there is a relationship between the specialist HRIS department and user satisfaction. It was also advocated that top management support and computer skills are essential factors that determine core dimensions of acceptance (Al-Dmour & Al-Zu’bi, 2014; Ang & Soh, 1997; Nelson, Todd, & Wixom., 2005).

2.7.2 Social perspective

This perspective explains HRIS use in context of social factors. Social climate impacts on the system performance; where encouraging orientation is an example of features of organisational climate. Many social issues arise in the context using of technology. Recently, the importance of social support has been highlighted (e.g., Lewis et al., 2003; Lu et al., 2005; Venkatesh & Davis, 2000) as a result of its impact on technology use. Lai and Guynes (1997, p.148) argue that “norms-encouraging-change, which are the employee’s positive attitude toward change” can influence the decision of technology adoption. Encouraging subordinates to share the system has a positive effect in their attitudes towards technology (Lucas, 1978). Also, Chou (2003, p. 278) shows that the culture of encouraging creativity and collaboration within an organisation is positively related to the adoption of computer systems to facilitate and support organisational learning. Clear responsibility of organisational units assists in effective communication and integration between them and has a positive impact on the

acceptance of technology (Teng, Fiedler, & Grover, 1998; Walton, Dutton, & Cafferty, 1969). Other examples of social support are prestige and subjective norms. Perceptions of people towards technology can be influenced by subjective norms; where people who are close to the user can affect their interaction with technology (Venkatesh & Davis, 2000). Value, attitudes, behaviour styles, informal and informal relationships other aspect of social interaction. In this study the focus will be on social interactions between HR staff who interact with and use HRIS.

2.7.3 Project perspective (technical perspective)

Quality is an important dimension to evaluate and explain individual perceptions and acceptance of technology. Information quality, system quality, service quality are examples (Bailey & Pearson, 1983; Nelson et al., 2005). Characteristics of the project can affect its acceptance. There are many features of the system for example ease of use, flexibility, accessibility, visibility, and reliability that influence usefulness and perceived ease of use (Thong, Hong, & Tam, 2002). The availability of hardware and software of the system is also important factor (Hosnavi & Ramezan, 2010).

Project rank is also an important factor that can affect the performance of a system. The firm that is aware of the importance of the system allocates enough resources and establishes a steering committee for directing the effort of the information system (Ein-Dor & Segev, 1978). IT staff also play important roles in providing a quality service. IT staff have an essential role in providing the required information. Good connections between IT staff and HR staff will influence the performance of users. IT staff support is a core construct in measuring system success.

2.7.4 Individual Perspective

Individual factors also have an impact on system performance. Ability of an individual is technical competence and distinguish between people (Kling, 1977). Yeh (2006) clarifies that performance of a system can be influenced by other factors for example, user features in terms of their attitudes, capabilities, skills and goals. Positive attitudes of employees towards technology and technological changes facilitate the implementation of systems (Lai & Guynes, 1997). Additionally, Jing Zhu and Liao (2011, pp.2-3) show the importance of taking other factors into account for example, features of groups, individual position, and individual

perception of the acceptance and implementation of the system. The literature also suggests and investigates the impact of individual characteristics in terms of age, education, gender, work experience, and computer experience on user satisfaction (Bal et al., 2012; Haines & Petit, 1997; Igarria & Nachman, 1990).

2.7.5 External environment features

In addition to the internal environment, the acceptance and implementation of systems are also influenced by external environment features; for example, the technological environment which can affect the information system and its structure (Ein-Dor & Segev, 1982). Organisations can confront competitive pressures which can have a positive influence on general information processing requirements, and the importance of the role of information technology (Wang, 2001). Also, Murdick et al. (1985) points out that there are many constraints that can be attributed to the external environment, for example government discouragement of information systems, as well as not taking into consideration law regarding to security of personnel information and customer dissatisfaction.

2.8 CONTRIBUTIONS FROM STUDYING IMPLICATIONS OF TECHNOLOGY USAGE

Theoretically the attitudes of individuals towards objects, (which are formed from internal factors such as beliefs of people and external factors) can influence HRIS acceptance.

Implementation of IS affects many aspects such as task support, facilitating decision-making, and of quality working life; quality of output in terms of providing information on time. With regard to the implications of technology, Igarria and Tan (1997) argue that with increasing usage of technology, there is increased need to understand and investigate the implications of using technology and add that although researchers focused more on determining key determinants of acceptance of technology, there is a lack of understanding about the implications of accepting or refusing information technology. Moreover, Brown et al. (2002, p.293) ask, "If an employee's attitude is not related to his/her intention to use technology, what does it influence?". They explain that in a mandatory system, employees must use the system even though they may have negative beliefs and attitudes about it. In this case their attitudes are not related to their behaviour but such attitudes can have a significant impact on their perceptions of the work environment. For example, they may obstruct the

implementation of the system or quit. In addition, Zuboff (1988) reveals that even if individuals use technology, negative attitudes or dissatisfaction with system can be formed. Where system use does not lead to positive attitudes towards technology, job satisfaction and commitment to the organisation can be strongly and negatively influenced.

Igbaria and Tan (1997, p.114) mentioned that “different empirical studies seem to suggest clearly that computer technology may have effects on the nature of office work, job satisfaction, and the quality of social and work life of the office worker”. For example, Klirzg (1989) shows that service representatives' job satisfaction was low as a result of deteriorating quality of work life; where adopting technology caused the job to be more routine and less interesting and lowered interaction and contact with work groups. Computing can change jobs and enrich work for instance, “increased autonomy, more freedom in doing the job, greater responsibility for the results of their work, and greater knowledge” (Millman & Hartwick, 1987, p.486-487). Millman and Hartwick (1987) point out that using technology changes work and leads to many advantages; employees' perception of the benefits of computing work is related to many positive outcomes for example, employees become more motivated and satisfied leading less absence and a lower staff turnover. Moreover, the interaction of individuals with technology can influence their feelings and morale: poor understanding of technology, lack of agreement with their goals or incompatibility with their aspirations can affect their feelings and behaviour (Yeh, 2006). This may lead them to leave an organisation. In this regard, HR staff feelings and attitudes toward information technology can influence their job satisfaction, commitment to the organisation, and intention to leave (Maier et al., 2013). Job satisfaction and organisational commitment are substantial concepts affecting the performance of an organisation, individuals, and groups and have been raised for further attention and focus (Maier et al., 2013). Organisational commitment and turnover intention are essential consequences related to work. Technology is a source for change in the abilities and skills of individuals in support of performing their tasks and achieving benefits at individual and organisational level. In this context, some questions could be raised whether HRIS could enhance the exchange between HR staff and their organisation. Using technology is expected to contribute to enhance the effectiveness of HRM for which organisational commitment is a key aim (Beer et al., 1984; Sanayei & Mirzaei, 2008).

Generally, organisational commitment is considered to be an important variable for individuals and organisations because it reflects their value and objectives. It represents the

attitudes of individuals towards work and the organisation and has an important effect on performance and behaviour (Angle & Perry, 1981; William & Hazer, 1986) and is an important as satisfaction (William & Hazer, 1986). One concern is whether satisfaction of HR professionals towards using HRIS could lead to more commitment which will affect other aspects of behaviour. Empirically, decision makers should invest more attention and interest in the use of HRIS through automating all HR activities and using it for supporting strategic tasks. This will have impact on increasing commitment of HR staff and declining intention to leave.

Accordingly, the literature indicates the importance of organisational, social and cultural factors in explaining the acceptance and adoption of technology. Additionally, although the literature shows that adoption and acceptance of technology has been studied to a great extent in developed countries (Legris et al., 2003), few studies have been conducted in developing countries, in particular in Arabic countries. These considerations have created the motivation for conducting further research on information systems (Altarawneh & Al-Shqairat, 2010; Al-Zegaier, 2005; Kassim et al., 2012). The current study will concentrate on technology acceptance of HR professionals and in a developing country. The present study includes many broad concepts, for instance, user satisfaction, perceived usefulness, system quality, and others factors (e.g. top management support, quality of information, IT staff support). Empirically, the findings will provide practitioners and decision makers tools to better comprehend how different factors can motivate perceived usefulness towards HRIS and satisfaction with HRIS. Therefore, this study will focus on the effects of organisational, social, and technical issues on the acceptance of HR professionals of HRIS, and the impact of such acceptance on work-related outcomes, organisational commitment and intention to leave in Libyan gas and oil industrials and banks.

2.9 SUMMARY

To sum up, organisations adopt information systems to manage their resources effectively to achieve competitive advantage. Human resources are an essential element and a strategic partner in achieving organisational goals. In order to manage individuals and help them to perform well, organisations have adopted and used technologies of which HRIS are a part. They help to improve work methods and produce services internally and externally. HRIS have been developed through many stages from routine paper handling to electronic records and advanced computerised system for acquiring, storing, manipulating, analysing, retrieving

and distributing information in order to manage it effectively. An HRIS is one type of information system, and its tools for example, stand-alone software packages, integrated software, and web-based applications assist in obtaining greater informational accuracy, and the provision of timely and fast access to information.

HRIS help to achieve many advantages at various levels and service different beneficiaries for instance, HR managers, employees, and HR professionals. The HRM department is the main beneficiary of using HRIS. HRIS facilitates the management of employees by providing reliable, accurate and accessible information and helps to put in place consistent plans, policies, and programs for performing daily and strategic HR activities. Additionally, HRIS help in providing HRM with a better opportunity to deal with structured and unstructured problems and facilitating better strategic decisions. Also, HRIS contribute to providing quality services to customers or beneficiaries through investing in advanced technology and qualified employees.

The field of technology acceptance has received extensive research in order to establish key principles of acceptance and its outcomes. This study aims to contribute in this field and presents a framework related to HRIS acceptance in chapter 4. To develop an insight into HRIS acceptance this study draws upon research related to technology acceptance combining with HRM research. People can resist using technology and shape negative attitudes towards it as a result of difficulty of use and not meeting their needs. Use of technology means changes in abilities and in ways of doing work. Therefore, designers and developers of information systems and organisations need to comprehend and predict user acceptance in order to create a fit between technology and the user. Various perspectives are used to explain and interpret the level of acceptance and adoption of technology for instance, the resource-based view, psychological, social, organisational perspectives. According to the resource-based view, the ability of management to manage IT resources and non-IT resources is an important element in using technology and creating value and competitive position. The, psychological perspective interprets system use according to interactions between beliefs, expectations, and subjective norms which result in specific behaviour. Social networks can contribute to distributing knowledge and formatting attitudes toward technology.

Several factors related to the work environment may have a positive or a negative effect in system acceptance and implementation such as individual characteristics, organisational conditions and system conditions. The implementation of IS affects aspects such as task

support, facilitating decision-making, and improving working life; quality of output in terms of providing information on time.

The next chapter focuses on and discusses some issues related to technology use in HRM in Arabic countries and Libya particularly and illustrates the reality of the extent of technology acceptance in Arab countries, and identifies the key promoters and inhibitors. The results of examining the dimensions related to technology acceptance in different cultures and environments give more insight about acceptance of technology in different environment.

Table 2.3 Summary of empirical study on HRIS

Author(s)	Location/target	Sample size	Method	Purpose(s)	Findings
Husein 2015	Public authority for radio and television in Syria/HR employees	123	Questionnaire/ descriptive and multiple regression	Identifying the degree of success of HRIS by assessing its roles on how the functions of HRM perform. Determining barriers that can limit using of HRIS.	Perceived HRIS system quality, perceived HRIS information quality, perceived HRIS ease of use and perceived HRIS usefulness have positive impact on HRIS satisfaction. HRIS success impacted HRIS satisfaction.
Maier et al. 2013	The world's leading automotive parts suppliers"/ HR professionals	150	Interview/questionnaire/	Investigating the impacts of using HRIS on work-related outcomes.	The findings show that attitudes of HR professionals towards HRIS are influenced by perceived usefulness, ease of use. Job satisfaction and turnover intention are affected by attitudes toward HRIS, where job satisfaction fully mediated the relationship between attitudes and turnover intention. The findings showed the effects of HRIS implementation on occupational identify of HR personnel.
Ankrah and sokro, 2012	Industries in Ghana. HR professionals, HR directors, HR managers	80	Questionnaire/quantitative	To determine how the role of HRIS plays in the effectiveness of SHRM. To examine the strategic position of using HRIS at the workplace	HRIS use has positive impact on cost and time savings, decision making and employee commitment.
Yusoff et al. 2011	Seminar organized by one of the professional bodies in	55	Questionnaire	Exploring the correlation between the roles of HRM and dimensions of technology acceptance (perceived usefulness, perceived	Attitudes towards HRIS had a strong and positive relation with perceived usefulness and perceived ease of use.

	Subang, Selangor in Malaysia -HR professionals			ease of use, and attitude towards using HRIS)	There are correlations between role of HRM and dimensions of technology acceptance (perceived usefulness, perceived ease of use, and attitude towards using HRIS). Administrative expert, change agent and strategic partner have positive correlation with ease of use and attitudes.
Bondarouk and Ruel, 2013	governmental organisation/HR professionals, line managers, non-managerial employees	500	Interview and questionnaire	Exploring the strategic contribution of e-HR (benefits) Discovering conditions of e-HRM benefits	Using HRIS released strategic value for HR department for example, improving image of organisation and HR professionals, sharing information saving time more time for strategic issues like planning. Highlighting conditions relating to HRIS use such as training, IT knowledge, strategic- reorientation of HR professionals, user readiness, involvement with e-HR, integration tools.
Reddick 2009	Texas city government in USA/Employees/HR managers	88	Questionnaires/mail survey quantitative	Examining the “scope and perception of effectiveness” of HRIS through examining its impacts” on operational, rational, and transformational level Examining the impact of HRD Barriers and success factors	Using IT changed HR function. In terms of operational aspects, “it has increased HR operating efficiency, automated routine aspects of the daily HR function, and made HR workers more productive. The results in the relational impacts of HRIS showed that it has increased the quality of HR services to employees, made HR more responsive to its customers, and HR staff is generally accepting of IT. In Transformational impacts, overall, the quality of HR services increased, knowledge management enhanced, but HRIS has not reduced bureaucratic red tape. The most critical success factor of HRIS was improved data accuracy and the number one barrier was inadequate funding for HRIS.”
Hussain et al. 2007	Organisations in the UK/ HR 450 HR managers/ 11 senior organisational executives	450/11	Questionnaire/interview/descriptive and inferential methods	Assessment of HRIS Determining whether use of HRIS was strategic, a perceived value-added for organisations.	There are few differences between SME and large companies in adoption of HRIS. HRIS impact on HR professional standing

				The impact of HRIS on HR professional standing for HR professionals.	HRIS are used for strategic decision making.
Ngai and Wat, 2006	public company in Hong Kong/ HR practitioners	500	Questionnaire/ Descriptive data analysis	Examining the current use of HRIS Identifying benefits and barriers	HRIS was used for automation of numerous HRM activities and providing general information instead of decision-support. The greatest benefits were quick response and access to information, while, the greatest barrier was inadequate financial support. There was statistically significant difference between perceptions of HRIS adopters and non-adopters and between small, medium, and large companies, regarding some potential benefits and barriers to the implementation of HRIS.
Ball (2001)	UK companies	115	Mail survey	Reviewing the issues surrounding the use of HRIS. Profiling system usage in terms of information stored on personnel, training and recruitment, and information processing system used.	Smaller Organisations are less likely to use HRIS. Training and recruitment are used less frequently in HRIS. HRIS are used for administrative ends rather than analytical ones
Ng et al. (2001)	Australian construction companies	3	Case study –interview	Aiming to improve the understanding of HRIS in construction companies, and the purpose of the information and the type of data they seek from the system. Establishing a conceptual framework to facilitate the integration of HRIS into construction companies	23 HR activities were identified and grouped into seven major functions: (1) project management and control; (2) strategic planning, review, and analysis; (3) employee profile; (4) employee performance;

					(5) human resource development;
					(6) payroll and accounting; and
					(7) information systems outside the company.
Tansley and Watson (2000)	US-owned transnational company	1	Case study interview with 10 HR and IT representatives	Examines whether individuals involved in developing the HRIS are “enabled and constrained in their efforts by an Organisational context that is consistently re-created by the actions of those individuals within that context	Strategic exchange processes are important in influencing the outcomes of the successful implementation of HRIS
Haines and Petit (1997)	Members of the Canadian Association of Human Resource Systems Professionals	152	Mail survey/ descriptive and inferential methods	Identifies the conditions for a successful HRIS	The presence of an HRIS department or unit increases user satisfaction and system usage. The larger the size of the IS units, the lower the usage levels. User satisfaction is higher when HRIS supports more HRM applications System conditions such as training, documentation, the presence of online applications, the number of HRM applications, the ease of use, and the perceived usefulness of the system, are the most important factors for a successful HRIS
Hannon et al. (1996)	US-based multinational corporations	11	Telephone survey	Determines how US-based multinational corporations improve the flow of information to, from, and within the HR function	All respondents have either begun or plan to design, develop, and implement a global HRIS to increase the effectiveness and efficiency. Some HR processes in HRIS includes payroll, succession planning, pension planning, employee benefits. Lack of consistency across the company’s locations is the major obstacle in assessing and operating the global HRIS. Other obstacles include

					<p>data transfer, data security and integrity, and technical requirements</p> <p>The three most important factors in the development of a global HRIS are providing training for employees working with the HRIS, ensuring the relevance and accuracy of reports, and keeping up with changes in technology.</p> <p>The support of HR and IS executives is key to the successful implementation of HRIS</p>
Kinnie and Arthurs (1996)	Europe	231 (mail survey) ⁴ (case study)	Mail survey; semi-structured interviews for case study/ descriptive analysis	Examines the uses and personnel applications of IT	<p>73 per cent make use of an HRIS</p> <p>The use of an HRIS is significantly associated with the presence of a personnel director within the Organisation</p> <p>The use of IT by personnel specialists remains largely unfulfilled</p>
McLeod and DeSanctis (1995)	Members of the Association of Human Resource Systems Professionals	513	Survey/ descriptive analysis	Studies the current status of the HRIS	<p>The HRIS of 73.5 per cent of the companies is located within the HR department.</p> <p>HR applications such as workforce planning, recruiting, workforce management, and compensation applications are widely used in the respondents' companies either in a standalone manner or as part of the core HRIS.</p>
Martinsons (1994)	Canada, Hong Kong	118 (Canada) 361 (Hong Kong)	Mail survey	<p>Benchmarks the use of IT for HRM activities in Canada and Hong Kong.</p> <p>Identifies future priorities for HRIS enhancements in these two places.</p>	<p>The use of IT for HRM is more extensive and of greater sophistication in a more developed economy (Canada).</p> <p>The application rate for using IT for HRM is greater in a faster-developing economy (Hong Kong).</p> <p>Larger Organisations make more use of IT for HRM than smaller ones</p>

				Accounts for differences in HRIS between these two. Profiles exemplary HRIS practices.	
Murdick and Schuster (1983)	Companies from Moody's Industrials Manual and Moody's Financial Manual	150	Survey	Determines the extent to which HRIS is employed in the personnel function.	Many personnel departments lag behind in terms of both planning for and implementing HRIS.
Mathys and LaVan (1982)	Fortune 500 Companies	106	Mail survey	Studies the current stage of development of the HRIS.	40 per cent of Organisations do not have an HRIS The use of HRIS for career planning and development was ranked lowest, while payroll and accounting was ranked highest.

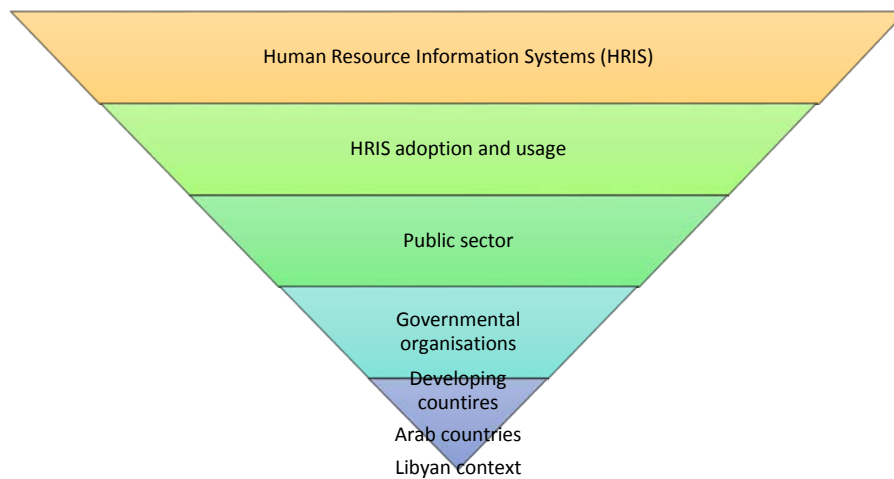
*studies from 1982 to 2001 taken from Nagi and Wat, (2006) whereas, studies from 2007 to 2015 sourced by the researcher.

CHAPTER 3: TECHNOLOGIES AND HRIS IN ARAB COUNTRIES

3.1 INTRODUCTION

Using technology to support HRM roles and activities assists HR professionals in producing quality service for employees and managers, as well as contribute to achieving organisation goals. In less developed countries, Arab organisations seek improvements to HRM activities by adopting technology. However, acceptance and implementation of technology are connected with several diverse factors some of them related to regulations and the role of the government and other related to individual, social, and organisational aspects. Examples of these factors are attitudes, values, power distance, individualism/collectivism, masculinity versus femininity, and organisational forces. Although many studies have attempted to identify and explain technology acceptance and its determinants and implications, few studies have explored adoption of technology in developing countries. Figure 3.1 shows a literature cone representing the key issues from the literature to help further establish the knowledge gap.

Figure 3.1: Literature cone representing key issues in the literature



Source: author

This chapter will give a brief introduction of these issues and the factors affect the interaction of information systems with HRM activity in Arab countries and particularly in Libya.

3.2 HUMAN RESOURCE MANAGEMENT AND TECHNOLOGY USE IN THE ARAB WORLD

Generally speaking, the Middle East and North Africa region (MENA) comprise approximately 6.3 percent of the world population (Internet World Stats, 2014). HRM has become an important activity because of its role in providing qualified HR and human capital. Although HRM differs between developed countries and developing, developed countries consider HRM as a proactive and executive function it is still considered as an administrative and prescriptive function in developing countries (Boxal, 1994; Budhwar, & Debrah, 2001), several Arab countries seek to improve HRM processes and policies and the image of HRM to build the required manpower to improve their economy (Budhwar & Mellahi, 2007). HRM needs to transfer from personnel activities to HRM activities and to improve its role in business organisations (Budhwar & Debrah, 2001; Murphy, 2002).

As stated above, there are different factors or challenges facing HRM in developing countries. For example, Abed (2003, p.5) declares that despite the improvement of other human development indicators in the Arab regions (e.g. education), significant challenges still persist. The MENA region has faced many changes and challenges that may affect their desires for development, for example, an increasing population includes a high percentage of young and educated adults that has an influence on manpower supply in the Arabic area (Yousef, 2004). These changes provide companies with the chance to employ qualified people, but at the same time create pressure to provide a modern environment using modern technology. Young adults are keen to use technology and get technical development compared with older adults who focus more on traditional methods and find difficulty adapting to new technology (Igbaria & Nachman, 1990). Age, therefore, is a possible barrier facing adoption of technology. In addition, Abed (2003) states that other challenges accompanying the rapid growth of manpower are high unemployment, gender inequality, and inadequate HR development with regard to skills, knowledge and capabilities. Other problems are the dominance of public institutions in labour markets, high levels of government control, inflation, obsolete methods for development, weak institutional structures, bulk workforce management, and high personnel expenditure amongst others (Abed, 2003; Yousef, 2004).

In addition, Budhwar and Mellahi (2007) point out that literature on the Middle East shows HRM practices are affected by cultural factors; where local culture influences employees' preferences, policies, practices and participation of employees in decision making.

Government policy is also an influential transformation to centralisation or decentralisation of the level of government control on HRM practices and the usage of available resources like technology. The Middle East is characteristic by dominant government. HRM activities are governed by principles and rules for many activities (e.g. compensation, training, hiring, and salary) in addition to “hierarchical and centralised structures”, less participation of subordinates in change, increased uncertainty avoidance and a lack of new ideas. This can constrain the role of HR departments (Budhwar, & Debrah, 2001; Tayeb, 2005). For example, HRM activity becomes less flexible and that may create obstacles towards acceptance and performance of technology which requires flexibility. Similarly, Leat and El-kot (2007, p.148-149) indicate that HRM practices in Arab countries can be influenced by “cultural and institutional factors”. They show how Hofstede’s (1980) studies show that Arab countries demonstrate “high power distance, moderately strong uncertainty avoidance, low individualism and moderate masculinity”. However, Leat and El-kot (2007) explain that Arab organisations seek to keep up with western styles of management thinking and technologies, and what reinforces this trend is foreign training courses and foreign expertise that influence cultural and social values that reflect in HRM practices, values and behaviour.

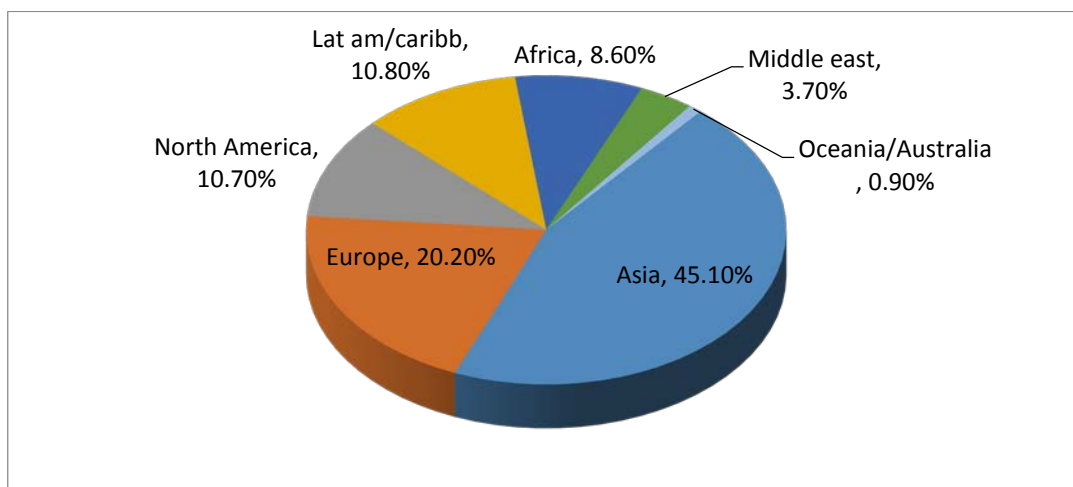
On other hand, if developing countries want to adopt and implement technology related to HRM effectively or on a large extent; there should be a change in the belief, opinion and the structure of HRM in organisations. Adoption of technology requires changes in many sides for example, attitudes of employees towards technology, skills and capabilities of the users, flexibility of work and HR processes and other changes at the individual and organisational level.

3.2.1 Use of technology in Arabic countries

Arabic countries seek evolution at many levels: economic, social and cultural, as well as developing the business environments in order to raise the level living and prosperity (Al-Mabrouk & Soar, 2006). Arabic countries recognise the importance of adopting technology as a tool to create development in different activities (Bruno, Esposito, Iandoli, & Raffa, 2004). Developing countries consider modern technology as an important means for optimising resources and enhancing socio-economic growth and achieving success in different aspect of life and narrowing the gap with industrial countries (Al-Mabrouk & Soar, 2006). Technology can be an opportunity to create remote working and thus reduce unemployment, reduce costs, and develop skills and knowledge (O’Sullivan, Rey, & Méndez, 2011-2012).

The internet is a tool for development and Arabic countries consider it as a way enhance transparency, as well as publish key information and provide services for stakeholders (OECD, 2010). However, although the use of the internet is becoming widespread in Arabic countries it is in the initial development phases. Figure.3.2 shows that internet usage in the Middle East is lower comparing with other areas for example, Europe or Asia. Bruno et al. (2004) elucidate that negative attitudes towards the use of the internet can cause inadequate infrastructures in the developing counties and low competitive position of organisations.

Figure.3.2 Internet users distribution by regions-2013 Q4



Source: Adopted from internet world stats-www.internetworldstats.com/stats.htm- Basis: 2,802,478,934 internet users as from Dec 31, 2013.

However, Table 3.1 shows that the number and rate of usage has increased sharply from 2000 to 2013. These changes can be attributed to the changes that have occurred in the Arab world for example, alleviation of government control in the means of communication, cultural changes, and changing of attitudes against the internet. Bruno et al. (2004, p.7) explain that the rate of growth of information and communication technology (ICT) in developing countries (North Africa) is affected by different factors namely “infrastructure, finance, legal systems, social development, education and cultural environment”.

Table 3.1 Internet usage in selected Arab countries

Country	Population 2014 Est.	Number of users in 2000	Number Of users in 2004	Number Of Users 31-Dec- 2013	% Population (Penetration) in 2004	% Populat (Penetrati in 2014	*% Internet users
Kuwait	2,742,711	150,000	567,000	2,069,650	27.7	75.5	2.0
Libya	6,244,174	10,000	160,000	1,030,289	2.1	16.5	0.4
Oman	3,219,775	90,000	180,000	2,139,540	5.6	66.4	2.1
Saudi Arabia	27,345,986	200,000	1,500,000	16,544,322	6.4	60.5	15.9
Arab Emirates	9,206,000	735,000	1,110,200	8,101,280	33.2	88.0	7.8

Source: Internet World Stats – www.Internetworldstats.com/atats.htm

*the percentage of internet users is based on the total number of users in the region for example, the proportion of Libyan users is based on the total number of users on North Africa, while the proportion of users in Kuwait, Yemen, Saudi Arabia and the United Arab Emirates is based on the total number of users in the Middle East.

The management and development of individuals is considered to be a key requirement for achieving success. A simple example of using technology in a business environment is Banque du Liban. It is a leading banking establishment which uses computer-based testing for effective online selection and then ensuring the selection of qualified individuals. In addition, BLOM Bank which is a Lebanese bank, has strategies in different Arabic countries to develop the abilities and skills of employees. BLOM's HR department uses technology (e.g. Oracle-based HRM software and network) for selecting qualified people and managing them effectively and this supports the contribution of the HR department (Dessler & Al Ariss, 2012).

Furthermore, there are differences between Arabic countries on the extent of technology adaptation. Al-Mabrouk and Soar (2006) argued that developing countries, particularly Arab countries in terms of their industrial development are currently in the heterogeneous stages. In this context, OECD (2010) states that some Arabic countries in the Middle East and North Africa, for example, Bahrain, United Emirates (UAE), Jordan, Egypt, Morocco, and Tunis have adopted e-government, e-HR in order to simplify HR activities and provide accurate and quality services to stakeholders and customers. Also, these countries recognise the importance of human resources in achieving success and attend to reshaping HR processes and improving HR databases in order to manage their HR effectively. Gulf States have also adopted e-HR widely to facilitate many activities related to HR management for instance, internet-based recruitment, e-learning projects, and self-service applications for classic administrative

purposes. Twati (2006) show that the Gulf region is characterised by adopting advanced technology and sophisticated MIS applications and ERP more so than the Arabic regions for example North Africa and the differences in adoption of technology can be cultural, financial, and due to the existence of foreign expertise and other factors.

Given differences between the developed world and the developing world, and between developing countries in terms of organisational, technical, social environments, it is important to examine perceptions and acceptance/adoption of technology (Al-Dmour et al., 2013; Al-Mabrouk & Soar, 2006). This emphasises the need to examine these issues and bridge the gaps between countries (Al-Mabrouk & Soar, 2009; Lewis, 2000). This is supported by Hill, Loch, Straub, and El-Sheshai (2002, p.5) who state that “cultural conflicts between western and Arab institutional leaders’ and workers’ organisational and management styles have significantly influenced the system development process, as well as generating failed approaches to computer use and policy”.

The OECD (2010) also shows that although Arabic countries in the Middle East and North Africa have adopted technology, they face problems and challenges related to the attitudes of people towards using technology (e.g. e-payment; e-learning), familiarity of people with electronic processes, lack of technical skills, the need for technical training to keep up with modernity and to provide more service to customers, the need for horizontal coordination between entities, and lack of digital trust. In addition, other problems that face countries (Egypt, and Jordan for example) are high rates of computer illiteracy and low rates of interfacing with computers and internet, as well as an unsatisfactory physical infrastructure.

Twati (2006) studied the adoption and use of technology in Arabic countries, focusing on examining the effects of social and organisational factors on adoption of technology for example management information system (MIS). The study focuses on the effect of the differences of social and organisational culture on adoption of technology in the Gulf and North Africa. The findings reveal that although social culture (e.g. power distance, uncertainty avoidance, individualism versus collectivism) have an influence on adoption of technology, the results show that high power distance, uncertainty avoidance, and collectivism lead to less enthusiasm for technology use and adoption in North Africa, whereas in the Gulf region low power distance and individualism lead to more adoption of technology. Also, uncertainty avoidance has less negative effect on adoption of technology in the Gulf than North Africa; where the Gulf has a higher rate of technology adoption than North Africa, this can be attributed

to an appropriate environment of adoption of technology in Gulf region where there are education decision makers, support of government of technology adoption, good level of English, IT background, and foreign experience, and risk takers among senior executives. With regard to organisational culture, the results indicate that North African organisations with hierarchical cultures are less enthusiastic and characterised by low levels of adoption of MIS, while organisations in the Gulf Arab are distinguished by adhocracy structures which are flexible and creative. However, there is a need for further research with regard to the effect of cultural differences on the adoption of technology between organisations and countries.

Using information systems in HRM can be affected by such factors. Altarawneh, and Al-Shqairat (2010) conducted a study in Jordanian universities and they found that although they had adopted HRIS for long time, it was applied for the automation and computerisation of various HRM activities to gain administrative advantages rather than for decision making and strategic advantages. Insufficient financial support, difficulty in changing the organisation's culture, difficulty in computerising paperwork, lack of commitment from HR staff and top managers to technology were the highest.

Obeidat (2012) studied the importance of human resource information systems functions in Jordanian banks and showed that HRIS did not support HR managers and professionals and did not support HRM functions in terms of strategic integration, forecasting and planning, human resources analysis, communication and integration. It did not help human resource departments in forecasting the future needs of human resources and the future labour supply. Also, he argued that Jordanian organisations use HRIS to analyse human resource needs at an individual level, such as training needs but not at an organisational level, such as planning future employee needs. Moreover, Jordanian banks operate in a culture that is characterised by high power distance in which leaders are expected to resolve disputes as well as make all the difficult decisions without an input from the lower levels of the organisation. On other hand, it was found that HRIS had a role in HRM functions through performance development, knowledge management.

In the same vein, Al-Mobaideen, Allahawiah, and Basioni (2013) examined the critical factors that influence the successful adoption and implementation of HRIS within the Agaba Special Economic Zone Authority (ASEZA)/ Jordan. They examined the impact of four key factors; TAM model (perceived ease of use and perceived usefulness), information technology infrastructure, top management support, and computer experience on the adoption of HRIS. Results show that

successful acceptance of HRIS is influenced positively and significantly by IT infrastructures comparing with other factors.

Al-Dmour and Al-Zu'bi (2014, p.151) studied Jordanian business organisations to examine the extent of acceptance or adoption the HRIS, benefits and barriers, and whether these perceived benefits and barriers have a significant impact on the extent of using HRIS. The findings indicate that although unsophisticated (payroll, employees' records, and recruitment/selection) HRIS applications are used widely HRIS are growing in sophisticated purposes (succession planning, performance appraisal, compensation management, and training and development). The greatest gain of using HRIS are "quick response time, accurate HR information, reduction in paper work, reducing data re-entry, and tracking and controlling", whereas the barriers are "lack of security of HRIS, inadequate technical infrastructure, employees feeling that technology is changing too rapidly, lack of commitment and involvement by all employees, and lack of expertise/knowledge in IT". The results indicate that HRIS usage is influenced significantly by the perceived benefits and barriers of HRIS.

Another obstacle affecting the use of technology is lack of information. Al-Tarawneh and Tarawneh (2012) state that information systems in the Jordanian banking sector suffer from lack of information related to employees selecting and these systems were limited to individuals who applied for new jobs rather than providing broad information about the workforce.

On other hand, the lack of appreciation of an HRM department in an organisation can be an obstacle towards adoption of technology. In general, authors provide evidence which indicates that the HRM function in Arab regions has low status and tends to be degraded to 'a common-sense' function that requires no professional skills, according to top management. Due to this status, there is very little effective training provided to HR managers to help them obtain the required skills to carry out their role effectively, as well as develop the capabilities required to handle change and meet existing and future challenges (Budhwar & Mellahi, 2006).

It seems that although there is interest in developing HRM, there are challenges and obstacles facing Arab countries and HRIS are mostly used to support administrative activities. The implantation and adoption of technology can be influenced by social, individual and organisational dimensions.

3.3 LIBYA AND ADOPTION OF TECHNOLOGY

Libya is located in North Africa, and depends on many industries however, oil and its derivatives are the most important source of the economy (Abdulrahim, 2011). Despite the fact that Libya is a rich country, it is characterized by low levels of technology adoption (Twati & Gammack, 2006). There were many restrictions and obstacles that limited foreign investment and development in Libya during the economic blockade imposed from 1986 to 2003 (Abozed, Melaine, & Saci, 2009). American and United Nations sanctions hinder foreign investors from transactions with Libya, and prevent achieving benefits from foreign expertise in the field of technology. These restrictions included the following activities (Twati & Gammack, 2006, p.176):

- Exporting of all goods, services, or modern technology from Libya;
- Importing of goods or services to Libya;
- Engaging in contracts which support industrial, business-related, or government projects in Libya; and
- Handling of assets that the Libyan Government takes interest in.

Another restriction is government dominance of all public organisations, (Abdulrahim, 2011). One of these activities is HRM; the previous government influenced HR activities by forming laws that structures affecting compensation, training and other. This is an obstacle to achieving improvement and Libyan organisations are affected negatively by the war against the old Libyan government in 2011 and the violence that occurred after the revolution of 17 February (Akeel, Wynn, & Zhang, 2013).

Technology is an important resource that enhances the development and the competitive position of firms in marketplace and improves socio-economic growth. Developing countries recognise the importance of adoption and implementation of technology for achieving growth in different activities. Despite above the tensions, Libya seeks to improve its infrastructure and has sought to bring changes and modernisation to economic, educational, and industrial areas, for example, “market-based economy, privatisation”, and technology adaptation (Twati & Gammack, 2006). After sanctions, the importance of developing an environment to realise socio-economic growth was recognised. For example, in 2007, 60% of budget was located for economic development, and significant resources were located for building IT infrastructure to make affective adoption (Al-Mabrouk & Soar, 2009). Additionally, Libya has attracted over

500 technology-based firms in various industries including, IT, and oil and gas, from America, Europe and Asia, and is now turning to North African to seek out the best technology as a means to become the commercial and technological frontrunner in modern North African technology provision (Al-Mabrouk & Soar, 2009). However, in order to adopt and use information technology effectively, this requires effective telecommunication systems, as well as a strong IT infrastructure. Information and communications technology (ICT) are important systems for every organisation for improving production and services, communicating and the competitive situation of the firm (Twaite, 2008). With regard to Libya, telecommunications services are controlled and dominated financially and administratively by the government, where the General Post and Telecommunication Company (GPTC) is the only Libyan telecommunications company (Elzawi, Kenan, Wade, & Pislaru, 2013). This is indicated by use of the internet as a source of information. (See Table 3.1). Libya is still in the primitive stage of growth in terms of internet services. However, although the rate of use is low, there has been a marked increase in the number of users from 2000 to 2013 (Internet World Stats, 2004). This change in using technology can be attributed to the transitions and changes undergone by the country after sanctions lifting (Twati, 2008).

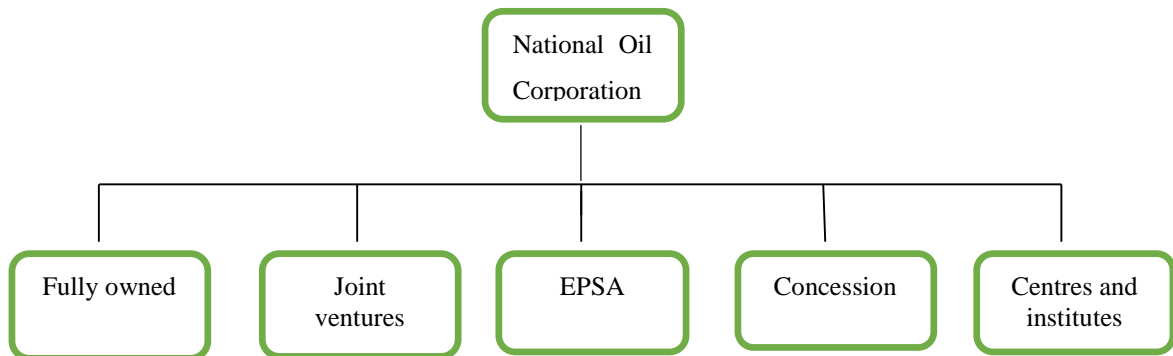
Technology is used in many sectors: banking, oil, education and development. The Libyan banking sector uses IT to provide services to customers and automatic teller machines (ATMs) are available but the service is not widespread. Currently, Libya works to introduce a technical platform and modern network communication for adopting advanced financial systems. Currently, it is working to define the society for worldwide interbank financial telecommunication (SWIFT) system which provides an opportunity for secure and trusty financial transactions on the internet (Twati & Gammack, 2006). Also, HRM is one of the activities that banking institutions aim to improve.

Although the Libyan Ministry of Education and Development seeks to develop education electronically, the developments are still modest and behind developed countries. Although some educational institutes for example universities and research centres have to some extent the necessary infrastructure (such as computers, internet access, and LANs), the educational process and methods are still based on traditional methods for instance, direct interactions in classrooms and printed material (Rhema & Miliszewska, 2007). There are various challenges that restrict technological learning and development, such as “leadership; ICT infrastructure; finance; culture; instructors and learners; lack of strategy; and technical expertise” (Elzoghbi

& Khashkhush, 2013, p.2). However, despite these restrictions, the Ministry of Education and Development introduces ICT in education and development and its fundamental aim is to achieve accurate investment in human resources in order to enhance and develop quality of education and learning (Elzawi et al., 2013). One simple example with regard to investment in human resources is the projects established with international institutions such as UNESCO, and Libyan European Project for the development of technical education. Currently, Libya has witnessed considerable progress in establishing ICT initiatives and technical training. The project aims to build and establish technical platforms and networks for example, Local Area Networks (LANs), a Wide Area Network (WAN) in order to connect educational institutes with each other; the project aims to automate education systems through ICT and information systems (e.g. “e-university management, e-learning, tele-education, digital libraries and portals of educational resources”) (Rhema & Miliszewska, 2007, p.428).

The Oil sector is considered to be the most advanced adopters of technology and the sector is dominated by the state-owned National Oil Corporation (NOC). National Oil Corporation includes a number of oil companies; Figure.3.3 shows the status of these firms.

Figure.3.3 The status of firms dealing with National Oil Corporation



“The oil and gas sector in Libya is divided into three sub-sectors including the following units (Twati, 2008, p.4):

- (1) The government sector, which is operated by the National Oil Corporation
- (2) The public sector, which is operated by companies owned by National Oil Corporation

(3) The private sector, which operates on the basis of partnership with foreign international companies”.

The current study will focus on companies dominated by National Oil Corporation which are:

- National Oil Corporation-Tripoli
- Taknia Libya Engineering Company- Tripoli
- Ras Lanuf Oil and Gas Processing Co- Ras Lanuf
- Azzawiya Oil Refining Company- Azzawiya
- Sirte Oil Company – Brega
- National Oil Wells Drilling and Workover Co- Tripoli
- Jowfe Co. For Oil Technology-Benghazi
- Arabian Gulf Oil Company (Agoco)- Benghazi
- North African Geophysical (Nageco)- Tripoli

The Libyan government recognises the importance of a developing oil sector by adoption of new technologies (e.g. information and communications technology (ICT), IS) and management practices (Twati & Gammack, 2006, p.176). Computer use was dedicated to manage geophysical and geological data, and to conduct and facilitate financial dealing. Many oil companies tend to link all activities with computers and adopt modern technology and link their activities with online systems (Twati & Gammack, 2006). Information systems are adopted in the oil industry sector to facilitate different activities: “exploration and production, crude oil trading, financial management, logistics and distribution, and HR management” (Akeel et al., 2013). The information systems adopted in the majority of Libyan oil companies are in house development and are used to generate operational and management information for facilitating different processes and activities and supporting decision making (Akeel et al., 2013). On other hand, Akeel (2013) shows that the systems were deployed to advance processes of improvement. In terms of using information systems in HR management, HR activities are automated and the systems are mostly in house, and are used to generate information and reports relating to HR activities: staff absence, sickness, holiday, leave, payroll, performance analysis, development and other activities (Akeel et al., 2013).

Generally, in the context of examining technology use in Libyan organisations, studies in the Bank sector have discussed factors such as, quality of information, efficiency of individuals,

training and development, and budgets. They indicate that in spite of the existence of information systems specialising in providing information and enjoying a significant position in organisational structures, they do not receive with enough attention. Furthermore, the weakness of information systems can be attributed to many reasons and problems such as absence of human resources specialised and qualified in the field of information, as well as a lack of attention to training in the HRIS in order to develop the capacities and skills of individuals in their professions. Commercial banks have not kept pace with the developments in information technology which negatively affected on the efficiency of banking information systems (Al Naili, 1996; Bukrais, 1997).

In addition, information systems do not have an annual budget and computers are not optimally used with applications limited to routine work such as saving data on individuals and preparation of salaries. Also, there was a lack of knowledge about information systems among administrative leaderships. Other obstacles are lack of confidence in the information provided and decision makers at Libyan institutions suffered from lack of proper information (Al Naili, 1996).

In addition, Bukrais (1997) points out that the information provided by information systems suffers from several problems such as inaccuracy and delay. This negatively affects the capacity of systems to provide good information to managers and this undermines the quality of decision making. With regard to applying technology in public secretariats, Kolatshi and Fannosh (2003) carried out a field study on the computer training programme organized by the Subsidiary Committee of Mechanization and Updating Management in Benghazi Commune. The study involved a sample of employees from the public secretariats, and points out that there is awareness on the part of managers and employees of the importance of technology at those organisations. The study also shows that individuals have a general desire to access technology at work. However, 50% of the study sample did not have computers at work; those participants who had computers pointed out that in spite of having of computers at their workplace, the systems were old. The study also indicates that there was a lack of scientific proficiency at some secretariats, and a low educational level of personnel which means a lack of ability to comprehend the importance of mechanization. In addition, the study illustrates a deficiency in computer knowledge by some administrative leaders who do not encourage individuals to apply this knowledge and skills in work; individuals pointed to a lack of

information systems that would help in work performance, decision making and easy communication between all activities.

In terms of cultural factors and their impact on adoption of technology, Twati and Gammack (2006) conducted a study in Libya to know the influence of organisational culture on the adoption of information systems in oil and gas industry and banking sectors, and whether differences in organisational culture influence adoption of technology between the two sectors. The results reveal that organisational culture impacts on adoption of technology in the two sectors where organisations are characterised by a hierarchical culture. A high level of power distance leads to low level of adoption of information systems. Also, Libyan organisations have similar organisational culture which implies no difference between them in implementation of technology. One of explanations for the similarity is that the two sectors are controlled by government. In addition, they suggest the importance of investigating the effect of social culture on the implementation of technology in Libya and the need for further research in this field.

In the context of applying technology in human resource management in Libyan organisations, Salem's study (2008) aimed to discover which factors contribute to the successful application of information systems to determine the essentials of information technologies (IT) to human resources activities. The results indicated that size and capital of an organisation affect the use of HRIS. The main uses of information technologies to HR activities are HR management, training staff, payroll and providing information. Also, the findings showed that HRIS contribute to the needs of organisation via information. The information was accurate, useful, reliable, and easy to access, nevertheless, it can be seen that this study shows that using HRIS is an administrative purpose, and it does not include a strategic role. It also shows the need for further study in terms of applying information system in HR activities.

Arab countries have adopted technology for development and progress, but have encountered many challenges in terms of lack of experience and technical skills in addition to underdeveloped infrastructure. Previous reviews show that the importance of human resource management applications can be limited in the public sector compared to the private sector and this can restrict the use of technology and benefits required in the management of human resources. Libyan firms have sought seriously to keep up with the pace of technological development in spite of the difficulties encountered like lack of technical expertise. The literature review explains that adoption and implementation of technology can be influenced

by several factors, including organisational and social culture. This shows that in order to change technology at work, it is important to deal with and address some of the issues that may hinder the effective management of individuals. For example, high levels of centralization and bureaucracy are obstacles to work or change. Whenever the organisation tends to be more centralized the organisational culture tends to control and hinder change and adoption of open systems. The review shows the need for further research in terms of social factors and their impact on adoption of technology. Furthermore, most of studies include adoption of information systems in general, there is a scarcity of studies on the adoption of HRIS.

This study explores the acceptance of HRIS in Libyan oil companies dominated by the National Oil Corporation (NOC) and banks, and identifies the effect of system conditions and social and organisational factors on the acceptance of HRIS, and its impact on consequences related to work, namely organisational commitment and intention to leave. Where, the review shows lack of investigating consequences of information technology on individuals and organisations level.

3.4 SUMMARY

The adoption of technology in developing countries is still ongoing. However, although countries in the Middle East and North Africa have adopted technology, they face problems and challenges related to organisational, social, individual, and technical contexts. The literature shows that although Middle East countries have recognised the importance of technology in optimising human capital and obtaining benefits, for example, reducing administration, streamlining operations, access to employee records, reducing costs, they have faced many HR problems and issues related to behavioural aspects (e.g. lack of motivation) and lack of technology understanding and skills. In order to achieving the required progress and growth of the economy, Libya depends on foreign technology and IT capability for realising the growth and development of vital infrastructure. Using information systems as a tool for upgrading HRM is an important topic for research where this helps to address obstacles to enhancing positive attitudes and acceptance of technology. The next chapter considers drivers of HRIS acceptance and its outcomes which the study aims to address.

CHAPTER 4: CONCEPTUAL MODEL

4.1 INTRODUCTION

Organisations adopt technology as a means to support their business. HRM, as a key function, sets out to adopt HRIS for providing information and human resources that can support organisational success (Bal et al., 2012; Teo et al., 2007; Troshani et al., 2011). In addition to traditional and daily operational tasks and processes, HRM departments aim to be more effective by forming HR strategies that align with achieving the organisational goals (Rangriz et al., 2011).

HR professionals are one user of HRIS and they interact with HRIS to perform their job and add value to an organisation (Bal et al., 2012; Kovach et al., 2002; Reddick, 2009). Their acceptance of the system and attitudes towards it could be explained by several factors, in turn these attitudes can be reflected in organisational behaviour, for example, HR professionals can become more committed to and satisfied. This study focuses on examining outcomes of using HRIS for HR professionals depending on TAM supporting by success model as well as including some modifications to be relative to HRIS acceptance.

The previous chapter highlights theories and models for identifying core constructs in explaining attitudes of users towards technology and its impact. This chapter discusses these models in order to build the framework that contributes to explaining acceptance of HRIS.

4.2 THEORETICAL MODEL

This study aims to identify determinants of overall HRIS HR professional satisfaction depending on TAM and success models. These models have been used to explain the variance in perceptions and attitudes of users towards technology in different fields such as e-education, (Davis et al., 1989; Rai et al., 2002), e-health (Hu et al., 1999) and e-business (Venkatesh & Davis, 2000). This study will depend on these models to investigate HRIS acceptance from HR professionals' perspective. These models highlight and suggest a set of influential factors (e.g. organisational, social, individual, and technical) in attitudes of users towards technology. Although these factors have been studied in information systems generally, few studies have investigated them in HRIS context (see Table 2.3 for further details). Further, the success model of DeLone and McLean (1992-2003) suggests the impact of attitudes of users on individual and organisational levels. In line with this, the literature highlights little attention paid to the

relationship between satisfaction with HRIS and the impact on individuals (Wonjin, 2007). This study will contribute in explaining acceptance of technology by including number of factors namely top management support, computer skills, social influence, ease of use, flexibility, information quality, IT staff support, number of applications in context of routine and strategic purposes, where there is limited research including these factors in explaining attitudes of HR staff in context HRIS, in addition to investigating the influence of satisfaction with HRIS on organisational behaviour. The importance of such factors emerges from its contributions in explaining user attitudes towards use, directly or indirectly via beliefs, which could reflect on other factors like use or others.

4.2.1 Perceived usefulness and HR professionals' satisfaction with HRIS

User satisfaction is considered to be a core dimension reflecting the role and acceptance of technology. The importance of such a factor is that it is a function of user beliefs towards benefits gained through using HRIS and helps in predicting other outcomes as well. Ajzen (1991) defines attitude as the degree to which an individual positively or negatively assesses a specific behaviour. In other words, a user's positive or negative feelings towards an object. Therefore, users with a positive attitude believe that a system will increase productivity and efficiency, thus having the notion that it will enhance their work (Venkatech & Davis, 2000).

Seddon and Kiew (1996, p.95) state that "user satisfaction is the net feeling of pleasure or displeasure that results from aggregating all the benefits that a person hopes to receive from interaction with the information system. This construct shows the degree of user satisfaction with the system. In addition, user satisfaction with HRIS is defined as "an evaluative judgment regarding a specific HRIS experience and the affective attitude to the HRIS of the employee who interacts directly with the system" (Hussein, 2015, p.11). Perceived usefulness is related to benefits perceived of user. "Hence, it is often measured in terms of economic profitability, performance and productivity improvement and other benefits" (Kassim et al., p.606). Perceived usefulness (PU) is defined as "the degree to which a person believes that use of a particular system will improve the performance of his or her job within an organisational context" (Ong, Lai, & Wang, 2004, p.797). High perceived usefulness means that the user supports a positive use-performance relationship (Davis 1989). Compared with user satisfaction and according to Seddon and Kiew (1996, p.95), "satisfaction reflects a wider set of expected benefits or aspirations than mere usefulness". Automating work could lead to

positive attitudes about using technology. Here, satisfaction with HRIS is a general assessment about the impact of the use of HRIS on HR professionals. Evaluating the usefulness of a system contributes to developing attitudes and feelings of employees about the system. Each employee has various anticipated benefits that are expected to gain through the implementation of a system. Therefore, the success of a system in achieving the expected benefits leads HR employees to be more satisfied (Seddon & Kiew, 1996). An implementation of HRIS can be useful for example, increasing the efficiency of HR tasks (Bondarouk & Ruel, 2009), where their use enables HR professionals to access the required information to achieve their tasks quickly, allow a quick response for staff and managers, and increases the efficiency of dealing with complex information and tasks (Kassim et al., 2012). Thus, these benefits enhance HR employees' standing (Hussain et al., 2007). Where HRIS could enhance the image or status of the HR function they may focus more on strategic issues. Thus, HR staff who have positive attitudes towards using HRIS will support the idea that the system will increase their productivity and efficiency, thus increasing their overall performance. Therefore, this study assumed that:

H.1 The perceived usefulness of HRIS is positively associated with satisfaction of HR professionals with HRIS.

4.2.2 Organisational perspective

Organisational factors affect the perceptions and attitudes of users. They include the size of the organisation, management style, budget, organisational structure, managerial IT knowledge, tangible and intangible resources, organisational culture and climate (Jing Zhu & Liao, 2011). However, top management support is one of the core dimensions of organisational readiness to use of technology. Top management is a key factor because of its responsibility in managing resources and leading to success or failure. In addition, a computer skill (which is considered to be an important resource in organisational framework) is another factor. These factors will be one of determinants of HR professional perceptions and acceptance of HRIS.

4.2.2.1 Top management support

Top management support has a significant effect on employees' assessment of IS and can be source of enthusiasm for developers and users. This study will support in developing country where the thinking and style of management is different from developed countries.

This support can occur in many ways. Successful design, implementation, and development of HRIS require several resources for example, hardware, software, people, and budget (Kovach & Cathcart, 1999). Further and even more importantly, recognition by top management of the importance of the HR department and adoption of technology to facilitate such activity stands behind success of functioning of IT (Lengnick-Hall & Moritz, 2003). This is supported by Kossek (1987) who suggests that “if the top management does not view HRM innovation favourably, it will simply not occur” (Al-Dmour et al., 2013, p.13). Also, knowledge and background toward IT helps to recognise IS strategic potential (Ang, Davies, & Finlay, 2001; Rezaei et al., 2009). The executive and position power of managers could assist in managing any political resistance of using HRIS. Perceptions held by the top management of the system and their participation in committees related to the management and development of information system have an essential role in creating an effective system. Top management’s attitude towards IT, perceptions of the importance of the system and its strategic capabilities and its benefits contribute in allocating the necessary financial and non-financial support thus contributing to the overall success of the system (Hall & Torrington, 1989; Rezaei et al., 2009). Lawrence and Low (1993) hypothesised that perceptions about level of top management support will influence end-user satisfaction. Their findings suggest that there was a strong positive relationship between top management support and user satisfaction. Also, Igbaria et al. (1997) demonstrated that top management support has a positive and direct impact on perceived usefulness. However, Haines and Petit (1997, p.268) predicted this correlation between support from general management and superiors, and user satisfaction, but was not as significant as Igbaria et al. (1997) suggested. Therefore, the study assumes that:

H.2a Top management support positively influences the perceived usefulness of HRIS.

H.2b Top management support positively influences the satisfaction of HR professionals with HRIS directly or indirectly via HRIS perceived usefulness.

4.2.2.2 Computer skills

Computing skills are an essential organisational characteristic (Al-Dmour et al., 2013) classified as a resource capability according to resources based theory (Ross et al., 1996; Wade & Holland, 2004). This source contributes to enhancing performance of individuals and enhancing image of an organisation.

HR departments use HRIS to make jobs and roles more effective (Kinnie & Arthurs, 1996). Computing skills are considered a critical factor in enhancing the implementation and exploiting the full potential of HRIS as a result maximising the value of the system (Bergeron, Rivard, & De Ser., 1990). This is supported by Kinnie and Arthur (1996) who explain that lack of IT knowledge and skills can explain failure in using HRIS. Kinnie and Arthurs (1996) also explain that the lack of training impedes the advanced use of IT which could be the result of applications reflecting practitioners' immediate operational needs instead of more long-term and strategic needs.

Users need computer skills to build their abilities and increase their productivity as well as reducing turnover and enhancing organisational competitiveness and company's image (Chatzimouratidis, Theotokasb, & Lagoudis, 2012; Mariani, Curcuruto, & Gaetani, 2013). Computing skills are simply the hands-on experience with systems and even skills gained by training (Chatzimouratidis et al., 2012; Ndubisi & Jantan, 2003). Training is strategy to develop abilities and skills in order to build abilities and find qualified people, who have enough IT knowledge to interface with basic e-infrastructure of information technology (Eightee, 1999). Constant training enhances an HR employee's broad knowledge and their perceptions about benefits and opportunities offered by HRIS. So using the system reflects in their job performance, increasing their productivity and their ability to provide a good service (Chatzimouratidis et al., 2012).

In addition, Hall and Torrington (1989, p.29) state that "unless there is sufficient training and encouragement the result may be that many people avoid the technology, feeling blocked by their lack of experience and fear of the unknown". They emphasise that computer skills are now taught more at a "clerical and professional level"; where training allows gaining computer skills and planning the career development and mixing between these skills and professional knowledge will reflect on HR staff performance (Hall & Torrington, 1989, p.30). Also, Ndubisi and Jantan (2003) point out that experience and computing knowledge are important in the formation and determination of perceptions and attitudes, and the behaviour of individuals. Yaverbaum (1988) found that user information satisfaction and job satisfaction is affected positively by regular use of computer and training in environment. Also, Haines and Petit (1997) showed that more extensive training was accompanied by significantly higher levels of user satisfaction. Igbaria et al. (1995, 1997) showed the user's belief in system usefulness and the acceptance of technology is influenced positively by computer training.

Troshani et al. (2011) investigated the adoption of HRIS in the public sector and emphasise the importance of human capability (e.g. HR required knowledge; technical skills; and communication skills) in using and adopting of HRIS in order to facilitate complex HR practices, and the necessity of training for building and sustainability a set of skills at operational and strategic levels. Mariani et al. (2013) investigated the impact of training opportunities on acceptance information technologies and showed training opportunities effects on usefulness. Therefore, it is hypothesised that:

H.3a Computer skills have a positive effect on perceived usefulness.

H.3b Computer skills have a positive effect on HR professionals' satisfaction with HRIS and directly or indirectly through HRIS perceived usefulness.

4.3.3 Social perspective

4.3.3.1 Social influence

It is assumed that an individual's attitudes and behaviour can be influenced by the attitudes of other people surrounding them towards objects (Fishbein & Ajzen, 1975). The social influence concept was used in explaining different fields (e.g. organisational behaviour and conflict), and includes the acceptance and adoption of technology (Lu et al., 2005). However, social influence has received little attention in acceptance technology research (Lee et al., 2003) and particularly in HRIS. In context of technology, social actors become as important concept in explaining attitudes and behaviour as users (Lu et al., 2005; Venkatesh & Davis, 2000). Beliefs and attitudes of HR professionals towards HRIS could be derived from people surrounding them. This has been emphasised theoretically and there are few attention for empirical studies. It is assumed that salient actors' opinions, information and behaviours influence user attitudes towards technology.

According social network theory, people can relate through their norms, information, membership, roles which will influence in their beliefs and behaviours (Coleman, 1990; Putnam & Fairhurst, 2001). Social influence could be based on social utility. Providing technology could be a chance for exchange knowledge (e.g. shared knowledge databases) and therefore the utility may increase the number of users in the workplace (Schillewaert, Ahearne, Frambach, & Moenaert, 2005). Furthermore, individual beliefs could become part of their own belief system. Social impact could be normative in nature; it can be explained via the

mechanisms pertaining to internalisation and/or identification and compliance (Kelman, 1958; Burnkrant & Cousineau, 1975).

Social influence also has been reinforced by TRA theory; where it is assumed that subjective norms can influence in the attitudes and behaviour of individuals. Burnkrant and Cousineau (1975) explain that the perceptions and attitudes of an individual towards a topic or object is influenced by knowledge and experience related to other social actors which concern the surrounding environment, especially where this awareness assists an individual in dealing with problems, or adds to and supports a person's beliefs about issues. Thus, such influences would enhance the value of an individual in an organisation and help to achieve their goals. In this context, the success of a project will be greatly influenced by the quality of social relations, particularly those that are cross-functional and are associated with departmental boundaries, including the HRM function (Tansley & Newell, 2007). Perceptions of individual can be according to what important referents have of resources and image.

Previous studies have studied social influence in terms of the impact of referent power on attitudes towards technology. If a superior or co-worker suggests that a particular system might be useful, a person may come to believe that it actually is useful, and in turn form an intention to use it (Venkatesh & Davis, 2000). Individual perceptions of a target technology are influenced by the information passed through their social networks (Fulk, 1993; Lu et al., 2005, p.250). HR professionals may be affected by the various roles of important referents, where HR managers and HR staff may be a source of encouraging HRIS and that will reflect in their attitudes and evaluation of system benefits. This study will focus on studying social influence in terms of exchanging information related to using HRIS in human resources activities. In addition, interaction and participation between individuals and IT knowledge is a source of power and is reflected in improved productivity (Venkatesh & Davis, 2000). In organisational and HRM contexts, HRIS as a tool are used to facilitate the tasks of HR staff. HR staff, as members of an HR department, interact in order to achieve their work. Therefore, the support that can be obtained from other HR staff can affect their performance. In other words, taking into account HRM activity as a set of activities linked together, contributions of HR staff in terms of encouragement use of the system and providing information and check problems assists in developing and facilitating using HRIS in area of HR activities and as a result the productivity of HR staff will increase.

The adjustment of individuals about HRIS usefulness is considered to be a result of informational social processes. This will reflect on perception of technology. With this context, Ruel et al. (2007) showed the importance of social support in using HRIS and then enhancing effectiveness of HRM. Venkatesh and Davis (2000) suggest that the cognitive belief of perceived usefulness can be influenced by the subjective norm and image, irrespective of the context. Legris et al. (2003) suggested perceived usefulness can be affected by social influences. Also, Lu et al. (2005) suppose that subjective norms and image influence perceived usefulness. Moreover, Hossain and de Silva (2009) studied the effect of strength of social ties on acceptance of technology. They concluded that strong ties are characterised by strong frequent contact where people invest much time and reciprocity, as well as trust in others sharing knowledge and decision-making. Collective efforts help in meeting needs of groups or communities and building their community capability; where a group or people in a community exchange information, stories, expertise with each other through the technology for example developed virtual community website that could influence in their attitudes towards technology. Accordingly, it is assumed that:

H.4a Social influence (support from others in the same unit) is positively related to the perceived usefulness of HRIS.

H.4b Social influence (support from others in the same unit) is positively related to satisfaction of HR professionals with HRIS directly or indirectly through HRIS perceived usefulness.

4.3.4 Technical perspective

The literature review indicates the importance of technical aspects in explaining perceptual beliefs and attitudes of users towards technology. Some of the key contributions towards overall quality of HRIS, include information, service and system quality (e.g. reliability, flexibility, ease of use). These characteristics have been suggested by DeLone and McLean (1992-2003) and Seddon and Kiew (1996). For example, users can develop their own perceptions of system quality according to both direct practice and experience as well as opinions of others throughout the HRIS development process and post-implementation. Thus, positive or negative attitudes towards its use could be produced.

HRIS greatly rely on quality since they offer a dynamic portal of various services and businesses. Quality influences perceptual constructs of system benefits, presented by perceived usefulness and user satisfaction (Seddon, 1997). This study will focus on influence of the quality of system (ease of use and flexibility), information quality, and IT staff support and number of HRIS applications on the core assessments of HRIS namely HR professionals' satisfaction with HRIS, the perceived usefulness.

4.3.4.1 Ease of use

Ease of use is an important constructs related to concepts like effectiveness of system and or acceptance and adoption of technology. The ease of use is defined as the extent of users' expecting the target system to be effortless or free from effort (Davis et al., 1989). Ease of use is usually defined as the degree of understanding that the system can be used without effort to perform the requested tasks (Davis et al., 1989). Acquisition of the required skills and knowledge of employees to use the system reflects positively on evaluating HRIS, whereas a negative attitude about using the system develops if it is difficult to use. Perceiving HRIS as easy to use is reflected in the satisfaction of employees with the HRIS and its perceived usefulness. The importance of this factor in explaining perceptions and acceptance of technology has been suggested in many studies (Davis 1989; Haines & Petit, 1997; Ruel et al., 2007). Davis (1989) and Rogers (2003) suggest this construct in their models as vital factor that impact on beliefs and attitudes, and acceptance of technology (Taylor & Todd, 1995; Venkatesh, Morris, Davis, & Davis, 2003). Davis includes this construct in the TAM model and is known as perceived ease of use. Rogers suggests this factor as an important factor in explaining level of adoption. It is known as complexity. Davis (1989) considers ease of use as cost while perceived usefulness as benefits and explains that "effort is a finite resource that a person may allocate to the various activities for which he or she is responsible" (Davis 1989, p.320). This further demonstrates that in the event of users perceiving the system to be easy to use, they require less effort to use it, thus potentially saving time for other activities, which could support increased job performance (Davis, 1989; Igbaria et al., 1995). El-Menawi (2005) argue that despite the numerous attempts made by developers of technology to incorporate the ease of use dimension to e-business (e.g.-e-commerce), different companies have opposing attitudes about whether their employees understand, accept and use e-commerce. Moreover, in addition to the technicalities of e-commerce technology solutions, it is crucial to consider novel methods of thinking, conducting business and coordination among various parties. Hence,

investigating ease of use is an important process in evaluating acceptance of HRIS even though the system is complex.

A number of studies have hypothesised the relationship between ease of use, perceived usefulness and attitudes towards HRIS. Igbaria et al. (1995) showed that perceived ease of use is a significant predictor of microcomputer perceived usefulness. In a survey study of physician acceptance of telemedicine technology, Hu et al. (1999) found that ease of use has no significant impact on attitudes of physicians towards technology and perceived usefulness. A study conducted in industry and banking by Venkatesh and Davis (2000) found ease of use has a significant influence on perceived usefulness. In a study conducted in private and public organisations in Saudi Arabia for examining acceptance of technology, Al-Gahtani (2008) showed that ease of use is positively related to perceived usefulness and attitudes towards technology. Similarly, important determinants of perceptual measures of system benefits namely perceived usefulness and satisfaction of users will be greater if HRIS are believed to be easy to use. Therefore, this study hypothesis that:

H.5a Ease of use is positively associated with the perceived usefulness of HRIS.

H.5b Ease of use is positively associated with HR professionals' satisfaction directly or indirectly via HRIS perceived usefulness.

4.3.4.2 HRIS flexibility

Flexibility is important feature. Availability of systems which are flexible is an important issue for meeting new conditions, as well as ensuring quick response. It is one of common and major measures of system performance or successful acceptance (DeLone & McLean 1992). Information requires both updates and modifications in terms of user preferences or needs, tools, external forces, all of which work in tandem. It is important for the system to have the capacity to respond to fluctuations and changes in the surrounding environment to maintain the accuracy and usefulness. System flexibility is defined as “the capacity of the information system to change or to adjust in response to new conditions, demands, or circumstances” (Bailey & Pearson, 1983, p.543). Therefore, a flexible system allows decision makers to straightforwardly change applications based on their varying needs (Wixom & Watson, 2001).

Perceptions of HRIS users toward system quality about flexibility can be formed according to direct experience with HRIS during process of development, and throughout stage of post-

implementation. It is assumed that if HR professionals perceive the system as inflexible and slow, and work poorly then negative attitudes towards usage may be produced. In the context of HRIS, aspects such as labour force modifications, and new recruitment advantages are potentially subject to change in technology using in HR and these changes can be observed by adopting the likes of new measures or metrics or visual exhibitions. Therefore, the above factors will result in diverse information needs, and in order to enhance decision making via HRIS use, these different information needs would require immediate attention. In sum, the above suggests that there is a strong relationship between system flexibility and HRIS successful acceptance. Thus, this study hypothesises that:

H.6a HRIS flexibility is positively associated with the perceived usefulness of HRIS.

H.6b HRIS flexibility is positively associated with HR professionals' satisfaction directly or indirectly through HRIS perceived usefulness.

4.3.4.3 Information quality

Generally, information is crucial element in achieving tasks and making decisions and further success of business. In a context of using technology such as information systems, information quality is considered to be an important characteristic of performance and quality of technology generally (DeLone and McLean 1992, 2003; Seddon & Kiew, 1996; Seddon, 1997). In order to understand IT use and its impact comprehensively and provide information to management and IT department, information quality is important (Nelson et al., 2005; Wonjin, 2007), though there are limited studies that identify the value of information quality in the context of acceptance of HRIS.

Information quality is a significant dimension that can affect attitudes and the roles of employees in an organisation. Individuals use information systems to meet their requirements. Judgments of users about the contribution of a system in improving their performance could be as a result of information that is gained through using the system. This will reflect in satisfaction of user with information systems that could influence use of the system or other aspect of behaviour for example, satisfaction with job or organisational commitment (Ang & Soh, 1997; Maier et al., 2013).

Information quality is defined as quality of system products or outcomes which is characterised by many features. According to Venkatesh and Davis (2000), output quality is the perception

of how well the system performs tasks necessary to the user's job. Information quality can be defined as the necessary characteristics of data used in a system which includes accuracy, currency, relevance, timeliness, reliability, conciseness completeness, format (DeLone & McLean, 1992). Dailey and Pearson (1983) offer many attributes such as timeliness, accuracy, relevance, reliability, completeness and the format of the information. Seddon (1997) defined and included several characteristics such as accuracy, relevance, timeliness, and in his definition of information quality.

In a context of HRM activities, HR professionals need accurate, complete, relevant, and current (up-to-date) information in order to achieve their tasks. This assists in performing HR activities easily and quickly, as well as meeting the requirements of other customers and improving their productivity. If the information lacks quality, HR professionals may take needless risks by adopting impractical ideas, as well as misinterpreting, or ignoring important ideas (Wonjin, 2007). For examples, Workforce analytics such as turnover metrics, performance ratios, cost of hiring amongst others indicators are examples of information needed in HR functions. Extraneous data can also distract HR professionals from addressing important indicators that need immediate attention. Therefore, out-of-date and erroneous information cannot help to improve decisions. The mismanagement of information or obtaining inaccurate and poor quality data can result in rising operational costs, ineffective decision making and a reduction in employee morale. This in turn can result in organisational mistrust, beneficiary dissatisfaction and job dissatisfaction (Redman, 1998). To ensure the relevancy of information, it is important to first identify users' information needs. In short, the key issue surrounding information quality is the difficulty of identifying data needs among users to support system developers.

This study measures information in terms of accuracy, timeliness, currency (up to date) and relevance. HRIS with required information allow HR professionals to perceive the value of HRIS. If the information provided by HRIS is incomplete, and inaccurate, the acceptance of HRIS will be reduced. Prior research has provided evidence of a significant correlation between output quality and perceived usefulness. For example, Larcker and Lessig's (1980) study suggested that there is positive relationship between information quality and usefulness. Also, Seddon and Kiew (1996) showed that information quality is an important determinant of perceptual measures of system benefits namely perceived usefulness and satisfaction of users. Venkatesh and Davis (2000) in their extended TAM model, theorised and demonstrated quality

as a cognitive predictor of the value of system use, namely perceived usefulness. Husein (2015) supposes the importance of information quality in explaining satisfaction with HRIS from perspective of HR professionals. As a result, the following hypotheses were developed:

H.7a Information quality positively affects the perceived usefulness of HRIS.

H.7b Information quality positively affects satisfaction of HR professionals directly or indirectly via HRIS perceived usefulness.

4.3.4.4 IT staff support

IT staff contribute to providing a service which is characterised by quality. Service quality becomes an appropriate criterion for evaluating the productivity of HR staff using HRIS, suggesting that efficiency generally increases when quality increases (Watson, Pitt, Cunningham, & Nel., 1993). IT staff contribute in adding value to HR staff and information systems (Watson, Pitt, & Kavan, 1998). Perceptions of users towards technology are shaped through services provided by IT staff. Dailey and Pearson (1983) introduce quality of service as the ways to interact, conduct, and associate between users and IT staff. This, according to Petter et al. (2013, p.11), is the “quality of the service or support that system users receive from the IS organisation and IT support personnel in general or for a specific IS”.

Watson et al. (1998) stated that there are numerous ways IS units can potentially increase productivity, including the provision of dependable and accurate services; providing service promptly and willingly; recruiting knowledgeable, approachable, and friendly service personnel; possessing the relevant tools for clients' needs; and providing individualised attention. HR professionals communicate with IT staff for operational help and maintenance HRIS to facilitating HR processes. Technical user support is considered a significant facilitator of user attitudes and successive acceptance.

Watson et al. (1993) explain that service quality could be a significant antecedent of user satisfaction, where deviations in user satisfaction can be as a result of a lack of understanding of their requirements or needs or misunderstanding the users' expectations. In addition, poor quality IT service leads to inefficient work and poor performance. Seddon, (1997) explain that perceptions of users towards system benefits, measured by perceived usefulness and user satisfaction, can be formed from quality service. Likewise, Igarria et al. (1997) proposed that technical support will have a direct impact on personal computing acceptance through

influencing perceived usefulness. The results showed that there was no relationship between perceived technical support and perceived usefulness. They judged that their hypotheses were inconsistent with the majority of past IS research in large firms, for example, failing to recruit internal computer specialists, as well as having a lack of IT resources. This study means that with quality service or technical support, the support that HR staff perceive is experienced through their communications with IT staff in terms of providing tangible and intangible services. Thus, it is assumed that:

H.8a IT staff support positively affects the perceived usefulness of HRIS.

H.8b IT staff support positively affects HR professionals' satisfaction directly or indirectly via HRIS perceived usefulness.

4.3.4.5 Number of applications

Applications of systems are another factor in assessing the performance of the system. The importance of HRIS applications emerges from its positive impact in enhancing performance of HR function (Ruel et al., 2007). These applications help in facilitating different HRM activities for example, keeping of employee records, communication, training and development, forecasting and planning, so on (Ball, 2001; Martinsons, 1994). Application of HRIS also is classified for administrative ends (e.g. generating reports, memos, letters, data storage/retrieval), for maintenance and development, planning intention, and controlling and guiding activities (Iwu & Benedict, 2013; Mishra & Akman, 2010; Ndubisi & Jantan, 2003). These applications can result in greater job performance and productivity.

The literature shows that the number of applications and type of applications can affect user perceptions. Automated HR activities assist in saving the time and providing better information. For example, performing labour statistics/reporting with HRIS and performing data storage/retrieval with HRIS aid in providing information and metrics which affect the performance of HR staff (Iwu & Benedict, 2013). Also, another application for HRIS is to facilitate communication internally and externally so that employees can access and update information (Panayotopoulou et al., 2007). HR professionals can also link and share data across other departments or outside an organisation. Furthermore, performing workforce planning with HRIS based on computers and the internet helps in increasing the ability of HR staff to control and monitor the labourers and then increasing performance and supports the image and

role of HR professional in an organisation (Gardner et al., 2003; Martinsons, 1994). For this study, these applications were selected depending on the literature and classified according to its purposes. Raymond (1985) and Haines and Petit (1997) indicate that a greater number of applications is associated with a greater level of satisfaction and the type of application can also affect the attitudes of employees. Teo, Soon, and Fedric (2001) studied the adoption and impact of HRIS in medium and large companies in Singapore showing that there is significant correlation between the total number of HRIS application and perceived benefits. Thus, this study assumes that:

H.9a Number of applications (routine and strategic applications) is positively associated with the perceived usefulness of HRIS.

H.9b Number of applications (routine and strategic applications) is positively associated with HR professionals' satisfaction directly or indirectly through HRIS perceived usefulness.

4.3.5 HR professionals' satisfaction with HRIS and work-related consequences

Using IT affects many aspects at individual and organisation level. HRIS usage is expected to facilitate access to information and conducting more efficient HRM processes, as well as achieving enhanced service delivery and improved strategic contributions (Hendrickson, 2003). Correspondingly, using technology could enhance the professional standing of an HR department through facilitating administrative tasks, making decisions and contributions strategic tasks (Hussain et al., 2007). Employees may have positive attitudes towards HRIS but on other hand IT has the potential to create additional work and stress in the event of system complexity (users finding difficulty to use the system), taking time to learn the system, or if it requires additional IT skills to effectively use it. This places an additional burden on employees as they may feel that they are expected to engage in additional work which goes beyond their job description. Employees may feel that it is unfair to engage in extra work as a result of learning a new system they are unfamiliar with, not to mention the feeling of being taken away from what they perceive as their main job responsibility, and this does not meet their expectation. Accordingly, this could potentially affect employee perceptions of the organisation (Parvari, Abu Mansor, Jafarpoor, & Salehi, 2014).

Theoretically, and according to the theory of reasoned action, the attitudes of individuals towards system benefits could result in other attitudinal behaviour. The impact of a user's

attitude toward technology on other aspects of behaviour in addition to or instead of system use is considered to be an important area of research on technology acceptance. This study also aims to focus on the effect of technological acceptance (satisfaction of user with HRIS) on other work-related outcomes. This in line with Brown et al. (2002) who state that it is important to contain outcomes of work as measurements of system effectiveness in meeting requirements of the user, in particular, when the system tends to be more mandatory rather than voluntary. Furthermore, DeLone and McLean (1992, 2003) postulate that perceptions of users toward system benefits (user satisfaction) could result in other impacts on individuals and organisations.

In this regard, according to Joshi and Lauer (1998) IS/IT implementation could potentially influence users' workplace based on the changes brought about by a new technology or system, thus changing users' outcomes (increase in outcomes e.g. better service to customers or decrease in outcomes e.g. reduced job satisfaction. Millman and Hartwick (1987) point out that using technology creates changes in the work and leads to many benefits for employees. For example, employees may become more motivated and satisfied leading to less absence and a lower staff turnover. Igarria and Tan (1997, p.114) mention that other studies claim computer technology as something which may impact "the nature of office work, job satisfaction, quality of social and work life". Thus, the consequences of technology implementation can be represented in organisational behaviour. Various aspects of organisational behaviour such as job satisfaction, organisational commitment, and intention turnover have been assumed to link to feelings and attitudes of people towards information technology as a tool of change (Maier et al., 2013). As individuals' perceptions of change in their jobs, and the extent of technology use in meeting the requirements of HR activities, can affect satisfaction.

Marier et al. (2013) further suggested that the two most significant concepts affecting organisational, individual and group performance are job satisfaction and organisational commitment. Satisfied employees who are committed to their organisation are more likely to exhibit higher levels of performance and productivity, organisational citizenship behaviours, and minimal withdrawal behaviours such as absenteeism and turnover (Hackett, Bycio, & Hausdorf., 1994; Meyer & Herscovitch, 2002; Patrick & Sonia, 2012; Yew, 2008). However, the literature points to the importance of evaluating the impact of attitudes about technology on other dimensions of organisational behaviour, for example, organisational commitment and intention to leave. Previous investigations which have attempted to define the relationship

between organisation and its employees suggest that employees who exhibit positive attitudes and maintain them are most likely to be satisfied with the system, thus leading to positive consequences for themselves and their staff (Parvari et al., 2014). Organisational commitment is linked to the HRM function and using technology and its applications, such as e-training, and e-performance management, could mean more chance to manage HRM activities effectively and increase performance and attachment to the organisation (Obeidat, Masa'deh, & Abdallah, 2014; Sanayei & Mirzaei, 2008).

Organisational commitment is an essential indicator of performance and effectiveness, as employees who are more committed to their firms are the power source behind the organisation's survival and success (Buchanan, 1974). Porter and Lawler (1968) also define organisational commitment as a strong belief in and acceptance of an organisation's goals along with a desire and willingness to make great efforts in order to achieve them and remain part of the organisation. Organisational commitment is a psychological and willing attachment of staff to their Organisation and the desire to avoid unpleasant outcomes if they leave it (Allen & Meyer, 1996).

In this regard, the link between individual and organisation can be defined and measured according to three dimensions; affective (emotional), continuance (necessary), and normative (moral) commitment (Meyer & Allen, 1991). Although these three dimensions of commitment cause emotional relationship of employees with the organisation that has implications to either discontinue or maintain membership with the organisation, there are variances in nature of the psychological state (Meyer & Allen, 1991; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002).

Affective commitment means the extent to which the individuals are attached emotionally towards the organisation resulted from their feeling of value participation or clear and consistent objectives (Meyer & Allen, 1991). Continuance commitment is based on the psychological state and profit or cost related to continuing or discontinuing participation. The individual is willing to continue and attach to the organisation and its goals as a result of his or her investments for example the relationships with peers, status, the seniority status in the organisation and other benefits (Allen & Meyer, 1990; Meyer et al., 2002). Normative commitment is the employees' ethical obligation or responsibility to remain with the organisation, regardless any benefits associated (Allen & Meyer, 1990; Obeidat, 2014). In addition, it is the socialisation process which occurs before and after entering the organisation

that influences normative commitment. Personal values which individuals believe in and gain from outside (e.g., familial or cultural socialization) or inside of the organisation (e.g., organisational socialisation), influence feelings of staying in an organisation (Meyer & Allen, 1991; Wiener, 1982).

Organisational commitment can be an antecedent or outcome of the reaction to change (Oreg, Vakola, & Armenakis, 2011). In this respect, individuals who have commitment to the organisation and its goals, are willing to produce effort to use technology and form positive attitudes towards change (Cunningham, 2006; Oreg et al., 2011; Vella et al., 2011). On other hand, the literature shows that organisational commitment is a consequence of change (Oreg et al., 2011; Williams & Hazer, 1986). Generally speaking, the positive and casual relationship between attitudes e.g. job satisfaction and organisational commitment, has been revealed in literature (Imam, Raza, Shah, & Raza, 2013; Meyer & Allen, 1991; Meyer & Herscovitch, 2002). User attitudes towards HRIS can influence organisational commitment. Satisfaction with technology can also affect commitment to organisation. Using technology to perform jobs has an important role in enhancing attachment to the organisation. People who have positive attitudes and who are more comfortable with technology are characterised as being more committed.

Several antecedents of affective organisational commitment are discussed on literature. The literature indicates that these are represented in what employees' experience in their work environment, for example, the opportunity to promote organisational support; job challenge; role clarity and among others (Meyer & Allen, 1991; Wiener, 1982). A positive work experiences, like job satisfaction, help to develop affective commitment (Akpınar et al., 2013; Hackett et al., 1994) and this study assumes that user satisfaction influences of affective commitment.

Using HRIS could be a chance to make performing jobs easier and give more time and efforts for strategic tasks. Since organisations seek to achieve their objectives effectively, HRIS is a tool to align employees' values with organisational values. User satisfaction is subject to the degree to which system implementation has an impact on job performance as well as adding value to an organisation. Hence, it is conceptually possible that the perceptions of users towards the impact of HRIS has further implications on other organisational behaviours, like user job satisfaction and organisational commitment (Ang & Koh, 1997).

Another type of organisational commitment is continuance commitment where attachment of people with an organisation is based on prior investments and potentially available alternatives (Meyer et al., 2002). Attachment of employees to an organisation could be the loss of established side bets (investments) in the event of the discontinuation of an action. For example, the risk of wasting time and effort obtaining non-transferable skills, loss of attractive benefits, sacrificing seniority-based privileges, or having to relocate family and putting personal relationships on hold, are all potential costs of leaving (Meyer & Allen, 1991). Continuance commitment is a function of side bets or limited alternative employment opportunities (Meyer & Allen, 1991; Vella et al., 2011). In the context of satisfaction of HR professionals with HRIS, HR staff could be more committed as a result of using HRIS. Commitment can be developed as a result of employees' feeling that technology makes their organisation and HR better than other companies which do not use it (Sanayei & Mirzaei, 2008).

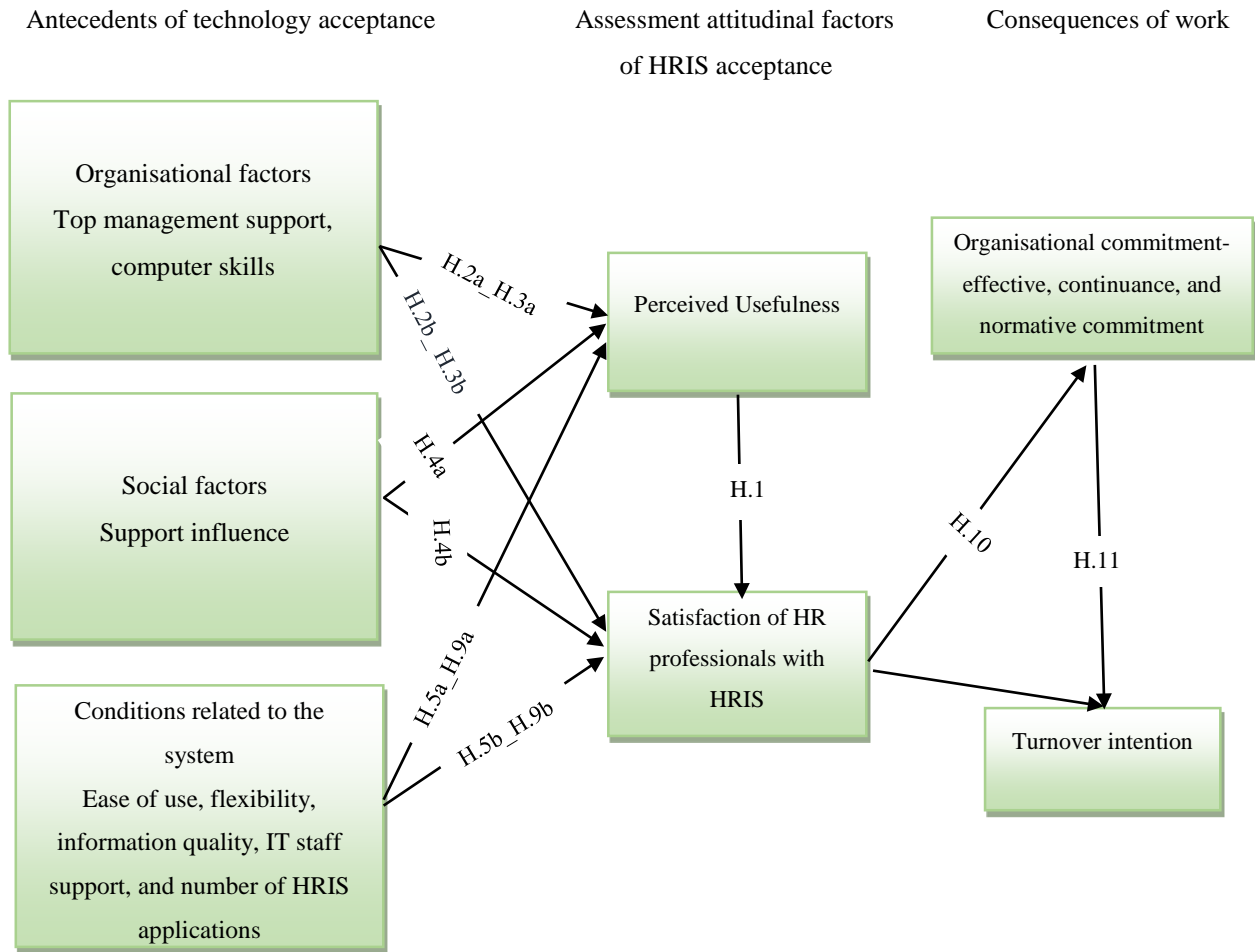
Normative commitment potentially considers an individual as someone who realises ethical considerations and has a personal attachment to an organisation. Also, the importance of organisational commitment in predicting of turnover intention has been highlighted in literature. The three dimensions of organisation commitment have inverse relationship with intention to leave (Hackett et al., 1994; Meyer & Allen, 1991; Meyer et al., 2002). It is also expected that attitudes of users towards HRIS would have strong relations with organisational turnover intentions, which could occur in individuals who fail to realise the value in the change effort or value change in the work environment or who are only committed to change due to the perceived costs of not doing so (i.e., continuance commitment) (Cunningham, 2006). Employees who perceived value of using HRIS are likely to be more committed and unlikely to leave the organisation. Further, this relationship could be mediated by commitment. This is supported by Wiener (1982, p.419) who stated that as an “attitudinal intervening process, mediating between certain antecedents and behavioural outcomes, commitment can be viewed as a motivational phenomenon”. Therefore, this study assumes that:

H.10 Satisfaction with HRIS is positively associated with affective, continuance, and normative commitment.

H.11 The negative relationship between satisfaction with HRIS and turnover intention is mediated by affective, continuance, and normative commitment.

The above assumptions are shown in the theoretical model shown in Figure 4.1.

Figure 4.1: Theoretical model



4.4 Summary of links between hypotheses and objectives and questions

Table 4.1 below clarifies the connection between the objectives, questions and hypotheses.

Questions	OBJECTIVES	HYPOTHESES
1 - 2	1-2	H1- perceived usefulness and satisfaction with HRIS
3	3	Organisational factors and perceived usefulness and satisfaction with HRIS: H.2a- H.2b - top management support H.3a- H.3b - Computer skills
3	3	Social factors and perceived usefulness and satisfaction with HRIS H.4a- H.4b - social influence
3	3	Technical factors and perceived usefulness and satisfaction with HRIS: H.5a- H.5b - ease of use H.6a- H.6b - HRIS flexibility H.7a- H.7b - information quality H.8a- H.8b IT staff support H.9a- H.9b - number of HRIS applications
4	4	H.10 - Satisfaction with HRIS and organisational commitment (affective, continuance, and normative commitment)
4	4	H.11- Satisfaction with HRIS and organisational commitment and intention to leave

4.5 SUMMARY

Whether technology satisfies the needs and requirements of users is an important concern in IT research. HRIS are an area of research where there is interaction between users (e.g. HR staff) and systems. However, although HRIS are used to support HR activities at different levels in an organisation, the level of use is still a major concern. Whether HRIS benefit HR departments and enhance their status is concern in IT and HRM research. Investigating the perceptual measures of system benefits and its determinants is significant in the processes of technology acceptance. Perceptual measures: perceived usefulness and satisfaction with HRIS can be interpreted by several factors such as computer skills, managerial support, and information quality amongst others highlighted and suggested by literature.

CHAPTER 5: METHODOLOGY AND RESEARCH DESIGN

5.1 INTRODUCTION

This chapter considers appropriate methodological techniques for obtaining the data required to test the model. Methodological factors consist of ontological and epistemological assumptions, along with the methods and techniques of collecting and analysing data.

5.2 PHILOSOPHICAL POSITION

IT research in general (and HRIS research in particular) focuses on the implications of information systems and their environments at both an individual and organisational level. The current research focuses on surveying the dimensions of the acceptance of technology by HR professionals, and its implications for HR professionals. Technology acceptance research often adopts a scientific process for acquiring knowledge.

Generally speaking, researchers depend on different methodologies to investigate the phenomena they study. The definition of a philosophical position assists in specifying a suitable research strategy and effective methods of answering the research questions (Easterby-Smith, Thorpe, & Jackson, 2012). The philosophical perspective is an approach towards building assumptions relating to the nature and reality of the phenomenon under study, which plays a role in identifying research methods (Saunders, Lewis, & Thornhill, 2003).

Ontology and epistemology are the most important philosophical assumptions on which researchers depend for developing research methodologies. Ontological assumptions deal with viewing and presenting the nature of reality, while epistemological assumptions concern the most effective means of eliciting knowledge relating to reality. These two assumptions assist in designing and planning the most effective method of identifying and using specific methods of investigating the phenomenon being studied, in conjunction with data collection (Crotty, 1998).

Philosophical positions extend from the objective/positivist viewpoint to the subjective/interpretivist viewpoint. Saunders, Lewis, & Thornhill (2012) and Easterby-Smith et al. (2012) state that ontology constitutes a means of viewing and presenting the nature of reality. This form of philosophy supposes that philosophical assumptions concerning the nature of the social world are based on two views: (1) objective (also known as rational or realism,

which adopts the viewpoint of the natural sciences); (2) subjective (also known as radical or nominalism). The philosophy of epistemology can be positivist (i.e. adopting objective reality) or interpretivist (i.e. adopting a subjective viewpoint) (Holden & Lynch, 2004). Mason notes that:

Your epistemology is, literally, your theory of knowledge, and should therefore concern the principles and rules by which you decide whether and how social phenomena can be known, and how knowledge can be demonstrated. (2002, p.16)

It therefore forms the relationship between the researcher and what is known and is related to the ontological stance.

Adopters of the objective/positivist philosophy regard the social world as a standard consistent element, or as an objectively presented reality in which a social phenomenon is a specific entity acting according to the standards (or norms) specified, without taking into account individual feeling (Easterby-Smith et al., 2012; Wedawatta, Ingirige, & Amaratunga, 2010). In the positivist paradigm, a model is adopted to describe and explain the social world (Henderson, 2011; Walker, 2005), viewing the existence of an external reality as being created of tangible structures (or specific laws) that are discoverable (Gill & Johnson, 1997). A deductive approach (or logic) is related to positivism. Hypotheses are derived from the relevant theoretical framework and tested to measure causal relationships between variables (Blaikie, 2009; Holden, 2004).

In contrast, subjective/interpretivist research treats reality as neither rigid or objective, and considers that there are many facts (or multiple meanings) of realities which can be induced through the interactions of individuals. The researcher interacts with the real social world and explores and understands the phenomenon or event (s) according to his or her experience and knowledge, in order to gain (or develop) theory (Crossan, 2003). Easterby-Smith et al. (2012, p.70) state that the: “interpretation of events is through experiences of individuals rather than focusing on the causal factors and laws” or measurements. Inductive logic (i.e. inductive research) is primarily correlated with interpretive research, in which the phenomenon is not structured, and one focus of the study concerns the generation of the theory relating to the phenomenon (Saunders et al., 2012). This philosophical stance is associated with qualitative approaches (Saunders et al., 2012).

Table 5.2 Contrasting implications of positivism and social constructionism or interpretivism

Items	Positivism	Interpretivism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through	Hypotheses and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be defined so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to the simplest terms	May include the complexity of whole situations
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	A small number of cases chosen for specific reasons

(Source: Easterby-Smith, Thorpe & Jackson, 2012).

Accordingly, a positive epistemology was followed because it is the most appropriate and compatible with the research process and its purposes. Particularly, this research is based on a theory of technology acceptance which is based on reasoned action and planned behaviour theories. A deductive approach was mainly adopted to address the attitudes and behaviour in these theories.

This study is based on an ontological assumption that HR professionals' acceptance of technology is based on its positive influence and perceived usefulness, as reflected in the attitudes and opinions of users towards HRIS use, and its support for their status within their organisation. These attitudes have the ability to influence further behaviour. The ontological suppositions of the current study therefore address the fact that there are a considerable number of abilities (e.g. organisational, social and technical) related to the use of an information system which impact on the user's attitudes and behaviour. This study therefore adopts an objective/positivist philosophy with the aim of identifying the relationship between

organisational, social and technical variables along with an acceptance of technology and its impact on the user. The hypothesised model was established to reflect the theory and a quantitative approach was used to test the hypothesised relationships.

The purpose of the current research is to form and confirm a descriptive research method. Its aim is to identify and explain many of the issues raised by previous models in relation to environmental factors affecting the ability of the system to fulfil user requirements. This research is also exploratory due to the lack of existing studies into the perceptions of HR professionals in relation to the acceptance of technology and information systems particularly in the context of Libyan companies. In order to investigate these issues empirically, a number of approaches and techniques were adopted. This research employs a quantitative approach, as the most appropriate strategy to design and collect data.

5.3 METHODOLOGICAL APPROACHES AND METHODS

This research follows on previous studies related to the TAM model and success model in order to investigate and examine the perceptions of HR practitioners concerning the use of HRIS, along with the impact of such perceptions on behaviour patterns. A quantitative approach is employed primarily to survey the attitudes of users concerning technology (Lee et al., 2003). The reasons for selecting a quantitative approach are: (1) it aims to test theories based on supposed relationships between variables comprising the phenomenon being studied; (2) the study's model has been developed based on previous IT studies and organisational behaviour, and therefore seeks to establish the correspondence between findings; (3) validation of the effect of the variables' relationships will be by means of statistical applications and techniques

5.4 DATA COLLECTION

The objective of this study is to undertake cross-sectional research examining the influence of social, organisational and technical factors on HR professionals' perceptions and acceptance of technology in Libyan companies. A further objective is to examine levels of satisfaction, forming an important dimension of the acceptance of technology and system success affecting other aspects of organisational behaviour. This study adopts a survey research design for collecting information. Ghauri and Gronhaug (2010, p.118) state: "the survey is an effective tool to get opinion, attitudes and descriptions, as well as for capturing cause-and-effect relationships". It is a suitable approach to collect data and information towards features,

actions, attitudes related to the subjects being investigated which could be organisations, groups, individuals and systems. The study's objectives are a key point in the design of the research, due to the fact that addressing the phenomenon being studied requires the following: (1) appropriate information; (2) suitable sources of information; (3) the design technique; (4) the sampling methodology; (5) resources to cover the schedule and cost of the research (Cohen, Manion, & Morrison, 2005). Survey design includes many procedures: "(1) questionnaire construction; (2) sampling selection; (3) data collection through either interviewing or self-administrative questionnaires" (Rubin & Babbie, 2001, p.383). This study employs on a self-administered questionnaire which was designed and distributed by hand to HR staff to collect data.

5.4.1 SAMPLING PROCEDURES

5.4.1.1 Population and unit of the research

An important issue in the process of sampling concerns the research population. Thus, units of study need to be adequately determined. In this research, the unit of study is HR professionals and practitioners responsible for HR activities in an HRM department and who use HRIS to perform their job. This study applies in companies dominated by National Oil Corporation fully and governmental banking institutions in east and west (Tripoli) areas. The population of HR professionals who could be surveyed is estimated to be in the region of 10,000.

These sectors were selected because they contribute to the developing economy of the country and influence other industries. Additionally, these targeted companies have, over the past few years, focused on the adoption of technology throughout all their activities with HRM being an important aspect of this development. The status of this activity in Libya has not yet achieved that of developed countries, however, decision makers are seeking to develop HRM activities through formatting, legislation, policies, and infrastructures (Abdulrahim, 2011).

HR professionals were selected because they interact with the system and are therefore in a position to give information concerning their perceptions of information systems. HR professionals in the selected companies were given a survey to complete (450) in 2015.

5.4.1.2 Type and size of the research sample

In light of the difficulty of acquiring a suitable sampling frame due to regulations in Libya and the limited resources available for carrying out the research, non-probability sampling is employed. Non-probability sampling includes various methods, for example, purposive, quota, snowball, convenience sampling, Table 5.3 provides definitions related to these types. However, this study includes HR professionals who work in oil, gas and banking. No specific characteristics (gender, position etc.) or subgroups are required and HR staff in the workplace are targeted, therefore, convenience technique is an appropriate technique. Where, "convenience sampling technique is applicable to both qualitative and quantitative studies, although it is most frequently used in quantitative studies while purposive sampling is typically used in qualitative studies" (Etikan, Musa, Alkassim, 2016, P.3).

In terms of convenience sampling, Battaglia, Michael (2011, p.525) says that "the primary selection criterion relates to the ease of obtaining a sample. Ease of obtaining the sample relates to the cost of locating elements of the population". Sekaran and Bougie distinguish between probability and non-probability samples as:

"the elements in the population having some known, or non-zero chance or probability of being selected as sample subjects, while in non-probability sampling design, the population do not have any probabilities attached to their being chosen as sample subjects. This means that the findings from the study of sample cannot be confidently generalised to the population". (2010, pp. 267 - 277)

It appears that nonprobability sampling linked with small samples does not guarantee the ability to generalise to a large scale, and can prove biased and less reliable as representative views may not be obtained. However, convenience methods do not necessarily include bias if representative subgroups are included such that the sample while not strictly random is to reasonable intents and purposes treatable as random. Also, Bryman (2016, 187) argues that non-probability (convenience sampling) "plays a more prominent role than is sometimes supposed. Certainly, in the field of organisation studies it has been noted that convenience samples are very common and indeed are more prominent than are samples based on probability sampling. Social research is also frequently based on convenience sampling".

In this study, the convenience sample included HR professionals who were available and decided to participate in the current study. The survey was conducted in the workplace so that HR professionals who use HRIS had the chance to be a participant. Furthermore, convenience sampling is reliable in terms of limited resources when true random sampling is impossible to obtain.

Table 5.3 Non-probability sampling methods

Type of Sampling	Selection Strategy
Convenience	Select cases based on their availability for the study.
Purposive	Select cases that judged to represent similar characteristics.
Snowball	Group members identify additional members to be included in the sample.
Quota	Interviewers select a sample that yields the same proportions as the population proportions on easily identified variables.

(Henry p.18) cited in Latham (2007) p.5

There is general agreement that the greater the sample size, the more the ability to generalise to the wider population (Kervin 1992; Raykov & Marcoulides, 2006). However, the factors affecting the size of a sample still remain of interest to researchers (Raykov & Marcoulides, 2006). In this context, Gorsuch (1983) and Hair, Black, Babin, and Anderson (2010) suggest at least 100 cases for conducting analysis for example, factor analysis. Sudman (1976) and Kline (2010) state that a minimum sample size should ideally be 200 and in the current study the sample size was 258. Larger samples gives help to overcome sampling errors and thus generalise to the wider population. The researcher connected in-person with each HRM department in target companies to explain who the target respondents are, i.e., HR professionals using HRIS.

5.4.2 Questionnaire design and scales and measurement

This research aims to examine the assumptions related to the impact of a number of factors on HR professionals' acceptance of HRIS. The study was conducted in a number of areas within

Libya and used a survey to collect data from a large number of respondents.

There are a number of disadvantages resulting from the use of a survey (e.g. low rates of response; lack of opportunity for explanation and interpretation and obtaining further information; the capability of respondents to answer questions on language; incomplete answers. However, there are also a number of positive aspects, including: low cost; flexibility of distribution (i.e. internet or third party); ease of access to respondents; distribution to a large number of respondents.

Guyette (1983, 34) notes that, “the decision of respondents with regards to answering the questionnaire can be affected by the questionnaire’s format and precision, and therefore the quality of the research”. There are also a number of techniques for overcoming the negative aspects of using a survey. These include techniques to motivate the participation of the respondents in order to overcome the expected low response rate (Diamantopoulos & Souchon, 1996). These include: a sponsor; a covering letter containing a brief explanation of the objectives of the study and the importance of the participant’s contribution; a wording and a survey format that is clear, brief and relevant to the purpose of the study; lack of complexity and including one idea; omitting jargon; lack of bias (Guyette, 1983; Ghauri & Gronhaug, 2010). Further information could be gained by asking participants to provide information related to their experience with using of technology. Also, the researcher meets HR managers to explain the study’s aims.

The design of a questionnaire plays a major role in measurement, through first engaging and then obtaining the required (and complete) replies from respondents. The researcher needs to take into account the practical steps for the design of the research, including: items and questions that are appropriate; clarity; precision; and elegance. Despite the length of the current survey, the participant is only required to tick the appropriate response option, and the draft survey was tested and revised. During testing, the draft survey was found to be straightforward to complete and did not take more than 25 minutes. Additionally, a pilot study was conducted.

This research depends on a survey tool, encompassing a number of parts. Surveys are widely employed in developing countries, and the researcher translated the survey into Arabic. The survey consists of four sections focussing on: (1) demographic information for respondents and general information concerning their organisations; (2) the dimensions of the acceptance technology; (3) the perceptions of participants in relation to organisational, social, and

technical issues; and (4) the dimensions of organisational behaviour. The statements are measured on the Likert scale, ranging from ‘strongly agree’ (5); ‘agree’ (4); ‘neither agree nor disagree’ (3); ‘disagree’ (2); ‘strongly disagree’ (1). The survey includes several items to measure each variable which will be presented in the next section (for more details see Appendix 1). The questionnaire was formed according to the related literature and some items were modified to suit the context.

The multiple survey methods employed in multiple research disciplines, including technology and information systems area, suggest a range of high-quality survey instruments (Twati, 2006). Examples of widely employed instruments, which are adopted in this study, are TAM instruments and Allen and Meyer’s commitment instruments among others.

5.4.2.1 Scales and measurements

In this study, several measures are used to examine technology acceptance. The following section describes variables of study and its scales.

5.4.2.1.1 Perceived usefulness

Perceived usefulness is defined as “the extent to which users believe that using an HRIS tool is critical in their work situation” (Ruël et al., 2007, p.286). This study uses on items from Davis (1989) and Seddon (1996). Perceived usefulness is based on perceptions about expected benefits and outcomes of the experience. Nine statements developed by Davis (1989) and Davis et al. 1989) were used to measure perceived usefulness. These items related to the speed of accomplishing tasks, improved job performance, increased productivity, enhanced job effectiveness, easiness and usefulness in the job. Example items: “Using HRIS improves my job performance” and “HRIS addresses my job-related needs”.

5.4.2.1.2 Satisfaction with HRIS

Seddon (1997) “defines user satisfaction as a subjective evaluation of the various individual, organisational, and societal consequences of IS use” (Hosnavi & Ramezan, 2010, p.32). Satisfaction with HRIS was measured by the adoption of measures from Seddon and Kiew (1996), Davarpanah and Mohamed (2013), and Beadles et al. (2005), Hussain et al. (2007). The satisfaction of HR professionals with HRIS reflects the attitudes of HR practitioners towards the system when it comes to supporting their status within the organisation. User

satisfaction measures overall affective feelings with regard to meeting the expectations including the needs of the user in the area of HR, supporting the importance of the HR department, supports professional status and overall satisfaction. The instrument consists of ten items, measured on a Likert scale. The statements measure aspects of satisfaction with HRIS in terms of functional characteristics related to the contribution of the system in supporting the status of human resources professionals. Example items are: “The HRIS has met my expectations for what I hope to do with regards to HR activities” and “In general, I feel that HRIS supports my professional status”.

5.4.2.2.1 Top management support

Senior management support was measured according to previous studies (e.g. Jarvenpaa and Ives, 1991; Igbaria et al., 1997). The support of senior management was measured in terms of moral or material support, knowledge of IT and involvement with HRIS. This section of the survey consists of eleven statements; each being measured on a Likert scale. Examples are “Top management recognises HRIS as a tool to increase the productivity of HR professional” and “There is enough support from top management for requirements of applications of HRIS for example material requirements (hardware and software)”.

5.4.2.2.2 Computer skills

This study measures computer skill through the emotions of the user towards training they receive within the organisation and experience of using HRIS. Computer skill was operationalised using statements from Ruël et al. (2007), Mariani et al. (2013) and Schillewaert et al. (2005). This section includes five statements, each measured on a Likert scale, ranging from ‘strongly disagree’ to ‘strongly agree’. Items measure IT skills obtained through using HRIS and appropriateness and continuation of training. Examples are: “Since the implementation of HRIS, I received special training in functional delivery”, and “The organisation trains employees who are responsible for running the system constantly in order to overcome lack of technological experience”.

5.4.2.2.3 Social influence

Social influence is defined as “the extent to which users feel there is a support from HR staff and managers in using HRIS” (Ruël et al., 2007, p.286). It reflects social influence between HR staff whether they are managerial or non-managerial. This construct was measured with a

ten- item scale from Boynton, Zmud, and Jacobs (1994), and Venkatesh and Davis (2000). These items measure social climate in terms of HR staff knowledge of the value and potential of HRIS and encouragement and collaboration between them with regards to using HRIS. Examples items are: “There is cooperation between employees who run HRIS with each other” and “There is an agreement over important issues between the managers of the different units that are used HRIS”.

5.4.2.2.4 Ease of use

Davis (1989) and Davis et al. (1989) measure ease of use, with six items. Their scale addresses “how clear and understandable is the interaction with system, ease of getting the system to do what is required, mental effort required to interact with the system, and ease of use of system” (Ndubisi & Jantan, 2003, p.441). Example items are: “I have a high understanding of the use of the HRIS” and “Learning to use HRIS is easy for me”.

5.4.2.2.5 HRIS flexibility

Another variable influencing successful acceptance is HRIS flexibility. This construct is defined as “the capacity of the information system to change or to adjust in response to new conditions, demands, or circumstances” (Bailey & Pearson, 1983, p.543). The system’s flexibility employs the measurement systems of Bailey and Pearson (1983), and Wixom and Tod (2005), with the variable measured on three items related to flexibility of HRIS to meet various needs, adaption to changes and addressing needs any time. An example item is: “HRIS can be adapted to meet a variety of needs”.

5.4.2.2.6 Information quality

Information quality was measured according to (Bailey & Pearson 1983, Hussein, Abdul Karim, & Selamat, 2007). There are five items measuring, accuracy, relevance, and up-to-date, examples of items are: “The information generated through HRIS is accurate” and “HRIS provides appropriate information that meets needs of users for achieving HR tasks and processes”.

5.4.2.2.7 IT staff support

IT staff support was operationalised by utilising Bailey and Pearson’s (1983) and Davarpanah and Mohamed’s (2013) statements. IT staff support reflects “the manner and methods of

information exchange, interaction, conduct, and association between the user” and the IT staff (Bailey & Pearson, 1983, pp.439-340). The measure is used to scale the quality of service and support from IT staff, including: responsiveness; accuracy; reliability; technical competence; empathy. There are nine statements employed to scale this variable. Example items are: “Interaction between employees who run HRIS and IT staff is cooperative and productive” and “IT staff show a sincere interest in solving user problems”.

5.4.2.2.8 Number of HRIS applications

A further factor concerns number of HRIS applications. Where there are many applications, respondents are asked to select the tasks which can be performed through HRIS. This study classifies the applications of HRIS including routine and strategic purposes according to previous research. Number of HRIS applications consists of nine items and is measured on scales ranging from 1 never or to a very little extent; to a little extent is coded 2; to some extent is coded 3; to a greater extent is coded 4, to a very great extent is coded 5. Statements are related to particular job tasks that can be performed by HRIS, for example for performing HR statistics and reports, storing and retrieving data, communication, planning, maintenance and development, and making decisions. These items were based on Igarria et al. (1997), Ndubisi and Jantan (2003), Mishra and Akman (2010), Iwu and Benedict (2013). Example items are: “Performing labour statistics/reporting with HRIS” and “Performing workforce planning and forecasting with HRIS i.e. skills inventory, job analysis and design, succession planning”.

5.4.2.9 Organisational commitment and intention to leave

Affective commitment (AC), continuance commitment (CC) and normative commitment (NC) were measured using Allen and Meyer’s commitment scales. The survey consists of nineteen statements, each scaled on five degrees of a Likert scale. Multiple items were used to measure three dimensions (AC, CC, and NC). Example item of AC is, “I enjoy discussing my organisation with people outside it”. An example CC item is, “It would be very hard for me to leave my organisation right now, even if I wanted to”. An example NC, example item is “One of the major reasons I continue to work for this organisation is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain”.

Another construct is intention to leave measured with 3 items. An example is: “I think often about quitting my job at my current company”.

5.4.3 Pre-testing

A few surveys were sent by e-mail to HR professionals working in oil and gas companies and banking companies for feedback on design and formation. The researcher also asked a number of PhD researchers their opinions concerning the statements in order to detect any ambiguity in the formulation of phrases. This feedback identified some further improvement.

5.5 Validity and reliability

The validity and reliability of the study instruments are important issues when undertaking research, indicating the extent to which the data obtained from the questionnaire is free from error. Ghauri and Gronhaug (2013) note that:

When we measure something we want valid measures, that is measures capturing what they are supposed to capture. However, measurements often contain errors, the observed measurement score may (more or less) reflect the true score, but may reflect other factors as well, such as: varying of people in response set, transient personal factors, and situational factors. (p. 78)

5.5.1 Validity

Content and construct validity are the basic and widely used forms of validity (Sekaran and Bougie (2010, p.158). Content validity is defined as “the degree to which a measure covers the range of meaning included within a concept”, while “construct validity is the degree to which a measure relates to other variables as expected within a system of theoretical relationships” Babbie (2013, pp.191 - 192). Sekaran and Bougie (2010) perceive that:

Construct validity is assessed through convergent and discriminant validity, which are explained below. Convergent validity is established when the scores obtained with two different instruments measuring the same concept are highly correlated. Discriminant validity is established when, based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so. (p.160)

Ghauri and Gronhaug (2013, p. 82) are of the opinion that “construct validity can be assessed by the use of factor analysis.”

In this study, content validity was established through the pre-test study with HR experts as well as from the literature. Convergent validity was assessed through measuring how scales are correlated with each other and indicate the same constructs. This assessment was conducted through factorial validity (further details in chapter 6).

5.5.2 Reliability

Reliability is an important technique in quantitative research, as it demonstrates to what extent the instruments (or measurements) are accurate when extracting the required data related to the phenomenon under study. Sekaran and Bougie (2010, p.161) state that “the reliability of a measure indicates the extent to which it is without bias (error free) and hence ensures consistent measurement across time and across the various items in the instrument.” Sekaran and Bougie (2010) argue that consistency as a measure of reliability relates to the homogeneity of items in a construct. This means the items should form a set, and be capable of measuring the same concept independently; allowing, respondents to attach the same meaning overall to each of the items. This can be evaluated by measuring the correlation between the items and the subsets of items. The most common method used to test internal consistency is Cronbach’s Alpha (Rubin & Babbie, 2001; Sekaran & Bougie, 2010). Cronbach’s Alpha is a reliability coefficient that indicates how well the inter-correlations between the items measure the concept: the closer Cronbach’s Alpha is to 1, the higher the internal consistency reliability (Sekaran & Bougie, 2010, p.324).

Previous studies demonstrated scale reliability and the results of pre-test correspond with this. Table 5.4 indicates these findings. (Further details about reliability in this study are presented in Chapter 6).

5.6 ETHICAL CONSIDERATIONS

There are several essential ethical considerations (i.e. “voluntary participation, informed consent, no harm, confidentiality and anonymity”) which research should comply with (De Vaus 2002, p.59). In this study, crucial ethical processes were followed in order to identify and contact the participants. The project was approved by the Business School Research Ethics Community. Also, the researcher got a support letter from the Libyan Ministry of Higher Education and Scientific Research that was delivered to targeted companies to get permission to conduct the study. This letter was attached to the survey. This letter gives a brief introduction

about the topic of the study and encourages the participants to contribute voluntarily. Also, the research questions do not cause any concern or inconvenience or harm for the respondent. Furthermore, this study is based on anonymous, voluntary, and confidential participation. Respondents consented to participate and could withdraw at any time. Finally, confidential treatment of responses was conducted and data used for the research purposes only.

Table 5.4 shows the reliability coefficient (Cronbach's Alpha) of study's constructs across studies and periods

variables	Reliability Pre-test	Reliability of previous studies
Perceived usefulness	0.911	0.98 David, (1989), 0.83 Ang & Soh, (1997), 0.90 Ndubisi & Jantan, (2003), 0.867 Kassim et al., (2012), 0.77 Husein, (2015)
User satisfaction	0.742	0.95 Seddon & Kiew, (1996), 0.967 Davarpanah & Mohamed, (2013), 0.80 husein, (2015)
Top management support	0.721	0.92 Igbaria et al., (1997), 0.87 Bajwa et al., (1998), 0.89 Teo et al., (2007)
IT skills	0.926	0.83 Rue'l et al., (2007), 0.74 Mariani et al., (2013)
Social influence	0.919	0.78 Boynton et al., (1994), 0.90 Venkatesh & Davis, (2000)
Ease of use	0.903	0.94 David, (1989), 0.88 Ndubisi & Jantan, (2003), 0.753 Kassim et al., (2012), 0.79 husein, (2015)
Flexibility	0.877	0.86 Wixom & Tod, (2005)
HRIS applications	0.881	alpha values were exceeding 0.60 recommended in Igbaria et al., (1997), Ndubisi & Jantan, (2003)
Information quality	0.973	0.94 Hussein et al., (2007), 0.83 Davarpanah & Mohamed, (2013)
IT staff support	0.954	0.92 Igbaria et al., (1997), 0.726 Davarpanah & Mohamed, (2013)
Affective commitment	0.795	0.73 Vella et al., (2011), 0.82 Meyer & Herscovitch, (2002), 0.84 Elias, (2009), 0.944 Obeidat1 et al., (2014)
Continuance commitment	0.792	0.74 Vella et al., (2011), 0.73 Meyer & Herscovitch, (2002), 0.936 Obeidat1 et al., (2014)
Normative commitment	0.633	0.80 Vella et al., (2011), 0.76 Meyer & Herscovitch, (2002), 0.841 Obeidat1 et al., (2014)
Intention to leave	0.991	0.96 Cunningham, (2006), 0.96 Maier et al., (2013)

5.7 DATA ANALYSIS

Data analysis was conducted using SPSS version 20 and the PROCESS developed by Andrew Hayes was used to analyse mediation. Both descriptive and inferential statistics were used. Descriptive statistics (frequencies and percentages) are deduced from results to give insight about demographic information related to respondents and general information concerning their organisations. Regression analysis was performed to further test the hypotheses and the relationships between variables. Each variable was given an abbreviation for convenience for conducting the analysis. Abbreviations are shown in Table 5.5.

5.8 SUMMARY

A quantitative approach was adopted to test the hypotheses. Each construct was operationalised using statements from existing instruments.

This research aims to examine the assumptions related to the impact of organisational, social, and technical factors on HR professionals' acceptance of technology and its impact on organisational behaviour, including the perceptions of HR practitioners towards HRIS and its impact. The study was conducted in a number of areas within Libya and adopted a survey questionnaire to collect data and generate findings from a large sample. The next chapter will show the results obtained.

Table 5.5 Abbreviations of variables

Variables name	Variable Abbreviation
Satisfaction with HRIS	SAT
Perceived usefulness	PU
Top management support	TMS
Computer skills	CSK
Social influence	SI
Ease of use	EOU
Flexibility	FLX
Information quality	INFQU
IT staff support	ITS
Applications of HRIS	APPL
Routine application	RAPPL
Strategic application	SAPPL
Organisational commitment	OC
Affective commitment	AC
Continuance commitment	CC
Normative commitment	NC
Intension to leave	ITL

CHAPTER 6: DATA ANALYSIS

6.1 INTRODUCTION

This chapter compares empirical data with the proposed model. Section 6.2 tests a measurement model, section 6.3 provides statistical evidence about correlation analysis and multicollinearity, section 6.4 gives information about normality of data, section 6.5 focuses on descriptive analysis related to demographic and general information about respondents, structural modelling appears in 6.6.

6.2 MEASUREMENT MODEL TEST

This test is important because it indicates the quality of measurements used for measuring perceptions and acceptance of HR professionals of HRIS and order to test the hypothesised structural model, the measurement model test should be conducted first. The measurement model test was conducted through estimating several criteria such as reliability (internal consistency) and validity.

6.2.1 Reliability - Cronbach's alpha

Reliability assesses whether measurement is consistent across the various items in a scale and is an important condition for construct validity (Hair et al., 2010). In this study, the measurement model includes several measurements for example, satisfaction with HRIS, perceived usefulness, top management support, social influence, ease of use, HRIS flexibility, quality information, IT staff support, HRIS applications, organisational commitment (affective, continuance, and normative commitment), and intention to leave. Consistency as a measure of reliability relates to the homogeneity of items in a construct. This can be evaluated by measuring the correlation between the items and the subsets of items. The most common method used to test reliability is internal consistency (Pallant, 2011). Table 6.1 shows all alpha coefficients between 0.80 and 0.93 which means acceptable reliability. Some items were deleted because of low Cronbach's Alpha.

Table 6.1 Variable reliability

Variables	Number of items	Number of deleted items	Cronbach's Alpha before deleting	Cronbach's Alpha after deleting
Satisfaction with HRIS (SAT)	10	1 item- No 7	0.868	0.879
Perceived usefulness (PU)	9	0	0.904	-
Top management support (TMS)	11	0	0.933	-
Computer skills (CSK)	5	0	0.798	-
Social influence (SI)	10	0	0.889	-
Ease of use (EOU)	6	0	0.866	-
Flexibility (Flx)	3	0	0.895	-
Information quality (INFQU)	5	0	0.897	-
IT staff support (ITS)	9	1 item-No 4	0.742	0.858
Applications of HRIS (APPL)	9	0	0.839	-
Routine applications (RAPPL)	3	0	0.813	-
Strategic applications (SAPPL)	6	0	0.877	-
Affective commitment (AC)	6	0	0.753	-
Continuance commitment (CC)	8	2 items-No 1,4	0.776	0.834
Normative commitment (NC)	5	1 items-No 1	0.678	0.833
Intention to leave (ITL)	3	0	0.922	

6.2.2 Validity of measurement

Validity can be defined as “to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration” (Rubin & Babbie, 2001, p.193). Construct validity is defined as “the degree to which a measure relates to other variables as expected within a system of theoretical relationships” (Rubin & Babbie, 2001, p. 193). Validity can be assessed in examining convergent and discriminant validity (Sekaran & Bougie., 2010). Factor analysis can be used for assessing construct validity (Ghauri & Gronhaug, 2010).

In this study, convergent validity was assessed through factor analysis based on principal components, which is a common technique for indicating and extracting similar factors describing the underlying relationships among the variables in terms of their common underlying dimensions. However, before examining factorial validity for measurements, the

suitability of sample data set for conducting factor analysis was examined. This was confirmed by testing the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. According to Pallant (2011, p.183) "Bartlett's test of sphericity should be significant ($p < .05$) for the factor analysis to be appropriate. The KMO index ranges from 0 to 1, with 0.6 suggested as the minimum value for a good factor analysis (Tabachnick & Fidell, 2007). In this study all the KMO values were more than .60 and Bartlett's test was significant ($p < 0.05$) and thus factor analysis is valid, (for more details, see Appendix 2 (a) Table 2.a1).

The results also indicated that only one component or factor was generated for each construct such as satisfaction with HRIS, perceived usefulness, top management support, social influence, ease of use, HRIS flexibility, quality information, IT staff support, affective commitment, continuance commitment, normative commitment, and intention to leave. However, routine applications and strategic applications divided into two components. These two factors had high reliability after dividing (as shown in Table 6.1). Additionally, the variance explained by each of these factors was more than 0.50. All factor loadings for items ranged from 0.60 to 0.95. This means that the items fit well with the other statements in the scale. Comery and Lee (1992) and Hair et al. (2010) recommend that any variable less than 0.55 could be removed in order to improve the quality of measurement. Thus, convergence of measures was demonstrated and is suitable for further analysis (Pallant, 2011).

Sekaran and Bougie (2010, p.160) state that "discriminant validity is established when, based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so". Discriminant validity assesses that the degree to which the construct (its measurement items) are distinguished from another construct's measurement items. In other words, the variables were associated more with their indicators than with other variables in the model (Igarria et al., 1997).

Discriminant validity can be diagnosed by comparing the relationships between variables (knowing as the shared variance among variables) and the square root of average variance extracted (AVE) for other variables. The discriminant can be valid when the square roots of the AVEs, which are located on the diagonal of the matrix, is greater than off-diagonal elements in the corresponding row and columns (i.e. correlation of two variables) (Fornell & Larcker, 1981; Hair et al., 2010; Igarria et al., 1997). Table 6.2 displays the inter-correlations amongst the study variables. According to these criteria, the information in Table 6.2 demonstrates discriminant validity as the square root of the AVE for each variable on the diagonal was higher

than other off-diagonal values (squared inter-construct correlation estimations). To sum up, according to the above criteria, the convergent and discriminant validity of all measures was acceptable.

6.3 CORRELATION ANALYSIS AND MULTICOLLINEARITY

Table 6.3 shows the Pearson correlation matrix for all constructs in the model and shows that independent variables have at least some correlation with the dependent variable mostly above .30. For example, there are substantial correlations between independent variables (TMS, CSK, SI, EOU, and others) and dependent variables (SAT and PU). Table 6.4 also shows Pearson correlations between independent variables. Multicollinearity occurs when the correlation among two independent variables is more than 0.90 (Hair et al., 2010; Pallant, 2011). The results show that the correlation between each of independent variables was acceptable.

Multicollinearity was also examined by performing collinearity diagnostics via the tolerance and variance inflation factor (VIF) (Hair, Black, Anderson, & Tatham, 2006; Pallant, 2011). Pallant (2011, p.158) says that “tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables in the model”. Multicollinearity can be suggested when the value of tolerance is very small (less than .10) also, the multiple correlation between independent variables can occur when VIF values are above 10. The results show that tolerance value for each independent variable is higher than suggested value (0.10). Also, the VIF value for each independent variable is less than the cut off value of 10.0. (See Appendix 2 (c1) and (c2), Table 2 c1.4 and Table 2 c2.4 for more details)

Table 6.2 Discriminant validity and the square root of average variance extracted (AVE) for all variables

constructs	SAT	PU	TMS	CSK	PSI	EOU	FLX	INFQU	ITS	RAPPL	SAPPL	AC	CC	NC	ITL
SUMSAT	0.713														
SUMPU	.475	0.764													
SUMTMS	.501	.355	0.775												
SUMCSK	.252	.194	.398	0.744											
SUMSI	.379	.293	.425	.356	0.777										
SUMEOU	.331	.448	.230	.277	.383	0.777									
SUMFLX	.274	.388	.292	.213	.289	.416	0.909								
SUMINFQU	.382	.548	.315	.221	.314	.437	.398	0.844							
SUMITS	.318	.364	.306	.211	.328	.306	.280	.402	0.716						
SUMRAPP	.001	.008	.001	.025	.012	.006	-.000	-.000	.017	0.854					
SUMSAPP	.174	.123	.117	.142	.089	.089	.123	.120	.122	.064	0.791				
SUMAC	.134	.175	.181	.112	.194	.193	.097	.154	.135	.066	.049	0.674			
SUMCC	.014	.037	.023	.007	.045	.023	.015	.009	.014	.004	-.000	.121	0.740		
SUMNC	.058	.072	.075	.073	.055	.019	.030	.020	.066	.005	.035	.092	.262	0.817	
SUMITL	-.034	-.084	-.051	-.014	-.049	-.45	-.053	-.048	-.021	-.004	-.005	-.138	-.084	-.038	0.93

Note Table shows the square person correlation

The diagonal shows the square root of AVE

N 258

Table 6.3 The Pearson Correlation Matrix amongst all variables in the theoretical model

constructs	SUMSAT	SUMPU	SUMTMS	SUMCSK	SUMSI	SUMEOU	SUMFLX	SUMINFQU	SUMITS	SUMRAPP	SUMSAPP	SUMIAC	SUMCC	SUMNC	SUMITL
SUMSAT	.879														
SUMPU	.689**	.904													
SUMTMS	.708**	.596**	.933												
SUMCSK	.502**	.441**	.631**	.798											
SUMSI	.616**	.541**	.652**	.597**	.889										
SUMEOU	.575**	.669**	.547**	.526**	.619**	.866									
SUMFLX	.523**	.623**	.540**	.461**	.538**	.645**	.895								
SUMINFQU	.618**	.740**	.561**	.470**	.560**	.661**	.631**	.897							
SUMITS	.564**	.603**	.553**	.459**	.573**	.553**	.529**	.634**	.858						
SUMRAPP	.021	.087	.020	.159**	.110*	.076	-.019	-.011	.132*	.813					
SUMSAPP	.417**	.351**	.342**	.377**	.298**	.299**	.351**	.346**	.349**	.252**	.877				
SUMIAC	.366**	.418**	.426**	.335**	.440**	.440**	.312**	.393**	.368**	.257**	.222**	.753			
SUMCC	.120*	.192**	.150**	.083	.211**	.151**	.121*	.093	.120*	.063	-.009	.348**	.834		
SUMNC	.241**	.269**	.274**	.270**	.234**	.137*	.174**	.140*	.257**	.069	.187**	.303**	.512**	.833	
SUMITL	.185**	.289**	.226**	.118*	.222**	.213**	.231**	.218**	.145**	.065-	.067-	.371**	.290**	.194**	.92

Note Pearson Correlation

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).-

Listwise N=258-. Alpha shows on the diagonal

6.4 DATA NORMALITY TEST

Table 6.4 summarises the standard deviations and means for the variables measuring the model and normality tests. Assessing normality of data is another criterion for conducting structural modelling. This is important because the violation of normality supposition can cause misrepresentation of statistical results (Hair et al., 2006). Skewness and kurtosis “tests are commonly used for measuring the data normality and examining the histograms of values on each variable” (Pallant, 2011, p.59). Another criterion suggested to establish normality is sample size, where a large sample size, for example 200 responses or more, tends to reduce non-normality (Hair et al., 2010; Raykov & Marcoulides, 2006). The value for skewness and kurtosis should be no greater than 3.0 and 10.0 respectively (Hair et al., 2006). More results for normality tests are shown in Appendix 2 (a). The skewness and kurtosis figures suggest no violation from data normality.

Table 6.4 Mean, standard deviation and normality for all variables

Items	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistics	Std. error	Statistics	Std. error
Satisfaction with HRIS (SAT)	3.36	1.07	-0.456	0.152	-0.436	0.302
Perceived usefulness (PU)	3.82	0.98	-0.661	0.152	0.341	0.302
Top management support (TMS)	3.02	1.05	-0.009	0.152	-0.556	0.302
Computer skills (CSK)	3.01	1.06	-0.136	0.152	-0.215	0.302
Social influence (SI)	3.13	.957	-0.193	0.152	-0.178	0.302
Ease of use (EOU)	3.39	1.60	-0.631	0.152	0.415	0.302
Flexibility (Flx)	3.16	1.01	-0.160	0.152	-0.738	0.302
Information quality (INFQU)	3.62	1.0	-0.588	0.152	0.304	0.302
IT staff support (ITS)	3.51	0.89	-0.395	0.152	0.036	0.302
Routine applications (RAPPL)	3.71	0.94	-0.512	0.152	-0.151	0.302
Strategic applications (SAPPL)	2.58	1.10	0.334	0.152	-.0295	0.302
Affective commitment (AC)	3.66	1.06	-0.455	0.152	0.808	0.302
Continuance commitment (CC)	2.91	0.86	-0.196	0.152	-0.004	0.302
Normative commitment (NC)	3.24	1.107	0.059	0.152	-0.529	0.302
Intension to leave (ITL)	2.50	1.19	0.280	0.152	-0.842	0.302

6.5 DESCRIPTIVE ANALYSIS OF THE SAMPLE

6.5.1 Response rate and sample descriptions

From an estimated population of 10,000 (see 5.4.1.1), 450 questionnaires were distributed by hand to targeted HR staff in oil and gas companies and banking institutions located in east and west Libya in 2015. The usable response rate was 57% after removing, 70 questionnaires that were incomplete.

6.5.2 Demographic features and general information

This section describes characteristics of HR professional in terms of gender, age, education, position, experience in HRM, computer experience, and responsibility to use HRIS. The literature suggests that these features relate to the use of technology and could impact on perceptions of individuals towards technology and benefits gained from using it. Although this study does not assume these factors are indicators of technology acceptance, they need to be taken into consideration. As shown in Table 6.5 men comprised 74.8% of the sample. Gender is important to address because the literature shows its important role in providing different perceptions and attitudes towards HRIS (Pijpers et al., 2001; Venkatesh & Morris, 2000).

With regard to age, 29.5% and 40.2% of participants were aged 30-39 and 40-49 respectively. Perceptions of users and their evaluation of technology could be different according to their age, where older individuals could show negative beliefs and attitudes towards technology (Haines & Petit, 1997; Igbaria & Nachman, 1990).

Table 6.5 shows that 68% of respondents hold a university degree (bachelor, master, PhD) and 25.9% had a diploma. The evaluation of systems and attitudes of users could be effected by education level (Pijpers et al., 2001).

Empirical studies have found that position impacts the acceptance of technology. Organisations seek to develop or plan using technology in different departments and at different managerial levels and the attitudes of individuals are considered important. The position of participants can influence their understanding of the questions and subjects raised in questionnaire. Most respondents were in management positions. Most (60.7%) were in an HR role. Also, what is interesting is that there are different perceptions and attitudes towards using HRIS which will help in evaluation acceptance of it (Bal et al., 2012).

According to HRM experience, 39% had 10 years or less whereas 60.9% had more than 11 years. A good spread of experience is vital as attitudes towards technology, as well as facilitating technology acceptance in organisations can be influenced by managerial perceptions and work experience (Haines & Petit, 1997; Igbaria & Nachman, 1990).

Table 6.5, also shows a wide variation in the years of experience held by respondents. This is a significant issue, since according to existing empirical studies, computer experience can potentially support attitudes towards systems usage in organisations (Igbaria & Nachman, 1990; Igbaria et al., 1995).

To sum up, the respondents were educated, had diverse positions, and were experienced in HRM and had computer experience. Also, the majority of them mentioned that information system or computer departments and HRM departments are responsible for managing HRIS. These features should provide useful variation regarding perceptions and acceptance of HRIS.

6.5.2.1 Demographic factors and satisfaction with HRIS and perceived usefulness

Tests were conducted for significant difference in scores of perceptual measures of HRIS benefits across demographic factors. The independent t-test is used to analysis differences in averages scores of HRIS perceived usefulness and satisfaction with HRIS between men and women. Also, one-way ANOVA determined if substantial differences in means scores on perceived usefulness of HRIS and satisfaction with HRIS were present across age, position, education, HRM experience, and computer experience. Table 6.6 shows that there were considerable difference in satisfaction with HRIS between men and women ($p = 0.03$). Table 6.7 show the averages and standard deviations for each gender group. The means of gender are not equal and the men have higher scores than women. However, the results show no significant variation in the mean scores of HRIS perceived usefulness by gender. In terms of other demographic factors, age, HRM experience, and HRIS experience had different mean scores on HR professionals' satisfaction with HRIS ($p = .047$, $.012$, and $.008$ respectively, see Table 6.8) but did not influence perceived usefulness. However, in order to know the differences between the categories of group or where the differences lie, Post-hoc Scheffe tests were conducted. The results show there is no significant differences in satisfaction with HRIS by age, HRM experience, and computer experience (for more results see Appendix 2 (b2)).

Table 6.5 Demographic features of the sample

Demographic variables	Frequency	Percentage (%)
Gender		
Male	193	74.8
Female	65	25.2
Total	258	100.0
Age		
< 30	24	9.6
30 – 39	74	29.5
40 - 49	101	40.2
50 - 59	44	17.5
> 60	8	3.2
Total	251	100.0
Missing data	7	
Total	258	
Education		
Secondary school or less	15	6.1
Diploma	64	25.9
University degree	138	55.9
Postgraduate degree	30	12.1
Total	247	100.0
Missing data	11	
Total	258	
Position		
General HR Manager	2	.8
HR manager	9	3.7
HR director	68	27.9
HR advisor	69	28.3
Other	96	39.3
Total	244	100.0
Missing data	14	
Total	258	
Experience in HRM		
Less than 5 years	35	14.2
5- to 10 years	61	24.8
11- 15years	68	27.6
16- 20 years	45	18.3
21 years or more	37	15.0
Total	246	100.0
Missing data	12	
Total	258	
Computer experience		
Less than 5 years	24	14.3
5- 10 years	32	19.0
11- 15 years	67	39.9
16- 20 years	24	14.3
21 years or more	21	12.5
Total	168	100.0
Missing Data	90	
Total	258	

This is not consistent with literature which highlights the role of gender, age, and experience in shaping attitudes towards using HRIS and the results indicate that there are no substantial variances amongst the responses of HR staff' on satisfaction with HRIS and perceived usefulness according to their demographic variables.

Table 6.6 Independent Samples Test in context gender

Items		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
SUMSAT	Equal variances assumed	.562	.454	2.180	256	.030	2.14006	.98145	.20730	4.07281
	Equal variances not assumed			2.134	106.249	.035	2.14006	1.00290	.15177	4.12834
SUMPU	Equal variances assumed	.095	.758	1.181	256	.239	1.12993	.95711	-.75488	3.01475
	Equal variances not assumed			1.158	106.686	.249	1.12993	.97560	-.80414	3.06401

Table 6.7 Group Statistics in context gender

DV	gender	N	Mean	Std. Deviation	Std. Error Mean
SUMSAT	male	193	30.1554	6.76747	.48713
	famle	65	28.0154	7.06774	.87664
SUMPU	male	193	34.6684	6.60838	.47568
	famle	65	33.5385	6.86722	.85177

**Table 6.8 summary findings of one way ANOVA in context positions, age, education, experience
HRM, computer experience**

Items		Sum of Squares	df	Mean Square	F	Sig.
Positions						
	Between Groups	96.308	4	24.077	.495	.739
SUMSAT	Within Groups	11626.708	239	48.647		
	Total	11723.016	243			
	Between Groups	117.558	4	29.389	.634	.639
SUMPU	Within Groups	11076.688	239	46.346		
	Total	11194.246	243			
Age						
SUMSAT	Between Groups	459.783	4	114.946	2.441	.047
	Within Groups	11582.527	246	47.083		
	Total	12042.311	250			
SUMPU	Between Groups	147.055	4	36.764	.808	.521
	Within Groups	11189.129	246	45.484		
	Total	11336.183	250			
Education						
	Between Groups	121.642	3	40.547	.859	.463
SUMSAT	Within Groups	11467.678	243	47.192		
	Total	11589.320	246			
	Between Groups	62.478	3	20.826	.462	.709
SUMPU	Within Groups	10959.733	243	45.102		
	Total	11022.211	246			
Experience HRM						
SUMSAT	Between Groups	607.328	4	151.832	3.299	.012
	Within Groups	11090.753	241	46.020		
	Total	11698.081	245			
SUMPU	Between Groups	408.654	4	102.164	2.310	.059
	Within Groups	10660.744	241	44.235		
	Total	11069.398	245			
Computer experience						
SUMSAT	Between Groups	682.358	4	170.590	3.571	.008
	Within Groups	7787.547	163	47.776		
	Total	8469.905	167			
SUMPU	Between Groups	259.946	4	64.986	1.446	.221
	Within Groups	7327.840	163	44.956		
	Total	7587.786	167			

6.6 HYPOTHESISED STRUCTURAL MODEL TEST

This study is based on a set of proposals related to predictors of the beliefs of HR professionals (as user of HRIS), predictors of users' attitudes (satisfaction with HRIS), and predictors of organisational behaviour (consequences of the attitudes). Organisational, social, technical factors are assumed to influence on dimensions of technology acceptance (perceived usefulness and user satisfaction). Another hypothetical model is the impact of satisfaction with HRIS on organisational behaviour. In order to test these hypotheses, multiple regression analysis was conducted.

6.6.1 Perceived usefulness

A set of independent variables related to organisational, social, and technical factors was tested for their relationships with perceived usefulness using a Stepwise method. According to Stepwise procedure which aims to explain unique variance on the dependent variable, the variables which exhibit a stronger relationship with the outcome (perceived usefulness) were added sequentially by evolving different models while the insignificant variables were excluded gradually from the equation. In order to assess the statistical significance of the findings and acceptance the model, several tests were conducted including, summary outcome (coefficient of determination R), Anova (fit model) or the significant proportion of the variance explained by the model, and coefficients of regression for each variable, (see Appendix 2 (c1) for more details).

Generally, from Table 6.9 adjusted R square (R^2) showed a reasonable fit. Since regression is significant with Adjusted R^2 values, the model is fully capable in making predictions of perceived usefulness. With this context, SPSS offers five stepwise multiple regression models (1, 2, 3, 4 and 5). All models were considered reasonable in explaining the dependent variable where adjusted R square values (overall variance which is explained by a whole model) were more than .30. For example, in model 1 in Table 6.9 the value of Adjusted R Square is 55% which means the contribution of quality information (which is entered in regression equation) in explaining variance in dependent variable (perceived usefulness), however, this prediction rises to 64% in the fifth model by gradually adding significant variables and excluding the insignificant variables from the equation. The independent variables such as quality information, ease of use, top management support, HRIS flexibility, and IT staff support were the predictors of perceived usefulness. However, although R square change values, (variance

explained by other variables added to the model) were very small, they were significant where Sig. F Change rates were less than <0.05 . On the other hand, other variables namely, computer skill, social influence, HRIS routine applications, HRIS strategic applications did not contribute to predict the outcome and were removed from the analysis.

With regards to Table 6.9, the data indicates the extent of the model is significant. The results were significant where the F-ratio was large with a consistent p-value less than 0.05 in all models. The P-value suggests the potential rejection of the null hypothesis thus demonstrating the significance of the regression and at least one independent variable has a considerable impact on the dependent variable perceived usefulness.

In order to evaluate the contribution of each of the independent variables in explaining the dependent variable, the coefficients were examined. With regards to significance of regression of perceived usefulness and from Table 6.9, it can be noted that beta value for each of independent variables in model 5 such as quality information, ease of use, top management support, HRIS flexibility, is significant in explaining variance in perceived usefulness (p values < 0.05). In this case, quality information made the highest contribution (38%) in explaining perceived usefulness and ease of use contributed 20%. However, although the contributions of independent variables (top management support, HRIS flexibility, and IT staff support) were small they were statistically significant (p < 0.05).

Table 6.9 Determinants of perceived usefulness (PU)

predictors	B	β	R	R ²	Adj R ²	ΔR^2	F	T	Sig
Model 1			.740	.547	.546	.547	309.481		.000
SUMINFQU	1.173	.740						17.592	.000
Model 2			.778	.605	.602	.058	195.239		.000
SUMINFQU	.837	.528						10.067	.000
SUMEOU	.497	.320						6.100	.000
Model 3			.794	.630	.625	.025	143.996		.000
SUMINFQU	.726	.458						8.535	.000
SUMEOU	.400	.258						4.860	.000
SUMTMS	.149	.198						4.123	.000
Model 4			.798	.637	.632	.008	111.137		.000
SUMINFQU	.667	.421						7.560	.000
SUMEOU	.333	.215						3.843	.000
SUMTMS	.132	.176						3.607	.000
SUMFLX	.291	.124						2.298	.022
Model 5			.802	.643	.636	.006	90.812		.000
SUMINFQ	.607	.383						6.556	.000
SUMEOU	.312	.201						3.598	.000
SUMTMS	.114	.152						3.040	.003
SUMFLX	.268	.114						2.117	.035
SUMITS	.138	.105						2.022	.044

6.6.2 Satisfaction of HR professionals with HRIS

Stepwise multiple regression was used to test whether the organisational, social, technical factors were predicted satisfaction of HR professionals with HRIS. From Table 6.10, it can be seen that four models were offered by stepwise multiple regression. All models had reasonable adjusted R square values. Model 4 explains 64% of variance in satisfaction with HRIS. All variables entered in the regression equations were significant, Sig. F change values < 0.05 (Pallant, 2011).

From Table 6.10 and with regards to the model 4, the four variables: top management support, perceived usefulness, strategic application of HRIS, and social influence, made a statistically significant contribution ($p < 0.05$) in explaining satisfaction with HRIS.

The hypothetical model was based on a set of supposed relationships between independent variables and a dependent variable. However, the findings show some contradiction. Although top management support had a positive impact on both perceived usefulness and satisfaction with HRIS, there was difference between other independent variables in explaining perceived usefulness and satisfaction with HRIS.

Table 6.10 Determinants of satisfaction with HRIS (SAT)

predictors	B	β	R	R ²	Adj R ²	ΔR^2	F	T	Sig
Model 1			.708	.502	.500	.502	257.834		.000
SUMTMS	.548	.708						16.057	.000
Model 2			.782	.612	.609	.110	200.858		.000
SUMTMS	.358	.462						9.505	.000
SUMPU	.426	.413						8.496	.000
Model 3			.792	.627	.623	.015	142.334		.000
SUMTMS	.336	.434						8.956	.000
SUMPU	.395	.382						7.855	.000
SUMSAPP	.178	.134						3.230	.001
Model 4			.800	.641	.635	.014	112.720		.000
SUMTMS	.275	.355						6.543	.000
SUMPU	.358	.346						7.031	.000
SUMSAPP	.168	.127						3.097	.002
SUMSI	.161	.159						3.087	.002

6.6.2.1 Perceived usefulness as mediator

From previous analysis, it can be seen that top management support, social influence, number of strategic applications and perceived usefulness have positive and significant effect on satisfaction with HRIS. However, in order to know whether other variables particularly ease of use, HRIS flexibility, quality information, and IT staff support have positive and significant influence on satisfaction with HRIS over perceived usefulness. Baron and Kenny's (1986) approach and a Bootstrapping Method (2004) were used. According to Baron

and Kenny (1986), the presence of a mediating effect is based on fulfilling four conditions. Firstly, confirm the significance of the relationship between the independent variable and dependent variable. Secondly, the independent variable must significantly explain the deviation in the supposed mediator. Thirdly, the deviation in the supposed mediator must significantly predict deviation in the dependent variable. Fourthly, when the significance of the relations between the independent and dependent variables are no longer present, and after this diminishes, a mediating affect is present. The PROCESS developed by Andrew F. Hayes was used to analyse the mediation. From table 6.11, these conditions were approved. It can be seen that independent variables namely, ease of use, HRIS flexibility, quality information, and IT staff support have positive and significant impacts on perceived usefulness (mediator) and satisfaction with HRIS (condition one and two). This can be indicted through B and p values. According to the third and fourth condition, the mediation process showed that the mediator (perceived usefulness) controls significantly the relationship between independent variables and dependent variable accounted for (.568, $p=.000$; .612, $p=.000$; .528, $p=.000$; .566, $p=.000$) respectively and the impact score of independent variables on the dependent variable also were reduced but still was significant (.330, $p=.001$; .369, $p=.000$; .392, $p=.000$; .316, $p=.000$) respectively.

This means that perceived usefulness partially mediates the influence of top management support, ease of use, flexibility, quality information, and IT staff support on satisfaction with HRIS. The confidence interval in all tables representation does not include zero, which in turn confirms the indirect path. With regards to this interval, the confidence value was 0.95, with a value of 1000 bootstrap resamples, (see Appendix 2 (c3) for more results).

Table 6.11 Results of the indirect effect (perceived usefulness as mediator)

Predictors	B	β	R	R ²	F	T	Sig	Confidence intervals	
								Lower/	upper
EOU									
EOU → PU			.669	.448	207.72		.000		
	1.039	.669				14.41	.000		
EOU → SAT			.575	.330	126.17				
	.920	.575				11.23	.000		
EOU → PU → SAT			.705	.498	126.27				
PU	.568	.551				9.22	.000	.4382	.7787
EOU	.330	.206				3.45	.001		
FLX									
FLX → PU			.623	.389	162.76		.000		
	1.458	.623				12.76	.000		
FLX → SAT			.523	.273	96.21				
	1.26	.523				9.81	.000		
FLX → PU → SAT			.699	.488	121.72				
PU	.612	.593				10.36	.000	.6473	1.1545
FLX	.369	.153				2.67	.0082		
INFQU									
INFQU → PU			.740	.547	309.48		.000		
	1.173					17.59	.000		
INFQU → SAT			.618	.382	158.02				
	1.011	.618				12.57	.000		
INFQU → PU → SAT			.707	.500	127.55				
PU	.528	.511				7.77	.000	.4490	.8124
INFQU	.392	.239				3.64N	.0003		
ITS									
ITS → PU			.603	.364	146.51		.000		
	.793					12.10	.000		
ITS → SAT			.564	.318	119.18				
	.765	.564				10.92	.000		
ITS → PU → SAT			.713	.509	131.100				
PU	.566	.548				9.96	.000	.3191	.6058
ITS	.316	.233				4.23	.000		

6.6.3 Satisfaction of HR professionals with HRIS and organisational commitment

In this section, the relationships between satisfaction of HR professionals with HRIS and organisational commitment (e.g., affective, continuance, and normative commitment) were assessed. It can be seen from Table 6.12 that the predictive value of satisfaction was statistically significant in predicting of affective, and normative commitment. However, the regression of satisfaction of HR professionals with HRIS on continuance commitment, was insignificant ($p > 0.05$). These indicators mean that increased satisfaction with HRIS associates with increased affective and normative commitment of HR professionals.

Table 6.12 The relationship between satisfaction of HR professionals with HRIS and three aspects of organisational commitment

predictors	B	R	R²	F	T	Sig
Affective commitment (AC)		0.366	0.134	39.620		0.000
SUMSAT	0.2270				6.294	0.000
Continuance commitment (CC)		0.1204	.0145	3.763		0.0535
SUMSAT	0.0798				1.940	0.0535
Normative commitment (NC)		0.2415	.058	15.854		0.0001
SUMSAT	0.1268				3.9817	0.0001

DV (AC, CC, NC)

6.6.4 Mediating relationships (organisational commitment)

To examine whether organisational commitment (affective, continuance and normative commitment) mediates the relationship between satisfaction of HR professionals with HRIS and intention to leave, Baron and Kenny (1986) approach and a Bootstrapping Method (2004) were used. According to Baron and Kenny's (1986), step1 testing the relationship between satisfaction of HR professionals with HRIS and intention to leave was conducted. The Tables 6.13 show the model is significant, although R^2 and adjusted R^2 had weak values (3%) but was significant $p = 0.003$ (for more details see Appendix 2 (c4)). Coefficients b and beta in Table 6.13 indicates a negative and significant relationship between satisfaction and intention to leave. Therefore, the first condition of mediation was achieved. Step two measures the extent of the relationship between the independent variable i.e. satisfaction of HR professionals with HRIS and mediator variables namely affective commitment, continuance

commitment, normative commitment. The influence was calculated in section 6.6.3. This met the second condition of Baron and Kenny (1986).

Table 6.13 The relationship between satisfaction with HRIS and intention to leave

predictors	B	R	R ²	Adj R ²	ΔR ²	F	T	Sig
		.185	.034	.031	.034	9.091		.003
SUMSAT	-.089						-3.015	.003

Dependent variable: intention to leave

Comparing the previous tables, satisfaction with HRIS had a positive effect on the mediators affective commitment ($b = 0.02270$; $p = 0.000$), continuance commitment ($b = 0.0798$; $p = 0.053$), whereas normative commitment ($b = 0.1268$; $p = 0.000$), in addition to a negative significant impact on the dependent variable intention to leave ($b = -0.089$; $p = 0.03$). Although continuance commitment had relationship with satisfaction it was not significant. For achieving the third step, Table 6.14 indicates that whereas the influence of organisational commitment on intention to leave was significant in two aspects of commitment namely affective commitment ($b = -.2213$; $p < 0.05$) and continuance commitment ($b = -.1335$; $p < 0.05$), normative commitment did not have a significant influence on intention to leave ($b = -.0016$; $p > 0.05$). However, continuance commitment will be ignored because had not significant relationship with satisfaction. By controlling the mediator (affective, commitment), the significant effect of satisfaction with HRIS on intention to leave ($b = -.0282$; $p > 0.05$) was reduced and not significant. This means that affective commitment and fully mediate the influence of satisfaction with HRIS on intention to leave.

Table 6.14 Testing the mediation relationship (organisational commitment)

predictor	B	R	R-Sq	T	P	Confidence intervals	
						Lower	upper
		.4123	.170		0.0000		
SUMAC	-.2213			-4.3651	.000	-0.0842	-0.0246
SUMCC	-.1335			-2.6793	.0079	-0.0317	-0.0006
SUMNC	-.0016			-.0248	.9802	-0.0192	0.0183
SUMSAT	-.0282			-.9420	.3471		

Dependent variable: ITL, Mediators: ACT, CCT, NCT.

Lastly, bootstrapping (Preacher and Hayes, 2004) was performed. Here, the indirect effect of satisfaction with HRIS on intention to leave through organisational commitment (affective commitment) was an associated 95%-bias-corrected confidence interval as shown in Table 6.14 with (1000 number of bootstrap resamples). Because zero is not within this bias-corrected interval, the bootstrapping method supports partially the hypothesis that an indirect mediating effect exists

Table 6.15 The results of testing hypotheses

Hypothesis	Relationships	Results
H1	Perceived usefulness → HR professionals' satisfaction with HRIS	Accepted
H2A	Top management support → perceived usefulness	Accepted
H2B	Top management support → HR professionals' satisfaction with	Accepted
H3A	Computer skills → perceived usefulness	Rejected
H3B	Computer skills → HR professionals' satisfaction with HRIS	Rejected
H4A	Social influence → perceived usefulness	Rejected
H4B	Social influence → HR professionals' satisfaction with HRIS	Accepted
H5A	Ease of use → perceived usefulness	Accepted
H5B	Ease of use → perceived usefulness → HR professionals' satisfaction with HRIS	Accepted
H6A	Flexibility → perceived usefulness	Accepted
H6B	Flexibility → perceived usefulness → HR professionals' satisfaction with HRIS	Accepted
H7A	Information quality → perceived usefulness	Accepted
H7B	Information quality → perceived usefulness → HR professionals' satisfaction with HRIS	Accepted
H8A	IT staff support → perceived usefulness	Accepted
H8B	IT staff support → perceived usefulness → HR professionals' satisfaction with HRIS	Accepted
H9A	Number of applications (routine and strategic applications) → perceived usefulness	Rejected
H9B	Number of (routine and strategic applications) → HR professionals' satisfaction with HRIS	Partly Accepted
H10	HR professionals' satisfaction with HRIS → organisational commitment e.g. affective commitment, continuance commitment, and Normative commitment	Partly Accepted
H11	HR professionals' satisfaction with HRI → organisational commitment e.g. affective commitment, continuance commitment, and normative commitment → intention to leave	Partly Accepted

6.7 SUMMARY

Stepwise multiple regression was used to test the relationships amongst variables. Top management support, ease of use, flexibility, information quality, IT staff support make a unique statistically significant contribution ($p < .05$) in predicting perceived usefulness. Satisfaction with HRIS was explained by perceived usefulness, top management support, social influence, and number of strategic applications. Other independent variables (computer skills, number of routine applications) did not have a significant impact on perceived usefulness, nor on HR professionals' satisfaction with HRIS. With regards to the impact of attitudes HR professionals (satisfaction with HRIS) on organisational behaviour, satisfaction with HRIS had a significant effect on organisational commitment and intention to leave. Affective commitment mediated the relationship between satisfaction with HRIS and intention to leave. Continuance commitment and normative commitment did not mediate the relationship.

CHAPTER 7: DISCUSSION

7.1 INTRODUCTION

This chapter discusses and explains the findings of data analysis and evaluates the hypotheses. This study aims to establish a model for examining the perceptions of HRIS acceptance by identifying promoter factors which promote beliefs and satisfaction of HR professionals with HRIS. The discussion will be according the findings of quantitative analysis for better examination and explanation of the issues. This can assist in providing a better understanding of all deterrents of HRIS acceptance; where through the discussion the impact of each antecedent in the model will be presented as well as providing justification or reasons for its influence or non-influence.

7.2 DEMOGRAPHIC AND GENERAL INFORMATION

Demographic characteristics of respondents and general information were taken into account because these characteristics provide some assurance about their understanding of the issues related using HRIS. The findings indicate that the participants are characterised by academic education, middle aged, diverse positions, and experience in HRM, and computer experience.

The majority of respondents were found to be over 40 years old. This may indicate a higher resistance of accepting HRIS as older and more experienced workers are more likely to resist change as they have become accustomed to the traditional routine. This is reflected in a number of studies (Haines & Petit, 1997; Igbaria & Nachman, 1990), where older individuals show negative beliefs and attitudes towards HRIS. However, although the results of one way ANOVA show that there are significantly different scores in satisfaction with HRIS between age groups (different means between groups) the results of Post-hoc Scheffe tests show the differences in scores are of no practical importance.

The results also indicated that the majority of respondents were highly educated. This may indicate that attitudes of users towards HRIS could be impacted by education level (Pijpers et al., 2001). Position was also found to impact the acceptance of technology. Most respondents were in an HR role, which in turn may impact the perceptions and attitudes towards using HRIS in supporting the evaluation acceptance of it (Bal et al., 2012). Conversely, findings suggest there are no significantly different scores in satisfaction with HRIS by education and position. The majority of respondents were also found be highly

experienced in the HR field with over 10 years of experience. Experience is vital as it suggests that attitudes towards technology, in addition to facilitating technology acceptance in organisations can be influenced by managerial perceptions and work experience (Haines & Petit, 1997; Igarria & Nachman, 1990). Haines and Perit (1997) show that more work experience has negative influence on satisfaction with systems. However, although one way ANOVA shows significantly different scores in satisfaction with HRIS by HRM experience and computer experience the results of Post-hoc Scheffe tests show no differences in scores satisfaction with HRIS amongst groups of HRM experience and computer experience. This could be an area for further research. In summary, the respondents were well-educated, held diverse positions, and were experienced in HRM and had computer experience.

7.3 THE SIGNIFICANT FINDINGS OF REGRESSION ANALYSIS

This section discusses the impact of using HRIS through focusing in technology acceptance. Perceptions of HR professionals towards HRIS using can be explained through various factors and in turn their attitudes or satisfaction with HRIS could contribute in enhancing other aspects of organisation of effectiveness. Negative attitudes towards HRIS and their benefits and poor use could be due to the perceptions of HR professionals towards HRIS as being inflexible and poor data quality. This insight to promoters and obstacles will be useful evidence for IT developers and management to deal with issues related to technology use in HRM when they want to renew or develop the existing systems.

This part of thesis discusses the findings of regression relating to dimensions of HRIS acceptance. One of the major aims of study is to address the key determinants of HRIS acceptance namely satisfaction with HRIS and its impact. To achieve this objective several steps have been conducted. Firstly, the relationship between satisfaction with HRIS and perceived usefulness will be described, while the second part presents the main drivers of satisfaction with HRIS and whether they affect satisfaction directly and indirectly via perceived usefulness. The third section includes the consequences of satisfaction with HRIS. The opinions of respondent about the variables and their measurements highlight issues related to the value of HRIS and their satisfaction in addition to organisational, social and technical factors. Respondents were asked to give their opinion about various issues related to HRIS and the surrounding environment. More details are presented in the Appendix 2 (b1) which shows descriptive analysis of constructs and items and Appendix 2 (c) shows Hypothesised structural model test.

7.3.1 Perceived usefulness and satisfaction with HRIS (objective 1 and 2)

Objectives 1 and 2 aim to identify awareness of HR professionals towards measurements related to system benefits: perceived usefulness and satisfaction with HRIS. The importance of these constructs is highlighted through reasoned action theory and TAM where they can assist in examining attitudes and behaviour. Perceived usefulness has been considered as an important predictor of attitudes or satisfaction of users which in turn hypothesise to affect organisational commitment and turnover intention. The study evaluated and examined perceptions and attitudes of HR personnel towards using HRIS. What makes satisfaction important in evaluating acceptance is that identifying and evaluating satisfaction with HRIS will give insight about the value of HRIS from HR professionals' perspective, and examining the construct assists in predicting other impact of HRIS use. Further, an information system that is not useful will not add value to users even though it is easy to use (Davis, 1989).

With regards to perceived usefulness or to what extent users believe HRIS is useful, the results revealed that all items were scored highly (between agree and strongly agree) and respondents express that HRIS are useful in terms of supporting their performance and productivity. Interestingly, the descriptive data show HRIS improve job performance. However, the high ratings of HRIS usefulness could be that HR professionals are comparing between HRIS usefulness and conventional ways of performing HR tasks.

In terms of satisfaction, the results reflect positive attitudes towards using HRIS. Specifically, the descriptive data shows that generally the extent of HR staff satisfaction is between agree and strongly agree. The respondents were satisfied towards the system and see HRIS assist in performing their responsibilities and improve image HR department and an organization as well as support their status in general. On other hand, although the respondents are satisfied their responses with regard to statement 8 "The HRIS has met my expectations for what I hope to do regards to HR activities" and 10 "I am satisfied with the level of using HRIS in performing the strategic activities related to human resources, the responses were more disagree compared with other items. However, this is not surprising as the study is in developing country which is characterised by an early stage of focusing on strategic activities (Abdulrahim, 2011). Therefore, and according to objective 1, the results answer the first question and indicate HR professionals' perceived usefulness of HRIS is supporting their performance (PU) and satisfaction with HRIS.

The relationship between these variables (objective 2) was suggested in the theoretical model. It was suggested that usefulness beliefs have a positive influence on the key dimension of user acceptance of HRIS (known as user satisfaction). Where users believe HRIS are useful they will have higher satisfaction with the value of the system. Particularly, perceptions of users towards outcomes of information system depend on their experience, for example, boosting performance is a key determinant of the success or failure of the system. Parameter estimate results suggest a positive and significant relationship and this answers the second question. The hypothesis was based the previous models of technology acceptance (TAM) and success models (discussed in chapters 2 and 4). The results are in agreement with the theory of reasoned action, success model, TAM results and prior studies (e.g. Davis, 1989; Husein, 2015; Seddon & Kiew, 1996). Usefulness is an important measure in measuring successful acceptance. Seddon and Kiew (1996, p.99) argued that “usefulness is the most appropriate usage-related measure of IS success”. The importance of such a construct is derived from objective judgement of HRIS’s benefits and its prediction of attitudes of users which predict of other impacts such as system use or job satisfaction or commitment to an organisation. This means that HR professionals have appreciated HRIS and feel the systems help them in improving their performance.

7.3.2 External factors, perceived usefulness and satisfaction with HRIS (objective 3)

This section discusses objective 3 and question 3 regarding the significant influence of eight factors namely top management support, computer skills, social influence, ease of use, flexibility, information quality, and IT staff support, and number of HRIS applications on key dimensions of assessing role of HRIS (perceived usefulness and satisfaction with HRIS). Satisfaction with HRIS may have a significant relationship with these factors.

7.3.2.1 Top management support

This factor stands behind any important change and development in an organisation. Although HR professionals have positive perceptions towards this dimension, the statements 4, 5, 10 were placed in disagree and strongly disagree. These statements related to the accurate support from top management in terms engorgement to the use and meeting material requirements (hardware and software), providing financial support for maintenance and

developing technology, and keeping pace with changes in the surrounding environment in order to developing the system. The support provided by top management is considered important enabler to positive attitudes towards HRIS outcomes

As proposed, higher levels of top management support lead to higher levels of perceived usefulness and satisfaction with HRIS. The results reveal that there is the positive and significant relationship between these factors. This means the greater support from top management the more value of HRIS. This is in line with previous models (Igarria et. al., 1997; Pijpers et al., 2001). In a context of Libyan companies, the potential of HRIS to achieve the benefits and improve the role and status of HR professionals is affected by support from senior executive. This means top management plays an essential role in sponsoring HRIS efforts. The conviction of senior management regarding the importance of HRM, IT knowledge and commitment to allocation of material resources and encouragement have an important role in planning HRIS. All this will be reflected in high efficiency, effectiveness and improved productivity of HR departments (Hall & Torrington, 1989).

Although Libya is a developing country the results show there are positive attitudes towards technology and appreciation of using HRIS in HRM. This could be as a result of attempts to keeping up with western style of management of thinking, technologies and foreign training courses (Leat & El-Kot, 2007).

7.3.2.2 Computer skills

This construct is considered to be essential to develop successful information systems and achieve acceptance of HRIS. Computer skills could be gained through experience and training. Constant training enhances an HR employee's broad knowledge and their perceptions about benefits and opportunities offered by HRIS and as a result saving their time and efforts. This may improve current and future performance, increasing their productivity and the ability to provide a good service (Chatzimouratidis et al., 2012). Most responses ranged in agree. However, the data showed that participants had disagreement about appropriate training programmes (statement 3) and continuity of training for overcoming lack of technology experience (item 4). These issues can affect acceptance of technology and have been highlighted in the literature.

According to regression analysis, the results indicates that computer skills has no significant influence on perceived usefulness and satisfaction with HRIS, unlike previous studies (Ndubisi & Jantan, 2003; Yaverbaum, 1988). These inconsistent results could be for several reasons. For example, the impact of HR professionals' perceptions about computer skills on beliefs and satisfaction of HR employees or users could be decreasing over the time. HRIS were installed years ago and people are now experience uses (Lee et al., 2006; Legri et al., 2003). There could be influence but the influence of computer skills on beliefs and attitudes towards technology may decrease over time. Another potential explanation is that the opinions of respondents from different organisational level (administrative and non-demonstrative level), where evaluations of computer skills may be different, where administrative level could show less care about training with technology (Bal et al., 2012; Igbaria & Nachman, 1990). This could affect their assessing of using HRIS and its benefits. Another possible interpretation is that using HRIS may require incorporating computer skills and professionals knowledge which could be lower in clerical staff; this could influence on their perceptions and technology acceptance (Hall and Torrington, 1989). The non-relationship between these variables could be as a result of other control variables which were not taken into account in this study (e.g. education, type and importance of training, position).

7.3.2.3 Social influence

Social influence plays an important role in explaining technology acceptance. The lack of interactions and exchange of IT knowledge and information between HR staff could impact their perceptions towards HRIS benefits. Overall, the descriptive data suggests that participants were agreeable to statements relating to social influence. However, statement 5 "Employees who are responsible for running the system have technical required skills for running the current applications of the system" and item 10 "Managers and employees of different departments meet frequently to discuss important issues" had the highest percentages in disagree and strongly disagree.

The literature indicates that the user's beliefs, attitudes or satisfaction and behaviour can be explained according to social interaction (Kelman, 1958, 1961). The importance of examining this factor could reflect in the development of HRIS and in the future use. Social influence in the study refers to the interaction between important referents in an HR department. Performance of users could be explained by supportive social actors in the same place. When reviewing the relationship between social influence, perceived usefulness and

satisfaction, the results show that there is no significant relationship between social influence and perceived usefulness while there is significant association with satisfaction. The results show that social influence still influences satisfaction significantly and positively. Perceptions of HR staff of the importance and level of interaction in context of using HRIS lead to increased satisfaction with HRIS in terms of supporting their responsibilities and status in an organisation. Investigation of this construct is important because HRM involves integrated activities so that it is essential to have a social climate. The literature supports the importance of this construct on forming beliefs and attitudes of users and the results of the study are in line with previous studies (i.e. Lue et al., 2005; Ruel et al., 2007; Venkatesh & Davis, 2002).

Perceptions and beliefs of users towards HRIS can be influenced by the IT knowledge and HR knowledge of social actors. Achieving duties by HRIS could be influenced by interactions between individuals according to their expert knowledge and power and this may decrease the uncertainty regarding HRIS anticipated outcomes and reflect in their productivity. Other explanation is that the social influence could be supported by collective influence. Collective culture is characterised by people sharing opinions with each other (Meyer et al., 2012). This may reflect on the evolution of technology and its benefits. Libyan society is considered to be collective (Twati, 2006) where persons impact each other by forming certain action or attitudes. In the context of HRIS, the interactions between HR staff and HR managers affect their opinions towards the role of the system. However, the differences in the results can be explained. For example, one explanation is that social influence was measured in terms of interaction between HR staff and HR managers in general instead of focusing on a specific group. Their responses could be different according to their experience. However, although the respondents report that they have experience using technology HRIS is a complex tool and they need more experience. This could reflect their awareness of the role of HRIS. Further, this difference could be related to the sample included HR staff from different organisational levels and responsibilities; their awareness to the interaction and corporation could be different.

This is also suggested by Mather et al. (2002) who show that divided subjective norms contribute to explaining perceived usefulness and in turn can lead to more insight about satisfaction.

7.3.2.4 Ease of use

This construct is important because HR staff are not technicians. The analysis show the highest percentage of all items were mostly placed in agree. This suggests that there is effective interacting with HRIS. Also, this could be as a result of time of use and HR staff experience which allow greater opportunities to learn.

The importance of this construct has been raised through the literature because its impact on acceptance. Therefore, the study model supposed that ease of use has significant impact on satisfaction directly or indirectly via perceived usefulness. Perceived usefulness was the important predictor of the influence of ease of use on satisfaction with HRIS. These results were consistent with Fishbein and Ajzen (1975) and partially with Seddon and Kiew (1996) and Rai et al. (2002). It is supposed that perceived usefulness and satisfaction with IS are influenced by system quality (e.g., ease of use). However, this study agrees with these results partially; where ease of use impacts perceived usefulness directly but influences satisfaction through perceived usefulness. This means that the findings contribute to the literature by demonstrating the significance of expectations about the value of HRIS in driving positive attitudes towards using technology as a result of ease of use, which in turn increases satisfaction. Perceptions of HR employees that the system is easy to use means less mistakes in programming, less training and anxiety and this will reflect in their performance and utilising the time for achieving more important tasks and jobs. Also, previous studies (i.g., Igbaria et al., 1995; Venkatesh & Davis, 2000) confirm the relationship between ease of use and usefulness. Husein (2015) demonstrated that HR staff who perceive HRIS are useful are more satisfied with HRIS. However, Pijpers et al. (2001) studied the acceptance by senior executives of information technology, and developed the TAM model, demonstrated that ease of use influences perceived usefulness more than senior executives' attitudes towards information technology. As well as, Lewis et al. (2003) examine the acceptance of "a contemporary technology targeted at autonomous knowledge worker", their findings show that ease of use did not affect usefulness.

Recognition by HR staff that HRIS are easy to use and learn and interact will reflect in appreciating the value of HRIS. Data collected from HR staff working in oil and gas and banking sectors suggested that they feel familiar with using of computer applications. This could be a result of their experience with using the systems; where the difficulty of use may diminish with more experience such that makes people evaluate the system more positively.

7.3.2.5 HRIS flexibility

This factor is an important feature of the system for facing changes and providing quick responses. The descriptive analysis shows that all statements were mostly scored in agree. Overall, respondents mostly have positive opinions about the flexibility of the system

The findings indicate that satisfaction with HRIS is influenced positively and significantly by flexibility via perceived usefulness i.e. systems characterised by flexibility are more useful. This in turn affects satisfaction of users. The results show an agreement with previous literature (Bailey & Pearson, 1983; Wixom & Watson, 2001). HRIS software needs to be flexible for meeting fluctuations in the surrounding environment, where new information could be required. This will reflect in improving HR staff ability to choice between alternative and performing their work effectively. The results agree with the theory of reasoned action; Fishbein and Ajzen (1975) note stimuli can influence directly an individual's beliefs which in turn influence attitudes towards objects. Systems which are flexible in meeting the various requirements of HR professionals lead to more productivity; where HR staff can perform their tasks quickly and are able to meet the requests of customer effectively and this in turn will assist them to achieve their responsibilities and improve their image and power in an organisation.

7.3.2.6 Information quality

HR practitioners need information in order to use the system effectively. The average score of all statements are placed in agree and strongly agree. The results show that the participants have positive perceptions about information in terms of accuracy, up to date and appropriate. Also, this agreement about information gained through HRIS could be as a result of comparing with other traditional ways of gaining information.

The findings of a proposed relationship between information quality, perceived usefulness, and satisfaction suggest that information quality was positively and significantly associated with satisfaction with HRIS via perceived usefulness. The results show a positive relationship was assumed through the literature and is consistent with previous studies (Husein, 2015; Seddon & Kiew, 1996). This results also is consistent with DeLone and McLean (1992, 2003) and Seddon & Kiew (1996). It is assumed that information quality influences the performance of users and satisfaction with HRIS. Information quality, as stimulus, can motive HR

professionals to use the system and perform their job easily which in turn results in HR professionals satisfaction where the routine and strategic responsibilities were performed. HR staff require information to perform their job and duties effectively. Relevance, accuracy, and currency are critical aspects of information needed for HRIS software to properly aid HR professionals in adding value to HR function and this will reflect on their image and status in firm. In context of Libyan HR staff, it seems that there is appreciation of information quality in meeting their needs.

7.3.2.7 IT staff support

IT supporter is proposed as a key indicator of positive outcome of HRIS. However, there could be differences in providing IT services over time and from one IT staff to another thus the use and evolution of HRIS could be influenced (Waston et al., 1993). There should be effective communication between IT staff and HR staff on issues related to the use of technology in managing human resources and providing the services in appropriate time, and for facilitating HR processes. This will reflect on quality IT support and enhancing value of HRIS. IT staff add value to HRIS by enhancing accurate services in terms of tangible contribution (e.g. hardware, software selection and installation, solving technical problems,), and intangible service (e.g., giving service promptly and willingly, employing knowledgeable, providing individualised attention (Watson et al., 1998, p.62). This study examines what HR professionals have experienced from IT staff. In this study, the mean score of perceptions of HR staff towards support providing by IT staff was frequently agree. This suggests that HR professionals had positive perceptions about services provided by IT staff.

The proposed model assumed a positive and significant influence of IT staff support on satisfaction directly or indirectly through perceived usefulness. The results confirm a significant and positive indirect relationship. The results confirm perceived usefulness as predictor of the relationship between IT staff support and satisfaction with HRIS. The findings demonstrated the significance of HR employees' expectations relating to what extent HRIS is useful and value in driving satisfaction towards using technology as a result of their perceptions of IT staff support, which in turn increases satisfaction. This result is in line with previous studies (e.g. Hussein et al., 2007; Watson et al., 1993) who emphasises the relationship between IT staff support and satisfaction. However, these results contradict results of Igarria et al. (1997) who found there was no relationship between IT staff support

and perceived usefulness. This inconsistency could be due to size of companies and the degree of IT support which is provided. The results indicate that tangible and intangible support contribute to increasing performance of HR staff. The contribution of IT staff or IS department in providing such services reflect on benefits perceived by HR professionals.

7.3.2.8 Number of applications of HRIS

Applications of HRIS contribute in enhancing the performance of the HR function and create opportunities for HR professionals to align with an organisation's goals. The literature indicated the importance of HRIS applications in enhancing performance and value of HRM. The literature suggests that perceptual measures of HRIS benefits (perceived usefulness and satisfaction with HRIS) could be interpreted by number and type of applications (Haines & Petit, 1997; Raymond, 1985). However, by using factor analysis the number of HRIS applications construct was divided in two sub dimensions namely routine and strategic purpose. According to the literature, these applications related to purpose of HRIS and it is suggested as routine or administrative purpose (unsophisticated) and purpose and strategic (sophisticated) ends (Bal, 2001; Kovach et al., 2002). Where using HRIS for saving and keeping employee records and financial transactions is suggested for routine or administrative purpose, whereas using HRIS software for planning, training and development, appraisal are strategic purpose (Altarawneh & Al-Shqairat, 2010; Martinsons, 1994; Ngai & Wat, 2006). In context of the number of routine applications, the findings present that application of HRIS performing for report, letter, and storing had the highest percentages and ranging between to some extent, to great extent, and to very great extent composing 26.73%, 41.57%, and 21.33% respectively.

For the number of strategic applications, the results show that HRIS applications to perform strategic purpose ranging between never or to very little extent, to a little extent, to some extent, composing 21.18%, 27.72%, 27.98%, respectively. Specifically, with regard to statement 8, about 37.2%, 29.1% and 18.2% of respondents (rating never or to very little extent, to a little extent, and to some extent respectively) show that HRIS are used to perform analysing problems/alternatives. In terms of statement 6 related to using HRIS to make decision, 23.6 %, 32.6%, and 26.4% respectively and is marked in never or to very little extent, to a little extent, and to some extent respectively. It indicated there is little extent of using HRIS to make decisions. In addition with regard to statement 5, 29.5% and 30.6% of participants confirmed HRIS are used for planning/forecasting and rating to a little extent,

and to some extent respectively. Similarly, with regard to statement 7 about 23.6% and 34.9% of respondents confirm that HRIS are used for maintenance and development and rating in to a little extent, and to some extent respectively. Furthermore and according to statement 9, 27.5% and 31% of respondents refer that HRIS are used for controlling and guiding activities rating between never or to very little extent, to a little extent respectively and compared with 26.41% and 12.81 % ranging between to some extent and to great extent. For statements 4 relating to performing communications, 20.5% of answers were a little extent compared with 31.4% and 31.4% rating to some extent and a great extent respectively. However, although Libyan companies seek to use the internet in facilitating their activities the use is still behind developed countries (Monitor Group, 2006).

It can be seen that applications of HRIS are not high to support strategic purposes and mostly rating between to a little extent, and to some extent. This evidence may be consistent with previous studies (Ball, 2001; Nagendra & Deshpande, 2014; Ngai & Wat, 2006). However, although HRIS are used mostly to support routine tasks there is a trend to use it for strategic tasks and should be used for this purpose. Also, this is in line with previous studies which have shown there is a trend to more sophisticated applications for instance training and development, performance management, compensation management and corporate communication (Al-Shawabkeh, 2014; CedarCrestone, 2009). Furthermore, the low proportions with regard to more strategic purpose could be because HRIS are a new tool in developing countries particularly, and their benefits and use have not been recognised fully. This could be because of less attention given to these activities in developing countries or in other words the role of a HR department is restricted to an administrative role and less attention to more strategic activities like training and development, and planning.

However, the results show that the number of routine applications does not impact on perceived usefulness and satisfaction while number of strategic applications has a significant and positive impact on satisfaction with HRIS. These results suggest the importance of strategic applications in prompting the performance of HR staff and influencing satisfaction of HR professionals with HRIS. HR professionals use HRIS to fulfil their tasks related to HR so that the extent of HRIS applications will reflect on their contribution in managing HR and then supporting their status in an organisation (Haines & Petit, 1997; Raymond, 1985). For example, using the internet for communication assists in providing information and

reducing cost and saving time by facilitating and streamlining many of HR process (Mayfield et al., 2003).

7.3.3 Organisational commitment, satisfaction with HRIS, and intention to leave (objective 4)

Following objective 4 and question 4, the results of descriptive analysis indicate HR staff were characterised by high affective, continuance and normative commitment. To sum up, the results show that affective commitment had the highest influence. With regards to consequences of technology implementation, an assumption in the IT literature is the impact of attitudes towards technology on work related consequences. The work environment has an effect on the attitudes and perceptions of people and technology is considered an important component in the work environment (Ang & Koh, 1997). HRIS as a source of change at work environment are likely to increase attachment of employees to an organisation. Organisational commitment is suggested as a possible outcome of using technology because HRIS contribute to saving time, costs and facilitating the HR function (Sanayei & Mirzaei, 2008) resulting in more satisfaction with HRIS. Attitudes of users towards technology can affect physiological aspects such as organisational commitment which are considered to be an important indicator of turnover intention and leads to more morale in the workplace and increased productivity.

On the other hand, the results from the Regression analysis shows suggest satisfaction with HRIS is significantly and positively associated with two dimensions of organisational commitment and particularly (affective, normative commitment). However, satisfaction and continuance commitment was marginal. These results about satisfaction and organisational commitment provide an insight to the role of technology as a source of facilitating tasks and responsibilities of HR staff and enhancing attachment of employees to an organisation. The importance of satisfaction in the interpretation dimensions organisational commitment (affective, and normative commitment) could not be less than other aspects of satisfaction (i.e. job satisfaction). The results indicate that organisational commitment may be expected from individuals who see consistency between their values and organisation's values (affective commitment). HRIS technology is a source of consistency for individual and organisation goal. On the other hand, HR professionals are more continuance commitment when they expect the cost association with leaving or lack of alternatives. Libyan Oil and bank firms could give more intention to adopt of technology compared with other

organisations. Therefore, HR staff see leaving as losing a good environment which support their efforts and work. Additionally, organisational commitment may be expected for employees who attach to an organisation ethically (normative commitment). In terms of the relationships between satisfaction, organisational commitment, and intention to leave, satisfaction is significantly and negatively associated with intention to leave via organisational commitment particularly (affective commitment). Cunningham (2006, p.341) explain that that intention to leave may be expected for employees who do not see the value in the change effort (Shapiro & Kirkman, 1999). Thus, it is suggested that employees who perceive value in using HRIS are less likely to leave the organisation. In next section, the mediation relationships are explained separately.

7.3.3.1 Affective Commitment

Affective commitment was the most significant predictor of the impact of satisfaction on intention to leave with regards to the use of HRIS. It was postulated that committed individuals, either emotionally or morally, were less likely to leave the organisation. Various researchers affirm that organisational commitment significantly affects an individual's desire to leave an organisation (Akpinar et al.,

2013; Allen & Meyer, 1990; Elias, 2009; Meyer et al., 2002; Obeidat, 2014).

Maier et al. (2013) discovered that job satisfaction and turnover intention are affected by attitudes toward HRIS, where job satisfaction fully mediated the relationship between attitudes and turnover intention. The results of the current study agree with this viewpoint as there was a negative relationship between job satisfaction and turnover intention with HRIS. The results confirm that affective commitment is a significant driver of turnover intention.

As one of the most significant drivers of employee turnover intention, job satisfaction greatly impacts an employee's decision to leave or stay with a given organisation (Maier et al., 2013). A negative relationship between affective commitment and turnover intention can help to determine the extent to which affective commitment is associated with and could reduce turnover intention with the use of HRIS. Due to an emotional attachment of employees of Libyan oil and banking firms, turnover intention would be low and affective commitment towards their firms would be high.

Moreover, these results contributed to the literature by demonstrating the significance of affective commitment to employees who become attached to their organisation as a result of HRIS usage, which in turn reduces turnover intention. These results that are reflective of affective commitment and turnover intention confirm existing findings (Cunningham, 2006). Attitudes of users towards HRIS would have strong relations with organisational turnover intentions, which could be expected from individuals who fail to realise the value in the change effort or value change in the work environment or who are only committed to change due to the perceived costs of not doing so (i.e., continuance commitment).

A number of leadership studies citing a reduction in turnover intention also affirm the research findings of the current study concerning affective commitment and turnover intention (Elias, 2009; Meyer & Herscovitch, 2002; Obeidat et al., 2014). Leadership was found to be an important driver of employee turnover intention and appeared to reduce employees' intention to leave the firm, thus decreasing turnover intention. Further, increased job satisfaction appears to reduce turnover intention (Maier et al., 2013).

Affective commitment correlates with job satisfaction, as well as having the desire to remain in the firm. A standout relationship between affective commitment and turnover intention in the current study was that Libyan firms and their employee who use HRIS seemed to have some degree of emotional attachment to their organisation (Cunningham, 2006; Oreg et al., 2011). This is affirmed by Oreg et al. (2011) who stated that technology is a source of changing an individual's abilities, responsibilities and nature of work, as well as their commitment to the organisation and goals. Therefore, such individuals are willing to produce effort to use technology and facilitating his or her reactions to change and forming positive attitudes towards change.

Lastly, it is more likely that employees will remain with their organisation if they are given sufficient information to improve their knowledge and skills (Sanayei & Mirzaei, 2008). The main goal is becoming a better employee via training wants to stay with their organisation because they enjoy their job. The findings of the current study support by the literature on a significant relationship between affective commitment and turnover intention (Patrick & Sonia, 2012; Yew, 2008).

7.3.3.2 Continuance Commitment

Affective commitment had a strong relationship to turnover intention. However, continuance commitment (relationship between individual and organisation, and the psychological state and profit or cost related to continuing or discontinuing participation) showed a less significant relationship to turnover intention, and several studies have argued these findings pertaining to a strong relationship between these two areas (Meyer & Herscovitch, 2002; Obeidat et al., 2014). The findings show that employees were more inclined to leave their organisation as they thought that the implementation of HRIS was a threat to their current job and there was no other job to replace it. For employees in the current study, these findings affirm the current study's findings and show that employees are not committed to their organisation given the limited job alternatives or the impacts associated with failing to commit.

Other findings that refute the lower relationship between continuance commitment and intention to leave show that employees commit to their organisations (Obeidat et al., 2014). The consequences employees will likely to counter when leaving their respected organisations are lack of employment and the detrimental impact the organisation may face after they have left. Therefore, fear can play a significant role in employees thinking twice about leaving the organisation given the potential consequences of leaving; thus continuance commitment can be observed when employees commit not because they wish to do so, but rather because they need to. However, it can be argued that encouraging continuance commitment is unethical and could have a further negative impact on the organisation.

7.3.3.3 Normative Commitment

There were very few studies that affirmed normative commitment (employees' ethical obligation or responsibility to remain with the organisation, regardless any benefits associated) in the research findings (Obeidat et al., 2014). A weak relationship was discovered between affective commitment and continuance commitment and turnover intention. However, for normative commitment, the relationship was different. The findings suggested no significant relationship between normative commitment and turnover intention.

Furthermore, the desire to commit and the negative implications associated with leaving, employees may not commit to their employing organisations since they feel more inclined to

commit according to a moral obligation (Meyer & Herscovitch, 2002). Regarding normative commitment with HRIS, individuals seem to commit to their organisation due to moral attachment, emotional attachment, and obligation, as well as willingness to support organisational success and willingness to stay with the organisation. Although the relationship appears weak between normative commitment and turnover intention with HRIS, it still suggests that employees are willing to stay with their organisation as they feel obligated to do so or still think they have a responsibility to uphold in the organisation.

To sum up, with regards to the outcome of satisfaction with HRIS, people who have positive attitudes and who are more comfortable with technology are characterised as being more committed to their organization. Additionally, it is argued that the intention of employees to leave an organization decreases as organizational commitment increases (Meyer et al., 2002; Meyer et al., 2012; Maier et al., 2013; Wiener, 1982). However, the relationship between dimensions of organisational commitment (affective commitment, continuance commitment, and normative commitment), satisfaction, and intention to leave show that the highest relationship was with affective commitment than other aspects of organisational commitment. In general, this is consistent with previous studies (Meyer & Allen, 1991; Meyer et al., 2002). It means that attachment of HR professionals to an organisation is based on consistency between individual and organisation goals. Using HRIS plays a crucial role in achieving the goals.

7.4 SUMMARY

This study utilises several models in IT research in order to establish a hypothetical model. The findings reveal that perceived usefulness and its antecedents (top management support, ease of use, flexibility, information quality, and IT staff support) have positive and a significant direct or indirect influence on satisfaction. However, although social influence was not an important predictor of perceived usefulness it has a positive and significant impact on satisfaction. Computer skills had an insignificant impact on perceived usefulness and satisfaction. The number of strategic applications has a significant and positive relationship with satisfaction. Although all dimensions of organisational commitment (affective commitment, continuance commitment, and normative commitment) have a positive association with satisfaction, affective commitment had the highest relationship. Also, the impact of satisfaction on intention to leave is mediated by affective commitment. This suggests the importance of these factors in promoting acceptance and the importance of

satisfaction with HRIS in enhancing attachment to an organisation. However, one possible explanation of the low value of relationships is that the use of technology i.e. information systems in HRM is new and is still in its early progress in Libya.

CHAPTER 8: CONCLUSIONS AND CONTRIBUTION

8.1 INTRODUCTION

This section provides a brief research overview combined with research contributions. The implications of the research, limitations, and future research are highlighted.

8.2 CONCLUSIONS AND CONTRIBUTION

The attitudes of HR personnel towards HRIS is still a young field characterised by a scarcity of studies and there is still need for further investigation to attitudes of HR professionals and HRIS acceptance.

An aim of this study is to examine and explain how beliefs and attitudes of HR professionals are formed as there is limited literature related to the drivers of HRIS acceptance and its consequences. This study addresses this gap and contributes by providing an inclusive study of HRIS research and offering and identifying essential factors. Specifically, the main contribution is to explain perceptions of HR personnel towards HRIS using a comprehensive theoretical foundation adapted from the TAM and success model. In particular, Davis's technology acceptance model (TAM) was used for predicting perceived usefulness of HRIS, while DeLone and Seddon's IS success model was used for predicting satisfaction with HRIS. Therefore, in order to contribute to the body of knowledge, it was necessary to study the acceptance of HRIS among HR professionals as few studies have investigated attitudes of HR professionals towards HRIS using these models. This study investigated attitudes of HR staff towards HRIS in Libyan environment which is characterized by limited research and unclear insight about implication of information systems. In other words, the limited literature stems from the fact that Libya is a developing country that is characterised by limited technological diversity compared to most developed countries. Thus there may be not much familiarity to HRIS. Lacher (2012) states that despite the new generation of Libyans wanting to learn about new technologies and the methods of using them, Libyan organisations still fall behind with the integration side of information systems. Lacher further states that this low rate of adoption stems from the lack of skilled and educated Libyans in IS implementation, in addition to the uncertainty of the impact of IS implementation. Therefore, interpreting attitudes of HR professionals towards using of technology according to IT research (TRA and TAM) assists in examining HR satisfaction and its promoters based on theoretical foundation.

Previous models focus mostly on technical factors (i.e., system quality such as ease of use and information quality) and there is an increased demand for investigation of other factors to produce a comprehensive framework which offer Libyan organisations guidance on how to enhance HRIS. Specifically, this study contributes to understanding HRIS by examining and understanding the fundamental factors that influence perceptual measures about HRIS benefits namely perceived usefulness and satisfaction with HRIS (acceptance of technology) in Libyan organisations. This study provides knowledge about the value of social influence in terms of interactions between HR staff on beliefs about HRIS benefits and satisfaction with HRIS, and the importance of HRIS applications on performance of HRIS from the HR professionals' perspective. For example, top management support is not only measured through encouragement of use, perceptions towards the potential of HRIS, financial support, moral and material support, and chairing the HRIS committee are included.

In addition to the role of HRIS in enhancing the performance and the status of HR in workplace, HRIS can also affect relationships between employees and their organisation but few studies have done this (Ang & Soh, 1997; Morris & Venkatesh, 2010). Implementing HRIS has the potential to change and support the efforts and performance of HR staff in Libyan organisations. This may influence the psychological attachment of HR professionals to their organizations and the impact of satisfaction with HRIS on organisational commitment and intention to leave has been proposed. Integrating various models helps to explain the impact of using HRIS in the Libyan context, and this study investigated this impact by combining TAM, success and organisational behaviour models.

Additionally, the study contributes by testing the validity and reliability of elements of HRIS acceptance in a developing county (Libya) which supports their transferability to different environments. The Libyan government seeks to build its economy on knowledge; it has sought to make businesses more flexible instead of bureaucratic (Monitor Group, 2006). Successful acceptance is becoming essential for the growing economy and building knowledge. HRIS as a tool for transforming may facilitate HRM processes and functions and make the performance of the HRM function more effective. Examining perceptions of HR staff towards HRIS is a relatively new approach in developing countries is important for building a suitable environment for accommodating change.

Using a research model to explore technology acceptance, the study shows how in a developing country respondents see the drivers and enhancements of using information

systems. HRIS have contributed to enhancing HR staff performance even though its use is still low in strategic tasks.

The findings lead to recommendations and the further research.

8.3 THEORETICAL IMPLICATIONS

1- This study has theoretical implication in terms integrating several models and suggesting the importance of using the theories and models of TRA, TAM and D&M model in creating a practical understanding of the technology acceptance and HRIS performance.

2-The study illustrates the importance of top management support, social influence, ease of use, flexibility, information quality, IT staff support, number of HRIS strategic tasks in explaining satisfaction with HRIS directly or indirectly via perceived usefulness. Ignoring these enablers reflect negatively in performance of technology and achieving the required gains.

3-This research also highlights the importance of perceived usefulness in shaping attitudes towards the use of HRIS. The determinants of this construct were top management support, ease of use, flexibility, information quality, and IT staff support.

4-The findings show that social influence adds to the HRIS acceptance literature consistent with Fishbein and Ajzen (1975), Venkatesh and Davi (2000) and Lu et al. (2005) who emphasise the importance of social influence in shaping the beliefs and attitudes of users while few studies explain its impact on the context of perceptual measures of HRIS benefits. Increasing social interaction leads to more satisfaction with the system. The role of social influence in predicating satisfaction with HRIS has not previously been explored in the literature.

5- This study shows how IT systems have an impact on organisational commitment (particularly affective commitment which has high relationship with satisfaction with HRIS) and intention to leave. HRIS have an important role in enhancing satisfaction which has an impact on organisational commitment.

6- Although the theoretical framework explains a good proportion of variance in user attitudes, other factors could be combined in the model such as organisational structure, and privacy and processes.

8.4 PRACTICAL IMPLICATIONS

This study shows some potential useful implications for practice:

1-This study presents a comprehensive framework to identify HRIS acceptance which explains more than 60% of variance.

2-The study provides insights into HRIS use in two important sectors of business from the perspectives of HR professionals. The results are likely to be applicable in other governmental companies.

3- The study has implications for top management, IT staff and IT designers by helping them understand and deal with the forces and challenges. For example, IT skills, providing IT infrastructure and involvement of top management with using HRIS influence the performance of systems and add value to HRM. The study provides information about organisational, social and technological issues to direct the current and future use. A favourable environment promotes confidence in using HRIS and the study provides a mechanism for the evaluation of different features of information systems and IT staff.

In this context, one implication is that decision makers should support HRIS because of its positive impact on performance and value of HR professionals and the attachment of employees to an organisation. Top managers should offer more support to HRIS users. Satisfaction with HRIS is one approach and is influenced by many factors. In developing countries, users' perceptions towards the benefits of technology may not be high because of poor technical and organisational support. Top management should not only encourage HRIS use but should provide the necessary resources to support HRM.

In particular, the study shows the lack of tangible elements of IT infrastructure (e.g., hardware, software, ICT). Various studies indicate that lack of IT infrastructure and financial support are obstacles to using HRIS (Nagi & Wat, 2006). Tangible elements of HRIS may have a positive influence on performance and effectiveness of HR personnel by enhancing more accurate services in an organisation. Top management should provide IT infrastructure

including hardware, software, and network availability (telecommunication infrastructure). However this support could be affected by lack of support from government as this element of infrastructure is controlled and by the Libyan government and is characterised by low efficiency (Monitor Group, 2006). Therefore, performing HR processes on line could be effected by these circumstances.

Furthermore, top management and IT staff should recognise and understand the potential of HRIS in supporting HR processes and take into account HRIS as approach to meet the functional requirements of HR professionals. HRIS are not only a tool for performing work; they are an approach to support the goals of HRM professionals. The number and type of applications have positive effects on the attitudes of users towards the system and more applications and more sophisticated applications lead to more satisfaction. This means that using these applications enhances performance and contributions of HR staff and enhancing their satisfaction. Results show that there is a trend to identify a number of strategic tasks for raising the value of HR function. However, the results also show HRIS do not yet contribute fully to strategic tasks such as development or planning/forecasting. HR personnel should contribute more to discuss important issues related to use HRIS.

One other key implication is related to computer skills. HR staff had to some extent negative attitudes about IT skills particularly with regard to continued and appropriate training programmes related to overcoming lack of technical experience. For example, the lack of colleges that offer courses on advanced IT can be an obstacle for building user capability. There should be more attention to training to help blend IT skills and HR knowledge and enhance the performance of HR professionals. It is important to conduct appropriate training that is related to using IT in human resources practices and for meeting needs and the training should continue in order to make users aware of technology.

In addition, IT staff need to understand the expectations and needs of HR staff in order to design effective systems that meet their requirements. For example, connect with users to discover what satisfies and frustrates them. It is important for IT staff to maintain information about HRIS in order to enhance the benefits of the system in area of HRM.

Other implications for system providers or designers are related to providing flexible HRIS and creating system friendliness and ease of use and addressing the requirements of HRIS. This will increase performance related to more strategic purposes. Furthermore, this may

have a positive influence on future use and the perceived usefulness of HRIS. Information is an important element in facilitating HRM activities so designers should give this construct more attention and focus on sources of information and their accuracy. As well as, managers should give more attention to the social actors because of the importance of these elements in using of the system and increase its acceptance.

To sum up, this study is consistent with the theoretical basics of previous models. Furthermore, it provides suggestions and recommendations for decision-makers to help HR departments make the use of HRIS more sophisticated. The rationale behind this investigation is to establish a better comprehension of the current standing of HRIS and utilize HRIS in developing countries. Although the social and organisational issues related to the use of technology are well known in developed countries, the importance of these implications in developing countries will increase. The same technology could result in different consequences when it is used in different organisational and social settings where HRIS are a new approach in developing countries. Top management is essential element in enhancing technology acceptance as are the importance of user perceptions towards ease of use in developing countries because of low levels of IT skills, knowledge, and language barriers.

8.5 IMPLICATION FOR RESEARCH (FUTURE RESEARCH)

Further research is suggested in other companies which are not owned fully by the national oil company to make comparisons and benefit from their experiences. Further investigation is also suggested in other companies in other sectors in Libyan environment. The results showed no significant relationship between computer skills, perceived usefulness, and user satisfaction. This was unexpected so that the impact of computer skills could be indirect via ease of use and this is an area for further research. Furthermore, attitudes of users could be influenced by other factors for example privacy and policies related to use of HRIS or organisational culture which could enhance or restrain the use. Further, conducting research based on stratified sampling contributes to understanding expectations about HRIS and satisfaction towards HRIS and factors influencing them. In particular, the results showed social influence had not influence on perceived usefulness. This could be because the construct is complexed. Dividing the contract of social influence on terms of managers and peers could give more insight about its influence on technology acceptance. Another suggestion is that because some relationships between variables are weak further replication

research is needed. Although this study examines the impact of HRIS on organisational commitment, other aspects of commitment could be studied such as career commitment.

8.6 RESEARCH LIMITATIONS

The limitations of this research are related to sampling issues and measurement scales. This study depends on quantitative methods for collecting data and validating the proposed model. Although this approach contributes to providing evidence about the theoretical foundations that are used to establish a comprehensive framework, combining quantitative and qualitative methods could assist in providing a more comprehensive insight about HRIS acceptance. Particularly, because some relationships are weak qualitative methods could assist in uncovering the weak relationships in the suggested model and providing a broader understanding of factors affecting acceptance.

Another limitation relates to sampling issues. Data was gathered from HR professionals who may be different in their perceptions and attitudes and more evidence could be gained from a stratified sample about perceptions and attitudes towards technology. Data could be collected from HR employees, HR specialists, and HR managers to gain information about technology from other sources.

Appendix 1 – study’s questionnaire



Dear Participant

You are invited to contribute to a study of technology acceptance among human resources professionals and its impact on organizational behaviour in the Libyan oil and gas industry. The study is part of a doctoral degree programme at the University of Huddersfield, England.

Please complete the survey questionnaire attached. All responses will be kept confidential and will be used only for the purposes of this research project. When completing the survey, please note the following points:

- Information technology means that information system which is used in human resource management for example, Human resources information system (HRIS)
- This questionnaire should be completed by employees who engage in human resource management activities and who use computers in performing their duties.
- Please respond to all the questions and statements in the questionnaire.

Thank you for valuable participation. If you have any concerns or questions about the research project then please contact me using the email below.

Yours sincerely,

Fatma Kolatshi
Doctoral Research Student
University of Huddersfield
Business School, England
E-mail: fatma_m.husseini@yahoo.co.uk

Please answer these questions related to technology acceptance (HRIS) and its impact.

Section one: This section contains general information as demographic information and information about your organisation

1-Company name:

2-Address of company:

3- What is title of your job?

- General HR Manager
- HR manager
- HR director
- HR advisor
- Other, please specify

4- What is your sex?

- Female
- Male

5- What is your age?

- < 30
- 30 - 39
- 40 - 49
- 50 - 59
- > 60

6- What is your qualification level?

- Secondary school or less
- Diploma (please specify)
- University degree (less than postgraduate degree)
- Postgraduate degree
- Professional qualification

7- How many years have you worked in Human resources management?

- Less than 5 years
- 5- to 10 years
- 11- to 15 years
- 16- to 20 years
- 21 years or more

8-How long have you used computer in your work? (Years of general computer experience)

.....

9- Which department is responsible for managing human resources information system (HRIS)?

- HR department
- Top management
- Computer department
- Other, please specify

Section two: dimensions of technology acceptance					
To what extent do you agree or disagree for the following statements?					
1-----2-----3-----4-----5					
Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly agree					
Statements	1	2	3	4	5
1- Satisfaction of HR professionals with HRIS					
1-Overall I am satisfied with our HRIS.	1	2	3	4	5
2- Overall I am satisfied with the modules or applications that are installed and available for use.	1	2	3	4	5
3- In general, I feel that HRIS supports my professional status.	1	2	3	4	5
4- The employees of the human resources department appear to be satisfied with our HRIS.	1	2	3	4	5
5- I feel that using HRIS to perform HR activities make my organisation to be higher in comparison with the other organizations.	1	2	3	4	5
6- HRIS makes the HR department more important to the organisation.	1	2	3	4	5
7- HRIS could be better utilized.	1	2	3	4	5
8- HRIS meets my expectations for what I hope to do regards to HR Activities	1	2	3	4	5
9- I am satisfied with the level of using HRIS in performing the routine tasks related to human resources.	1	2	3	4	5
10- I am satisfied with the level of using HRIS in performing the strategic activities related to human resources, for example, planning HR	1	2	3	4	5
2- Perceived Usefulness					
1- My job would be difficult to perform without HRIS.	1	2	3	4	5
2- Using HRIS improves my job performance ‘	1	2	3	4	5
3- HRIS addresses my job-related needs.	1	2	3	4	5
4- Using HRIS saves my time.	1	2	3	4	5
5- HRIS enables me to accomplish tasks more quickly.	1	2	3	4	5
6- Using HRIS enhances my effectiveness on the job.	1	2	3	4	5
7- Using HRIS improves the quality of the work I do where I become able to provide best service to customers.	1	2	3	4	5
8- Using HRIS increases my productivity on the work.	1	2	3	4	5
9- Overall, I find HRIS is useful in my job.	1	2	3	4	5
Section three: factors affecting the technology acceptance					
1- Organisational factors					
1- Top management support					
1- In general, top management supports the use of HRIS.	1	2	3	4	5

2- Top management is aware of the benefits that can be achieved with the use of HRIS.	1	2	3	4	5
3- Top management recognises HRIS as a tool to increase the productivity of HR professional.	1	2	3	4	5
4- There is an enough support from top management for requirements of applications of HRIS for example, material requirements (hardware and software).	1	2	3	4	5
5- The required financial support is available for adopting and Maintenance of HRIS.	1	2	3	4	5
6- Top management recognises the potential of HRIS as a competitive tool.	1	2	3	4	5
7- Management is really keen to see people happy with using the system.	1	2	3	4	5
8- Top management recognises that HRM is one of the most important activities in the organisation.	1	2	3	4	5
9-Top management recognises the important of adopting HRIS in HR activities.	1	2	3	4	5
10 Top management intends to keep pace with changes in the surrounding environment in order to developing the system, and then meet the growing demand for information.	1	2	3	4	5
11- Top management always personally involved in matters related to the use of IT within the firm, for example, participation in committees related to technology.	1	2	3	4	5
2- Computer skills					
1- Since the implementation of HRIS, I received special training in functional delivery.	1	2	3	4	5
2- Since the implementation of HRIS, I attained additional functional skills-on-the job.	1	2	3	4	5
3- Organisation provides appropriate training programmes for development the abilities of employees in regard to applications of computer in HR tasks and processes.	1	2	3	4	5
4- Organisation trains employees who are responsible for running the system constantly in order to overcome lack of technological experience.	1	2	3	4	5
5- IT staff shares in providing appropriate training during work.	1	2	3	4	5
2- Social influence					
1- Social influence –(Getting support from others in the same unit)					
1- In general, HR employees support in the use of HRIS.	1	2	3	4	5
2- There is cooperation between employees who run HRIS with each other.	1	2	3	4	5
3- Employees who run HRIS have initiative for improving method or style of work by using HRIS.	1	2	3	4	5
4- Employees who run HRIS accept constructive criticism and feedback in the system from others.	1	2	3	4	5
5- Employees who are responsible for running the system have technical required skills for running the current applications of the system.	1	2	3	4	5
6- There is an agreement over important issues between the managers of the different units that are used HRIS.	1	2	3	4	5

7- HR staff provide new ideas related to using information systems.	1	2	3	4	5
8- Managers team of HRIS unit recognise the potential of the system as a competitive tool.	1	2	3	4	5
9- Managers team of HRIS department recognise the system as a tool to increase the productivity of professional employees.	1	2	3	4	5
10- Managers and employees of different departments meet frequently to discuss important issues.	1	2	3	4	5
3- Technological factors					
1- Ease of use					
1- I have high understanding the use of the HRIS	1	2	3	4	5
2- HR employees understand how to use the HRIS	1	2	3	4	5
3- I find HRIS easy to do what I want it to do	1	2	3	4	5
4- I find HRIS easy to use.	1	2	3	4	5
5- It is easy to me to develop the application.	1	2	3	4	5
6- Learning to use HRIS is easy for me.	1	2	3	4	5
2- Flexibility					
1- HRIS can be adapted to meet variety of needs.	1	2	3	4	5
2- HRIS can flexibly adjust to new demands or conditions.	1	2	3	4	5
3- HRIS is versatile in addressing needs as they arise.	1	2	3	4	5
3- Information quality					
1-The information that produces through HRIS is provided in a timely manner.	1	2	3	4	5
2- The information that generates through HRIS is accurate.	1	2	3	4	5
3- HRIS provides appropriate information that meets needs of users for achieving HR tasks and processes.	1	2	3	4	5
4- HRIS provides up-to-date information.	1	2	3	4	5
5- HRIS improves my ability to disseminate information.	1	2	3	4	5
4- IT staff support					
1- Interaction between employees who run HRIS and IT staff is cooperative and productive.	1	2	3	4	5
2- IT staff show a sincere interest in solving user problems.	1	2	3	4	5
3- Required time with which the IT staff responds to user requests for changes in existing HRIS or services is timely and fast.	1	2	3	4	5
4- The technical competence of the IT staff is up-to-date.	1	2	3	4	5
5- A specific person (or group) is available for assistance with hardware and software difficulties.	1	2	3	4	5
6- The behaviour of IT staff instills confidence in users.	1	2	3	4	5
7- IT staff has sufficient technology skills and expertise to do their job well.	1	2	3	4	5

8- IT staff are always willing to help user.	1	2	3	4	5
9- IT staff are consistently courteous with user.	1	2	3	4	5
5- Applications of HRIS					
For the following specific job tasks, please indicate whether you use a computer to perform each task.	1	2	3	4	5
Please circle one number for each item: 1 = Never or to a very little extent 2 = To a little extent 3 = To some extent 4 = To a great extent 5 = To a very great extent					
1- Performing labour statistics/reporting with HRIS	1	2	3	4	5
2- Performing labour Letters and memos with HRIS	1	2	3	4	5
3- Performing Data storage/retrieval with HRIS	1	2	3	4	5
4- Performing communication with others for example, e-mail, websites	1	2	3	4	5
5- Performing workforce planning and forecasting with HRIS for example, skills inventory, succession planning	1	2	3	4	5
6- Performing making decisions	1	2	3	4	5
7- Performing maintenance and development for example, performance evaluation, and training evaluation, following up and analysis employee turnover	1	2	3	4	5
8- Performing analysing problems/alternatives	1	2	3	4	5
9- Performing controlling and guiding activities	1	2	3	4	5
Section four: organisational commitment and attention to leave					
Please circle one number for each item related to organizational commitment and turnover intention					
1-----2-----3-----4-----5					
Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly agree					
Statements	1	2	3	4	5
1- Organizational commitment					
1- I enjoy discussing my organization with people outside it.	1	2	3	4	5
2- I really feel as if this organization's problems are my own.	1	2	3	4	5
3- I feel that I am separated from the "rest of the family" at my organization.	1	2	3	4	5
4- I feel "emotionally distant" to this organization.	5	4	3	2	1
5- This organization has a great deal of personal meaning for me.	1	2	3	4	5
6- I think that I could easily become as attached to another organization as I am to this one.	5	4	3	2	1
7- I feel very much at ease about what might happen if I quit my job without having another one lined up.	5	4	3	2	1
8- It would be very hard for me to leave my organization right now, even if I wanted to.	1	2	3	4	5

9- Too much in my life would be disrupted if I decided to leave my organization.	1	2	3	4	5
10- It wouldn't be too costly for me to leave my organization now.	5	4	3	2	1
11- Right now, staying with my organization is a matter of necessity as much as desire	1	2	3	4	5
12- I feel that I have too few options to consider leaving this organization	1	2	3	4	5
13- One of the few serious consequences of leaving this organization would be the scarcity of available alternatives	1	2	3	4	5
14- One of the major reasons I continue to work for this organization is that leaving would require considerable personal sacrifice – another organization may not match the overall benefits I have here	1	2	3	4	5
15- According to me it is perfectly ethical to jump from organization to another.	5	4	3	2	1
16- One of the major reasons I continue to work for this organization is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain	1	2	3	4	5
17- If I got another offer for a better job elsewhere I would feel it was wrong to leave my organization	1	2	3	4	5
18- I was taught to believe in the value of remaining loyal to one organization	1	2	3	4	5
19- Things were better in the days when people stayed with one organization for most of their careers	1	2	3	4	5
2- Intention to leave					
1-I think often about quitting my job at my current company.	1	2	3	4	5
2- I intend to quit my actual job.	1	2	3	4	5
3- I think about leaving my actual company.	1	2	3	4	5

Appendix 2 descriptive and inferential statistics

Appendix 2 (a) Measurement model test

Table 2.a1 Tests Kaiser-Meyer-Olkin (KMO) and Bartlett of sphericity

Construct	Bartlett	KMO
satisfaction with HRIS	0.000	0.892
perceived usefulness	0.000	0.923
top management support	0.000	0.925
Computer skills	0.000	0.777
social influence	0.000	0.903
ease of use	0.000	0.843
HRIS flexibility	0.000	0.715
information quality	0.000	0.860
IT staff support	0.000	0.850
Number of applications	0.000	0.843
Routine applications	0.000	0.690
Strategic applications	0.000	0.868
affective commitment	0.000	0.724
continuance commitment	0.000	0.799
normative commitment	0.000	0.760
intention to leave	0.000	0.748

Table 2.a2 Normality of residual for perceived usefulness

Statistic		Std. Error	
Standardized Residual	Mean	.0000000	
	95% Confidence Interval for Mean	Lower Bound	-.1201905
		Upper Bound	.1201905
	5% Trimmed Mean	.0082277	
	Median	.0353288	
	Variance	.961	
	Std. Deviation	.98035172	
	Minimum	-3.15478	
	Maximum	3.66407	
	Range	6.81886	
	Interquartile Range	1.08919	
	Skewness	-.131	.152
	Kurtosis	.877	.302
	Studentized Residual	Mean	.0021474
95% Confidence Interval for Mean		Lower Bound	-.1209537
		Upper Bound	.1252486
5% Trimmed Mean		.0098726	
Median		.0359865	
Variance		1.008	
Std. Deviation		1.00409278	
Minimum		-3.23755	
Maximum		3.76363	
Range		7.00118	
Interquartile Range		1.11420	
Skewness		-.115	.152
Kurtosis		.907	.302

Table 2.a3 Tests of Normality-Kolmogorov-Smirnova and Shapiro-Wilk

Items	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.049	258	.200*	.989	258	.039
Studentized Residual	.051	258	.200*	.988	258	.037

*. This is a lower bound of the true significance.

- a. Lilliefors Significance Correction
- b.

Studentized Residual

Figure 2.a2.1
Histogram for perceived usefulness

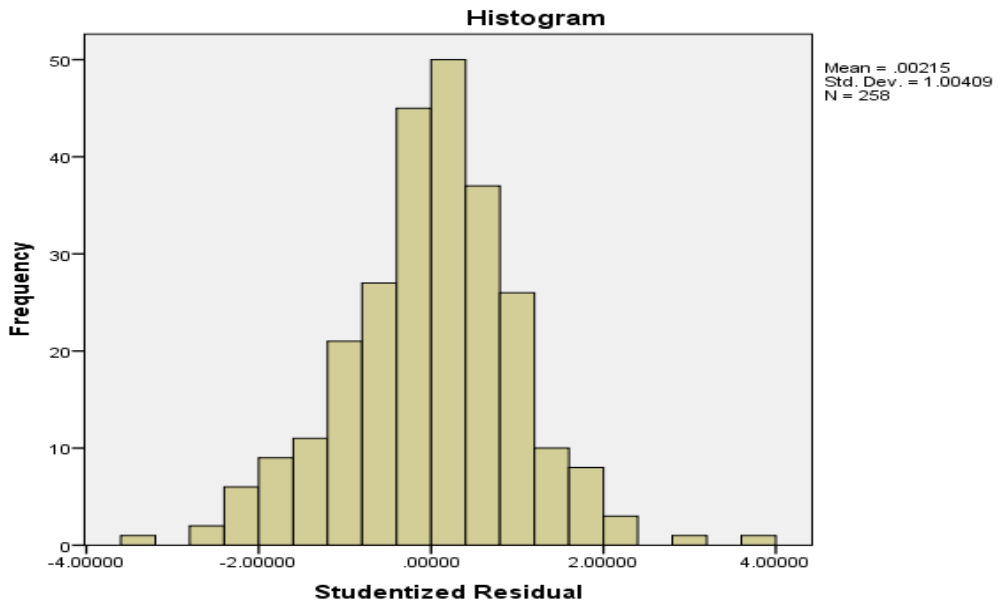
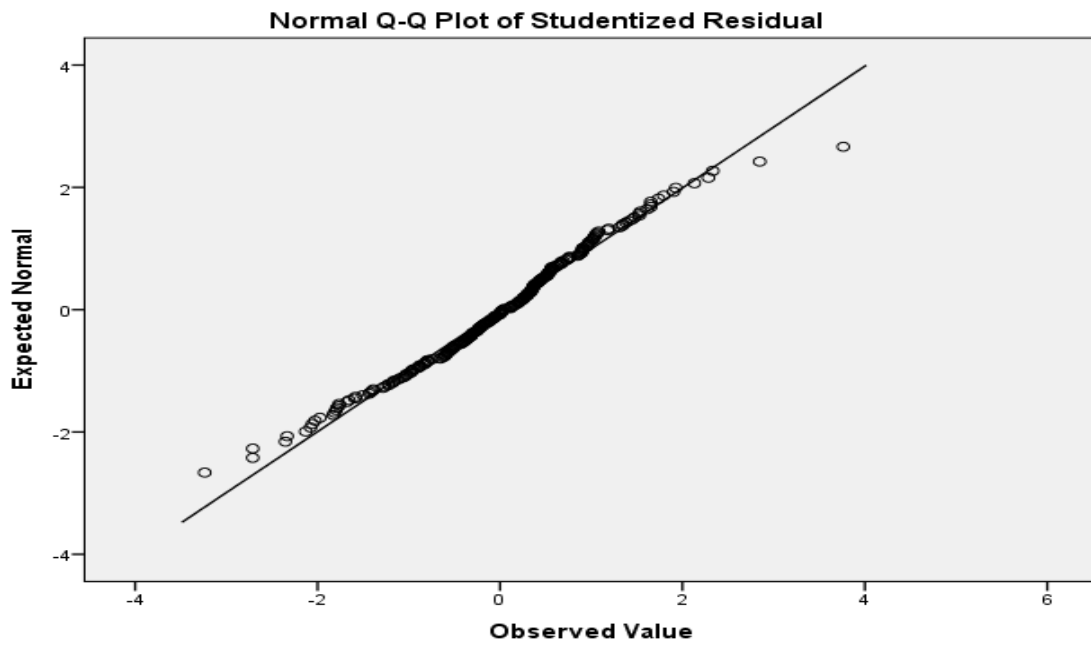


Figure 2.a2.2



Normality of residual- satisfaction with HRIS

Table 2.a4 Normality of residual for satisfaction with HRIS

Statistic		Std. Error	
Studentized Residual	Mean	-.0001267	.06251567
	95% Confidence Interval for Mean	Lower Bound	-.1232349
		Upper Bound	.1229815
	5% Trimmed Mean	.0050552	
	Median	-.0094489	
	Variance	1.008	
	Std. Deviation	1.00415032	
	Minimum	-3.17462	
	Maximum	3.31702	
	Range	6.49164	
	Interquartile Range	1.37901	
	Skewness	-.037	.152
	Kurtosis	.403	.302
	Standardized Residual	Mean	.0000000
95% Confidence Interval for Mean		Lower Bound	-.1199470
		Upper Bound	.1199470
5% Trimmed Mean		.0056088	
Median		-.0091979	
Variance		.957	
Std. Deviation		.97836519	
Minimum		-3.15069	
Maximum		3.15843	
Range		6.30912	
Interquartile Range		1.34282	
Skewness		-.051	.152
Kurtosis		.373	.302

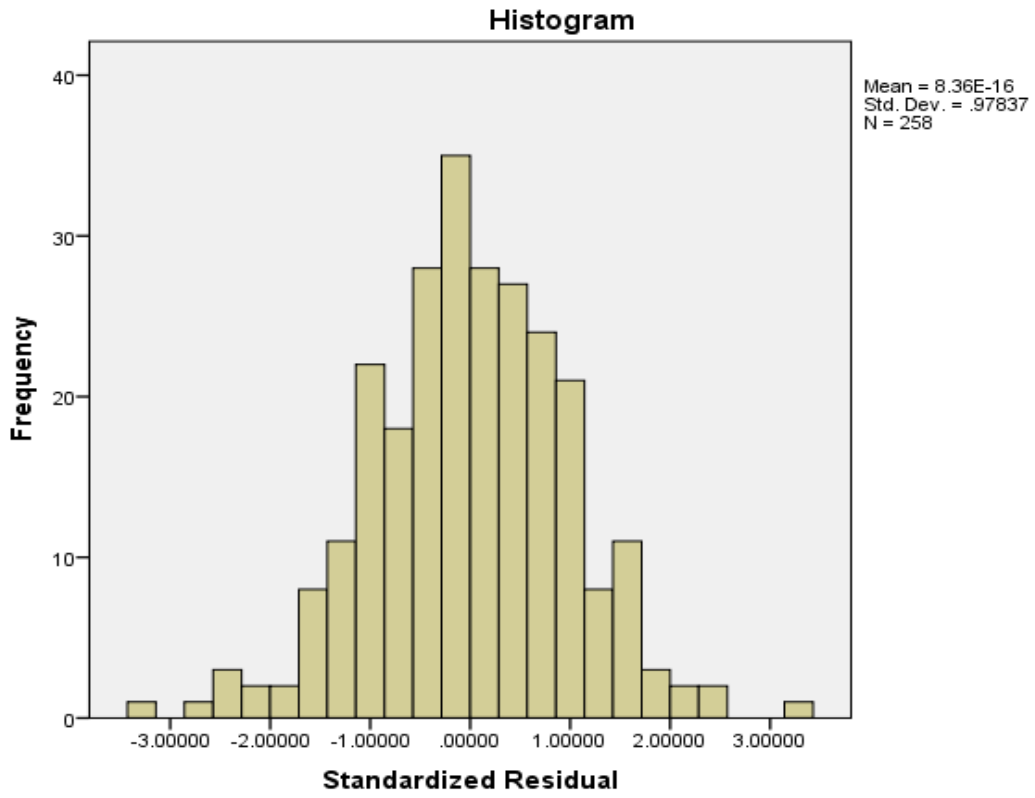
Table 2.a5 Tests of Normality-Kolmogorov-Smirnova and Shapiro-Wilk

Items	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Studentized Residual	.031	258	.200*	.997	258	.876
Standardized Residual	.030	258	.200*	.997	258	.915

*. This is a lower bound of the true significance.

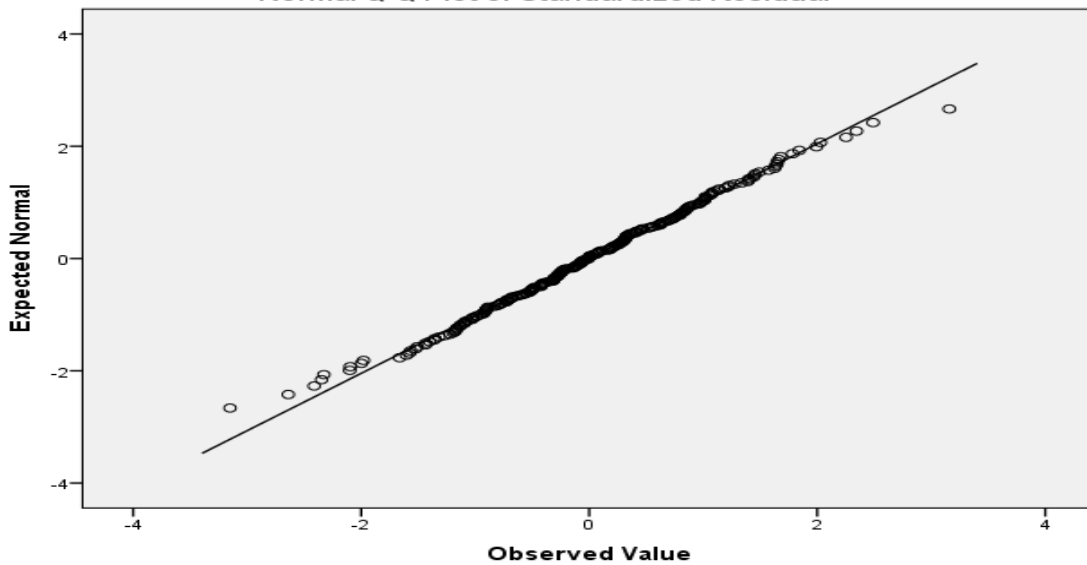
a. Lilliefors Significance Correction

Figure 2.a2.3
Histogram for satisfaction with HRIS



Studentized Residual

Figure 2.a2.4
Normal Q-Q Plot of Standardized Residual



Appendix 2 (b) Descriptive analysis of constructs and demographic factors

Appendix 2 (b1) Descriptive analysis of constructs

Table 2 b1.1 Descriptive statistics of satisfaction with HRIS

Satisfaction with HRIS	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
SAT1	3.3876	1.20188	8.1	21.3	8.5	47.7	14.3
SAT2	3.2713	.99220	4.3	21.3	22.5	46.9	5.0
SAT3	3.2326	1.13324	3.5	33.3	10.9	41.1	11.2
SAT4	3.1860	.93582	2.3	23.3	33.7	34.9	5.8
SAT5	3.6667	1.00840	5.0	8.1	18.2	52.3	16.3
SAT6	3.5853	1.11346	3.9	19.0	10.9	47.3	19.0
SAT8	2.8101	1.04694	6.2	44.2	15.1	31.4	3.1
SAT9	3.5310	1.07365	5.4	16.7	9.3	56.6	12.0
SAT10	3.5310	1.10261	8.5	32.2	24.8	27.5	7.0
Total/ Mean/ SD percentage	3.355733	1.067578	5.25	24.38	17.10	42.86	10.41

Table 2 b1.2 Descriptive statistics Perceived usefulness and its items

Perceived usefulness	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
PU1	3.8992	1.04636	4.3	7.4	12.4	46.1	29.8
PU2	4.1860	.79656	1.2	4.3	4.3	55.4	34.9
PU3	3.2132	1.18235	5.0	32.9	10.9	38.0	13.2
PU4	4.0853	.84643	1.6	5.0	7.4	55.4	30.6
PU5	3.9496	.92173	.8	10.5	8.9	52.7	27.1
PU6	3.5620	1.05769	1.9	20.5	14.0	46.5	17.1
PU7	3.7829	1.01706	1.6	15	11.2	48.8	23.6
PU8	3.7946	.98256	1.2	15.1	8.1	54.3	21.3
PU9	3.9109	.98025	2.7	9.7	7.4	54.3	26.0
Total/ Mean/ SD/ percentage	3.8204	0.98122	2.2	13.3	9.4	50.2	24.8

Table 2 b1.3 Descriptive statistics of Top management support and its items

Top management support	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
TMS1	3.2481	1.14362	8.9	20.9	14.7	47.3	8.1
TMS2	3.4535	.98617	3.9	15.1	22.1	49.6	9.3
TMS3	3.2326	1.09126	5.4	26	16.7	43.8	8.1
TMS4	2.6977	1.09902	9.3	46.1	15.9	22.9	5.8
TMS5	2.6279	1.11634	15.9	35.3	23.5	20.5	4.7
TMS6	3.0969	.94308	4.3	22.5	37.2	31.4	4.7
TMS7	2.9612	1.01278	7.4	26	34.9	26.7	5
TMS8	3.0853	1.07342	3.1	35.7	19.4	33.3	8.5
TMS9	3.2016	1.05771	4.7	26.4	20.5	41.1	7.4
TMS10	2.7713	1.03913	8.9	36.8	26.7	23.3	4.3
TMS11	2.8798	.92790	9.7	17.8	50	19.8	2.7
Total/ Mean/ SD/ percentage	3.0233	1.04459	7.41	28.05	25.6	32.7	6.24

Table 2 b1.4 Descriptive statistics of Computer skills and its items

Computer skills	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
CSK1	2.9767	1.08735	9.7	26.4	25.2	34.1	4.7
CSK2	3.3488	1.08735	5.8	21.3	10.9	56.2	5.8
CSK3	2.8876	1.10136	9.3	34.1	19.8	32.2	4.7
CSK4	2.7519	1.06249	8.9	41.1	19.8	26.4	3.9
CSK5	3.0969	.94308	4.7	22.5	34.9	34.5	3.5
Total/ Mean/ SD/ percentage	3.0124	1.05633	7.68	29.08	22.12	36.68	4.52

Table 2 b1.5 Descriptive statistics of Social influence and its items

Social influence	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly disagree
SI1	3.2326	.96242	4.3	22.1	22.1	49.2	2.3
SI2	3.4302	.93618	1.9	20.2	16.3	56.2	5.4
SI3	3.2326	1.00977	3.5	25.2	22.1	43	6.2
SI4	3.2442	.85441	0.8	19.4	39.9	34.5	5.4
SI5	2.9535	.96524	2.7	38	23.3	33.3	2.7
SI6	3.0271	.97997	3.5	31.4	28.7	31.8	4.7
SI7	2.9961	.92311	3.1	29.8	34.9	28.7	3.5
SI8	3.1977	.88858	3.5	16.7	40.7	34.9	4.3
SI9	3.3876	.99657	4.3	18.6	17.4	53.5	6.2
SI10	2.5620	1.05031	12.8	43.4	23.3	15.9	4.7
Total/ Mean/ SD/ percentage	3.1264	.95666	4.04	26.48	26.87	38.1	4.54

Table 2 b1.6 Descriptive statistics of Ease of use and its items

Ease of use	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
EOU1	3.5426	.91684	3.1	13.2	17.1	59.7	7
EOU2	3.4690	.80912	1.6	8.9	37.2	45.7	6.6
EOU3	3.1744	1.06802	4.3	29.5	18.2	40.7	7.4
EOU4	3.5155	.90489	3.9	11.2	19.8	59.7	5.4
EOU5	3.1163	5.00000	5	22.1	33.7	34.5	4.7
EOU6	3.4884	.87433	2.3	13.2	23.3	55.8	5.4
Total/ Mean/ SD/ percentage	3.3844	1.59553	3.37	16.35	24.88	49.35	6.08

Table 2 b1.7 Descriptive statistics of Flexibility of HRIS and its items

Flexibility of HRIS	Mean	Std. Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongl y agree
FLX	3.3178	1.03243	2.7	25.6	17.4	45.7	8.5
FLX	3.0504	1.07744	8.5	22.9	30.6	31	7
FLX	3.1124	1.03205	6.6	21.7	32.2	32.9	6.6
Total/ Mean/ SD/ percentage	3.1602	1.04731	5.93	23.4	26.73	36.53	7.37

Table 2 b1.8 Descriptive statistics of Information quality and its items

Quality information	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
INFQU1	3.8411	.94289	3.1	8.5	9.3	59.3	19.8
INFQU2	3.6589	1.00965	1.9	14.3	19	45.3	19.4
INFQU3	3.8333	.85035	2.3	7.4	9.7	65.9	14.7
INFQU4	3.3643	1.03208	1.9	21.7	28.3	34.1	14
INFQU5	3.3798	1.14813	5.4	22.5	15.9	41.1	15.1
Total/ Mean/ SD/ percentage	3.6155	.99662	2.92	14.88	16.44	49.14	16.6

Table 2 b1.9 Descriptive statistics of IT staff support and its items

IT staff support	Mean	Std Deviation	Strongly disagree	Disagree	Nether agree nor disagree	Agree	Strongly agree
ITS1	3.6512	.87464	2.7	8.9	18.6	60.1	9.7
ITS2	3.6589	.84610	2.3	9.3	16.7	63.6	8.1
ITS3	3.2791	1.02859	3.9	23.6	20.5	44.6	7.4
ITS5	3.1860	1.07513	4.7	27.5	20.9	38.4	8.5
ITS6	3.6744	.81487	1.6	6.2	26.7	54.3	11.2
ITS7	3.4302	.86713	0	18.2	27.5	47.3	7
ITS8	3.5775	.85745	1.9	12	19	60.5	6.6
ITS9	3.6318	.76402	1.6	6.6	25.2	60.5	6.2
Total/ Mean/ SD/ percentage	3.5111	.89099	2.34	14.04	21.89	53.66	8.09

Table 2 b1.10 Descriptive statistics of Routine applications and its items

Application of HRIS	Mean	Std. Deviation	Never or to a very little extent	To a little extent	To some extent	To a great extent	To a very great extent
RAPP1	3.5465	1.02107	5	7.8	31.4	39.1	16.7
RAPP2	3.4729	.93839	3.5	10.1	32.9	42.6	10.9
RAPP3	4.1085	.84835	0.4	4.3	15.9	43	36.4
Total/ Mean/ SD/ percentage	3.7093	0.93594	2.97	7.4	26.73	41.57	21.33

Table 2 b1.11 Descriptive statistics of Strategic applications and its items

Application of HRIS	Mean	Std. Deviation	Never or to a very little extent	To a little extent	To some extent	To a great extent	To a very great extent
SAPP4	3.1473	1.08115	7.4	20.5	31.4	31.4	9.3
SAPP5	2.5736	1.07519	18.6	29.5	30.6	18.6	2.7
SAPP6	2.4070	1.09165	23.6	32.6	26.4	14.3	3.1
SAPP7	2.8837	1.13746	12.8	23.6	34.9	19.8	8.9
SAPP8	2.1512	1.14529	37.2	29.1	18.2	12.4	3.1
SAPP9	2.3140	1.07965	27.5	31	26.4	12.8	2.3
Total/ Mean/ SD/ percentage	2.5795	1.10173	21.18	27.72	27.98	18.22	4.9

Table 2 b1.12 Descriptive analysis of study's construct

Measured constructs	Mean	SD	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Satisfaction with HRIS (SAT)	3.36	1.07	5.25	24.38	17.10	42.86	10.41
Perceived usefulness (PU)	3.82	0.98	2.2	13.3	9.4	50.2	24.8
Top management support (TMS)	3.02	1.05	7.41	28.05	25.6	32.7	6.24
Computer skills (CSK)	3.01	1.06	7.68	29.08	22.12	36.68	4.52
Social influence (SI)	3.13	.957	4.04	26.48	26.87	38.1	4.54
Prestige (PRS)	3.12	1.01	4.4	25.97	30.23	32.3	7.1
Ease of use (EOU)	3.39	1.60	3.37	16.35	24.88	49.35	6.08
Flexibility (Flx)	3.16	1.01	5.93	23.4	26.73	36.53	7.37
Information quality (INFQU)	3.62	1.0	2.92	14.88	16.44	49.14	16.6
IT staff support (ITS)	3.51	0.89	2.34	14.04	21.89	53.66	8.09
Organisational commitment:							
Affective commitment (ACT)	3.66	1.06	4.47	10.8	22.3	39.72	22.73
Continuance commitment (CCT)	2.91	0.86	3.83	13.83	27.2	39.58	15.57
Normative commitment (NCT)	3.24	1.107	8.63	16.45	30.83	30.4	13.68
Intension to leave (ITL)	2.50	1.19	24.67	28.7	23.13	18.73	4.8
Applications of HRIS (APPL):			Never or to a very little extent	To a little extent	To some extent	To a great extent	To a very great extent
Routine application (RAPPL)	3.71	0.94	2.97	7.4	26.73	41.57	21.33
Strategic application (SAPPL)	2.58	1.10	21.18	27.72	27.98	18.22	4.9

Appendix 2 (b2) Descriptive analysis and ANOVA of demographic factors

Table 2 b2.1.1 One way ANOVA for age

Age		Sum of Squares	df	Mean Square	F	Sig.
SUMSAT	Between Groups	459.783	4	114.946	2.441	.047
	Within Groups	11582.527	246	47.083		
	Total	12042.311	250			
SUMPU	Between Groups	147.055	4	36.764	.808	.521
	Within Groups	11189.129	246	45.484		
	Total	11336.183	250			

table 2 b2.1.2 Descriptive statistics for age

Age	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
SUMSAT	< 30	24	32.8750	6.16662	1.25876	30.2711	35.4789	19.00	42.00
	30 - 39	74	28.5270	7.10050	.82542	26.8820	30.1721	11.00	41.00
	40 - 49	101	29.9703	6.55356	.65210	28.6765	31.2641	10.00	42.00
	50 - 59	44	28.1818	7.54913	1.13807	25.8867	30.4770	10.00	42.00
	> 60	8	31.0000	6.34710	2.24404	25.6937	36.3063	21.00	39.00
	Total	251	29.5418	6.94041	.43807	28.6790	30.4046	10.00	42.00
SUMPU	< 30	24	34.7917	6.95938	1.42058	31.8530	37.7304	18.00	45.00
	30 - 39	74	33.8514	6.69836	.77867	32.2995	35.4032	12.00	45.00
	40 - 49	101	34.9010	6.82862	.67947	33.5529	36.2490	12.00	45.00
	50 - 59	44	33.0682	6.80423	1.02578	30.9995	35.1369	18.00	45.00
	> 60	8	36.0000	4.56696	1.61466	32.1819	39.8181	27.00	41.00
	Total	251	34.2948	6.73385	.42504	33.4577	35.1319	12.00	45.00

Table 2 b2.1.3 Scheffe Post Hoc Test for age -Multiple Comparisons

Dependent Variable	(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SUMSAT	< 30	30 - 39	4.34797	1.61185	.126	-.6548	9.3508
		40 - 49	2.90470	1.55820	.483	-1.9316	7.7410
		50 - 59	4.69318	1.74123	.126	-.7112	10.0976
		> 60	1.87500	2.80129	.978	-6.8196	10.5696
	30 - 39	< 30	-4.34797	1.61185	.126	-9.3508	.6548
		40 - 49	-1.44327	1.04997	.756	-4.7021	1.8156
		50 - 59	.34521	1.30627	.999	-3.7091	4.3996
		> 60	-2.47297	2.55376	.919	-10.3992	5.4533
	40 - 49	< 30	-2.90470	1.55820	.483	-7.7410	1.9316
		30 - 39	1.44327	1.04997	.756	-1.8156	4.7021
		50 - 59	1.78848	1.23946	.721	-2.0585	5.6355
		> 60	-1.02970	2.52024	.997	-8.8519	6.7925
	50 - 59	< 30	-4.69318	1.74123	.126	-10.0976	.7112
		30 - 39	-.34521	1.30627	.999	-4.3996	3.7091
		40 - 49	-1.78848	1.23946	.721	-5.6355	2.0585
		> 60	-2.81818	2.63733	.887	-11.0038	5.3675
	> 60	< 30	-1.87500	2.80129	.978	-10.5696	6.8196
		30 - 39	2.47297	2.55376	.919	-5.4533	10.3992
		40 - 49	1.02970	2.52024	.997	-6.7925	8.8519
		50 - 59	2.81818	2.63733	.887	-5.3675	11.0038
SUMPU	< 30	30 - 39	.94032	1.58424	.986	-3.9768	5.8574
		40 - 49	-.10932	1.53151	1.000	-4.8628	4.6441
		50 - 59	1.72348	1.71141	.907	-3.5883	7.0353
		> 60	-1.20833	2.75331	.996	-9.7540	7.3373
	30 - 39	< 30	-.94032	1.58424	.986	-5.8574	3.9768
		40 - 49	-1.04964	1.03198	.904	-4.2527	2.1534
		50 - 59	.78317	1.28389	.985	-3.2017	4.7681
		> 60	-2.14865	2.51002	.947	-9.9392	5.6419
	40 - 49	< 30	.10932	1.53151	1.000	-4.6441	4.8628
		30 - 39	1.04964	1.03198	.904	-2.1534	4.2527
		50 - 59	1.83281	1.21823	.688	-1.9483	5.6139
		> 60	-1.09901	2.47707	.995	-8.7872	6.5892
	50 - 59	< 30	-1.72348	1.71141	.907	-7.0353	3.5883
		30 - 39	-.78317	1.28389	.985	-4.7681	3.2017
		40 - 49	-1.83281	1.21823	.688	-5.6139	1.9483
		> 60	-2.93182	2.59215	.865	-10.9773	5.1136
	> 60	< 30	1.20833	2.75331	.996	-7.3373	9.7540
		30 - 39	2.14865	2.51002	.947	-5.6419	9.9392
		40 - 49	1.09901	2.47707	.995	-6.5892	8.7872
		50 - 59	2.93182	2.9215	.865	-5.1136	10.9773

DATASET NAME DataSet1 WINDOW=FRONT.

Table 2 b2.2.1 One way ANOVA for position

Position		Sum of Squares	df	Mean Square	F	Sig.
SUMSAT	Between Groups	96.308	4	24.077	.495	.739
	Within Groups	11626.708	239	48.647		
Total		11723.016	243			
SUMPU	Between Groups	117.558	4	29.389	.634	.639
	Within Groups	11076.688	239	46.346		
Total		11194.246	243			

Table 2 b2.2.2 Descriptive statistics for position

Position	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
SUMSAT	General HR Manager	2	29.0000	4.24264	3.00000	-9.1186	67.1186	26.00	32.00
	HR manager	9	29.2222	7.03167	2.34389	23.8172	34.6272	22.00	41.00
	HR director	68	29.5000	6.90555	.83742	27.8285	31.1715	11.00	41.00
	HR advisor	69	28.4928	7.20829	.86778	26.7611	30.2244	10.00	42.00
	Other, please specify	96	30.0313	6.87092	.70126	28.6391	31.4234	15.00	42.00
	Total	244	29.4098	6.94571	.44465	28.5340	30.2857	10.00	42.00
SUMPU	General HR Manager	2	36.0000	9.89949	7.00000	-52.9434	124.9434	29.00	43.00
	HR manager	9	33.4444	4.53076	1.51025	29.9618	36.9271	27.00	40.00
	HR director	68	35.0735	7.53364	.91359	33.2500	36.8971	12.00	45.00
	HR advisor	69	33.3333	7.30565	.87950	31.5783	35.0883	12.00	45.00
	Other, please specify	96	34.3750	5.96701	.60901	33.1660	35.5840	18.00	45.00
	Total	244	34.2541	6.78726	.43451	33.3982	35.1100	12.00	45.00

Table 2 b2.2.3 Scheffe Post Hoc Test for position -Multiple Comparisons

Dependent Variable	(I) position	(J) position	Std. Error	Sig.	95% Confidence Interval
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			Mean Difference (I-J)			Lower Bound	Upper Bound
SUMSAT	General HR Manager	HR manager	-.22222	5.45242	1.000	-17.1490	16.7046
		HR director	-.50000	5.00390	1.000	-16.0344	15.0344
		HR advisor	.50725	5.00287	1.000	-15.0239	16.0384
		Other	-1.03125	4.98301	1.000	-16.5008	14.4383
	HR manager	General HR Manager	.22222	5.45242	1.000	-16.7046	17.1490
		HR director	-.27778	2.47400	1.000	-7.9582	7.4026
		HR advisor	.72947	2.47190	.999	-6.9444	8.4034
		Other, please specify	-.80903	2.43146	.999	-8.3574	6.7393
	HR director	General HR Manager	.50000	5.00390	1.000	-15.0344	16.0344
		HR manager	.27778	2.47400	1.000	-7.4026	7.9582
		HR advisor	1.00725	1.19182	.949	-2.6927	4.7072
		Other	-.53125	1.10551	.994	-3.9632	2.9007
	HR advisor	General HR Manager	-.50725	5.00287	1.000	-16.0384	15.0239
		HR manager	-.72947	2.47190	.999	-8.4034	6.9444
		HR director	-1.00725	1.19182	.949	-4.7072	2.6927
		Other	-1.53850	1.10081	.744	-4.9559	1.8789
	Other	General HR Manager	1.03125	4.98301	1.000	-14.4383	16.5008
		HR manager	.80903	2.43146	.999	-6.7393	8.3574
		HR director	.53125	1.10551	.994	-2.9007	3.9632
		HR advisor	1.53850	1.10081	.744	-1.8789	4.9559
SUMPU	General HR Manager	HR manager	2.55556	5.32189	.994	-13.9660	19.0771
		HR director	.92647	4.88411	1.000	-14.2360	16.0890
		HR advisor	2.66667	4.88310	.990	-12.4927	17.8260
		Other	1.62500	4.86372	.998	-13.4742	16.7242
	HR manager	General HR Manager	-2.55556	5.32189	.994	-19.0771	13.9660
		HR director	-1.62908	2.41477	.978	-9.1256	5.8675
		HR advisor	.11111	2.41272	1.000	-7.3791	7.6013
		Other	-.93056	2.37325	.997	-8.2982	6.4371
	HR director	General HR Manager	-.92647	4.88411	1.000	-16.0890	14.2360
		HR manager	1.62908	2.41477	.978	-5.8675	9.1256
		HR advisor	1.74020	1.16329	.692	-1.8712	5.3516
		Other	.69853	1.07904	.981	-2.6513	4.0484
	HR advisor	General HR Manager	-2.66667	4.88310	.990	-17.8260	12.4927
		HR manager	-.11111	2.41272	1.000	-7.6013	7.3791
		HR director	-1.74020	1.16329	.692	-5.3516	1.8712
		Other	-1.04167	1.07445	.918	-4.3773	2.2939
	Other	General HR Manager	-1.62500	4.86372	.998	-16.7242	13.4742
		HR manager	.93056	2.37325	.997	-6.4371	8.2982
		HR director	-.69853	1.07904	.981	-4.0484	2.6513
		HR advisor	1.04167	1.07445	.918	-2.2939	4.3773

Table 2 b2.3.1 One way ANOVA for education

Education		Sum of Squares	df	Mean Square	F	Sig.
SUMSAT	Between Groups	121.642	3	40.547	.859	.463
	Within Groups	11467.678	243	47.192		
	Total	11589.320	246			
SUMPU	Between Groups	62.478	3	20.826	.462	.709
	Within Groups	10959.733	243	45.102		
	Total	11022.211	246			

Table 2 b2.3.2 Descriptive statistics for education

Education		N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
SUMSAT	Secondary school or less	15	29.6667	7.20780	1.86105	25.6751	33.6582	10.00	38.00
	Diploma (please specify)	64	30.5469	6.65697	.83212	28.8840	32.2097	10.00	42.00
	University degree-bachelor	138	29.4638	7.01631	.59727	28.2827	30.6448	11.00	42.00
	Postgraduate degree	30	28.1667	6.44383	1.17648	25.7605	30.5728	15.00	41.00
	Total	247	29.5992	6.86375	.43673	28.7390	30.4594	10.00	42.00
SUMPU	Secondary school or less	15	34.3333	7.65009	1.97524	30.0969	38.5698	18.00	44.00
	Diploma (please specify)	64	34.3281	7.10478	.88810	32.5534	36.1028	12.00	45.00
	University degree-bachelor	138	34.7464	6.62561	.56401	33.6311	35.8617	12.00	45.00
	Postgraduate degree	30	33.1667	5.71196	1.04286	31.0338	35.2995	23.00	43.00
	Total	247	34.4211	6.69371	.42591	33.5822	35.2599	12.00	45.00

Table 2 b2.3.3 Scheffe Post Hoc Test for education -Multiple Comparisons

Dependent Variable	(I) education	(J) education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SUMSAT	Secondary school or less	Diploma (please specify)	-.88021	1.97066	.978	-6.4280	4.6676
		University degree-bachelor	.20290	1.86765	1.000	-5.0549	5.4607
		Postgraduate degree	1.50000	2.17237	.924	-4.6156	7.6156
	Diploma (please specify)	Secondary school or less	.88021	1.97066	.978	-4.6676	6.4280
		University degree-bachelor	1.08311	1.03892	.780	-1.8416	4.0078
		Postgraduate degree	2.38021	1.52002	.485	-1.8989	6.6593
	University degree-bachelor	Secondary school or less	-.20290	1.86765	1.000	-5.4607	5.0549
		Diploma (please specify)	-1.08311	1.03892	.780	-4.0078	1.8416
		Postgraduate degree	1.29710	1.38385	.831	-2.5987	5.1929
	Postgraduate degree	Secondary school or less	-1.50000	2.17237	.924	-7.6156	4.6156
		Diploma (please specify)	-2.38021	1.52002	.485	-6.6593	1.8989
		University degree-bachelor	-1.29710	1.38385	.831	-5.1929	2.5987
SUMPU	Secondary school or less	Diploma (please specify)	.00521	1.92653	1.000	-5.4183	5.4287
		University degree-bachelor	-.41304	1.82582	.997	-5.5531	4.7270
		Postgraduate degree	1.16667	2.12372	.960	-4.8120	7.1453
	Diploma (please specify)	Secondary school or less	-.00521	1.92653	1.000	-5.4287	5.4183
		University degree-bachelor	-.41825	1.01565	.982	-3.2775	2.4410
		Postgraduate degree	1.16146	1.48597	.894	-3.0218	5.3447
	University degree-bachelor	Secondary school or less	.41304	1.82582	.997	-4.7270	5.5531
		Diploma (please specify)	.41825	1.01565	.982	-2.4410	3.2775
		Postgraduate degree	1.57971	1.35286	.714	-2.2288	5.3882
	Postgraduate degree	Secondary school or less	-1.16667	2.12372	.960	-7.1453	4.8120
		Diploma (please specify)	-1.16146	1.48597	.894	-5.3447	3.0218
		University degree-bachelor	-1.57971	1.35286	.714	-5.3882	2.2288

Table 2 b2.4.1 One way ANOVA for HRM experience

Experience with HRM		Sum of Squares	df	Mean Square	F	Sig.
SUMSAT	Between Groups	607.328	4	151.832	3.299	.012
	Within Groups	11090.753	241	46.020		
Total		11698.081	245			
SUMPU	Between Groups	408.654	4	102.164	2.310	.059
	Within Groups	10660.744	241	44.235		
Total		11069.398	245			

Table 2 b2.4.2 Descriptive statistics for HRM experience

Experience with HRM		N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
SUMSAT	Less than 5 years	35	30.2286	6.92432	1.17042	27.8500	32.6072	11.00	42.00
	5- Less than 10 years	61	30.8361	6.18918	.79244	29.2509	32.4212	15.00	42.00
	1 Less than 15 years	68	27.7794	7.12751	.86434	26.0542	29.5046	10.00	39.00
	16- Less than 20 years	45	27.6000	7.03692	1.04900	25.4859	29.7141	15.00	42.00
	21 years or more	37	31.2973	6.62430	1.08903	29.0886	33.5059	10.00	41.00
Total		246	29.3821	6.90994	.44056	28.5143	30.2499	10.00	42.00
SUMPU	Less than 5 years	35	34.2286	7.71204	1.30357	31.5794	36.8778	12.00	45.00
	5- Less than 10 years	61	34.7541	6.08456	.77905	33.1958	36.3124	17.00	45.00
	11- Less than 15 years	68	32.8382	7.09553	.86046	31.1208	34.5557	12.00	45.00
	16- Less than 20 years	45	33.3556	6.90242	1.02895	31.2818	35.4293	20.00	45.00
	20 years or more	37	36.7027	5.13087	.84351	34.9920	38.4134	18.00	45.00
Total		246	34.1870	6.72170	.42856	33.3429	35.0311	12.00	45.00

Table 2 b2.4.3 Scheffe Post Hoc Test for HRM experience -Multiple Comparisons

Dependent Variable	(I) expHRM	(J) expHRM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SUMSAT	Less than 5 years	5- to 10 years	-.60749	1.43850	.996	-5.0730	3.8580
		11- to 15 years	2.44916	1.41124	.557	-1.9317	6.8300
		16- to 20 years	2.62857	1.52889	.566	-2.1175	7.3746
		21 years or more	-1.06873	1.59957	.978	-6.0342	3.8967
	5- to 10 years	Less than 5 years	.60749	1.43850	.996	-3.8580	5.0730
		11- to 15 years	3.05665	1.19632	.167	-.6570	6.7703
		16- to 20 years	3.23607	1.33307	.211	-.9021	7.3743
		21 years or more	-.46123	1.41358	.999	-4.8493	3.9269
	11- to 15 years	Less than 5 years	-2.44916	1.41124	.557	-6.8300	1.9317
		5- to 10 years	-3.05665	1.19632	.167	-6.7703	.6570
		16- to 20 years	.17941	1.30362	1.000	-3.8674	4.2262
		21 years or more	-3.51789	1.38583	.172	-7.8199	.7841
	16- to 20 years	Less than 5 years	-2.62857	1.52889	.566	-7.3746	2.1175
		5- to 10 years	-3.23607	1.33307	.211	-7.3743	.9021
		11- to 15 years	-.17941	1.30362	1.000	-4.2262	3.8674
		21 years or more	-3.69730	1.50547	.201	-8.3707	.9761
	21 years or more	Less than 5 years	1.06873	1.59957	.978	-3.8967	6.0342
		5- to 10 years	.46123	1.41358	.999	-3.9269	4.8493
		11- to 15 years	3.51789	1.38583	.172	-.7841	7.8199
		16- to 20 years	3.69730	1.50547	.201	-.9761	8.3707
SUMPU	Less than 5 years	5- to 10 years	-.52553	1.41033	.998	-4.9036	3.8525
		11- to 15 years	1.39034	1.38362	.908	-2.9048	5.6854
		16- to 20 years	.87302	1.49896	.987	-3.7801	5.5262
		21 years or more	-2.47413	1.56825	.647	-7.3424	2.3941
	5- to 10 years	Less than 5 years	.52553	1.41033	.998	-3.8525	4.9036
		11- to 15 years	1.91586	1.17290	.615	-1.7251	5.5568
		16- to 20 years	1.39854	1.30697	.887	-2.6586	5.4557
		21 years or more	-1.94860	1.38590	.740	-6.2508	2.3536
	11- to 15 years	Less than 5 years	-1.39034	1.38362	.908	-5.6854	2.9048
		5- to 10 years	-1.91586	1.17290	.615	-5.5568	1.7251
		16- to 20 years	-.51732	1.27810	.997	-4.4849	3.4502
		21 years or more	-3.86447	1.35870	.092	-8.0822	.3533
	16- to 20 years	Less than 5 years	-.87302	1.49896	.987	-5.5262	3.7801
		5- to 10 years	-1.39854	1.30697	.887	-5.4557	2.6586
		11- to 15 years	.51732	1.27810	.997	-3.4502	4.4849
		21 years or more	-3.34715	1.47600	.276	-7.9290	1.2347
	20 years or more	Less than 5 years	2.47413	1.56825	.647	-2.3941	7.3424
		5- to 10 years	1.94860	1.38590	.740	-2.3536	6.2508
		11- to 15 years	3.86447	1.35870	.092	-.3533	8.0822
		16- to 20 years	3.34715	1.47600	.276	-1.2347	7.9290

Table 2 b2.5.1 One way ANOVA for computer experience

Computer experience		Sum of Squares	df	Mean Square	F	Sig.
SUMSAT	Between Groups	682.358	4	170.590	3.571	.008
	Within Groups	7787.547	163	47.776		
	Total	8469.905	167			
SUMPU	Between Groups	259.946	4	64.986	1.446	.221
	Within Groups	7327.840	163	44.956		
	Total	7587.786	167			

Table 2 b2.5.2 Descriptive statistics for computer experience

Computer experience		N	Mean	SD	Std. Error	95% Confidence Interval for Mean			
						Lower Bound	Upper Bound	Minimum	Maximum
SUMSAT	Less than 5 years	24	33.4167	4.88045	.99622	31.3558	35.4775	21.00	42.00
	5- to 10 years	32	31.3125	6.84594	1.21020	28.8443	33.7807	11.00	41.00
	11- to 15 years	67	27.7761	7.31503	.89367	25.9918	29.5604	10.00	40.00
	16- to 20 years	24	30.1250	7.67442	1.56653	26.8844	33.3656	15.00	42.00
	21 years or more	21	30.8571	6.71033	1.46431	27.8026	33.9116	18.00	40.00
	Total	168	29.9762	7.12166	.54945	28.8914	31.0609	10.00	42.00
SUMPU	Less than 5 years	24	36.4167	6.01387	1.22758	33.8772	38.9561	24.00	45.00
	5- to 10 years	32	34.3438	7.47300	1.32105	31.6494	37.0381	12.00	45.00
	11- to 15 years	67	34.2537	7.05679	.86212	32.5324	35.9750	16.00	45.00
	16- to 20 years	24	34.0417	6.29340	1.28463	31.3842	36.6991	23.00	44.00
	21 years or more	21	37.5714	5.32514	1.16204	35.1475	39.9954	26.00	45.00
	Total	168	34.9643	6.74061	.52005	33.9376	35.9910	12.00	45.00

Table 2 b2.4.3 Scheffe Post Hoc Test for computer experience -Multiple Comparisons

Dependent Variable	(I) expcomputer	(J) expcomputer	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SUMSAT	Less than 5 years	5- to 10 years	2.10417	1.86647	.866	-3.7114	7.9198
		11- to 15 years	5.64055*	1.64431	.022	.5171	10.7640
		16- to 20 years	3.29167	1.99534	.607	-2.9255	9.5088
		21 years or more	2.55952	2.06537	.820	-3.8758	8.9949
	5- to 10 years	Less than 5 years	-2.10417	1.86647	.866	-7.9198	3.7114
		11- to 15 years	3.53638	1.48529	.231	-1.0916	8.1643
		16- to 20 years	1.18750	1.86647	.982	-4.6281	7.0031
		21 years or more	.45536	1.94115	1.000	-5.5930	6.5037
	11- to 15 years	Less than 5 years	-5.64055*	1.64431	.022	-10.7640	-.5171
		5- to 10 years	-3.53638	1.48529	.231	-8.1643	1.0916
		16- to 20 years	-2.34888	1.64431	.728	-7.4723	2.7745
		21 years or more	-3.08102	1.72863	.531	-8.4671	2.3051
	16- to 20 years	Less than 5 years	-3.29167	1.99534	.607	-9.5088	2.9255
		5- to 10 years	-1.18750	1.86647	.982	-7.0031	4.6281
		11- to 15 years	2.34888	1.64431	.728	-2.7745	7.4723
		21 years or more	-.73214	2.06537	.998	-7.1675	5.7032
	21 years or more	Less than 5 years	-2.55952	2.06537	.820	-8.9949	3.8758
		5- to 10 years	-.45536	1.94115	1.000	-6.5037	5.5930
		11- to 15 years	3.08102	1.72863	.531	-2.3051	8.4671
		16- to 20 years	.73214	2.06537	.998	-5.7032	7.1675
SUMPU	Less than 5 years	5- to 10 years	2.07292	1.81054	.859	-3.5684	7.7143
		11- to 15 years	2.16294	1.59504	.765	-2.8070	7.1328
		16- to 20 years	2.37500	1.93555	.825	-3.6559	8.4059
		21 years or more	-1.15476	2.00348	.988	-7.3973	5.0878
	5- to 10 years	Less than 5 years	-2.07292	1.81054	.859	-7.7143	3.5684
		11- to 15 years	.09002	1.44079	1.000	-4.3992	4.5793
		16- to 20 years	.30208	1.81054	1.000	-5.3393	5.9434
		21 years or more	-3.22768	1.88299	.570	-9.0948	2.6394
	11- to 15 years	Less than 5 years	-2.16294	1.59504	.765	-7.1328	2.8070
		5- to 10 years	-.09002	1.44079	1.000	-4.5793	4.3992
		16- to 20 years	.21206	1.59504	1.000	-4.7578	5.1820
		21 years or more	-3.31770	1.67683	.421	-8.5424	1.9070
	16- to 20 years	Less than 5 years	-2.37500	1.93555	.825	-8.4059	3.6559
		5- to 10 years	-.30208	1.81054	1.000	-5.9434	5.3393
		11- to 15 years	-.21206	1.59504	1.000	-5.1820	4.7578
		21 years or more	-3.52976	2.00348	.542	-9.7723	2.7128
	21 years or more	Less than 5 years	1.15476	2.00348	.988	-5.0878	7.3973
		5- to 10 years	3.22768	1.88299	.570	-2.6394	9.0948
		11- to 15 years	3.31770	1.67683	.421	-1.9070	8.5424
		16- to 20 years	3.52976	2.00348	.542	-2.7128	9.7723

*. The mean difference is significant at the 0.05 level.

Appendix 2 (c) Hypothesised structural model test

Appendix 2 (c1) Perceived usefulness regression

Table 2 c1.1 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	SUMINFQU		. Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	SUMEOU		. Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	SUMTMS		. Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	SUMFLX		. Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
5	SUMITS		. Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: SUMPU

Table 2 c1.2 Model Summary^f

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.740 ^a	.547	.546	4.50275	.547	309.481	1	256	.000
2	.778 ^b	.605	.602	4.21450	.058	37.216	1	255	.000
3	.794 ^c	.630	.625	4.08817	.025	17.003	1	254	.000
4	.798 ^d	.637	.632	4.05416	.008	5.280	1	253	.022
5	.802 ^e	.643	.636	4.02964	.006	4.088	1	252	.044

a. Predictors: (Constant), SUMINFQU

b. Predictors: (Constant), SUMINFQU, SUMEOU

c. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS

d. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS, SUMFLX

e. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS, SUMFLX, SUMITS

f. Dependent Variable: SUMPU

Table 2 c1.3 ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6274.663	1	6274.663	309.481	.000 ^b
	Residual	5190.349	256	20.275		
	Total	11465.012	257			
2	Regression	6935.696	2	3467.848	195.239	.000 ^c
	Residual	4529.316	255	17.762		
	Total	11465.012	257			
3	Regression	7219.873	3	2406.624	143.996	.000 ^d
	Residual	4245.139	254	16.713		
	Total	11465.012	257			
4	Regression	7306.659	4	1826.665	111.137	.000 ^e
	Residual	4158.352	253	16.436		
	Total	11465.012	257			
5	Regression	7373.036	5	1474.607	90.812	.000 ^f
	Residual	4091.976	252	16.238		
	Total	11465.012	257			

a. Dependent Variable: SUMP

b. Predictors: (Constant), SUMINFQU

c. Predictors: (Constant), SUMINFQU, SUMEOU

d. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS

e. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS, SUMFLX

f. Predictors: (Constant), SUMINFQU, SUMEOU, SUMTMS, SUMFLX, SUMITS

Table 2 c1.4 Regression Coefficients

Model		Unstandardized		Standardize		Collinearity		
		Coefficients		d		Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	13.179	1.238		10.650	.000		
	SUMINFQU	1.173	.067	.740	17.592	.000	1.000	1.000
2	(Constant)	9.159	1.333		6.873	.000		
	SUMINFQU	.837	.083	.528	10.067	.000	.563	1.777
	SUMEOU	.497	.081	.320	6.100	.000	.563	1.777
3	(Constant)	8.183	1.314		6.227	.000		
	SUMINFQU	.726	.085	.458	8.535	.000	.506	1.975
	SUMEOU	.400	.082	.258	4.860	.000	.517	1.932
	SUMTMS	.149	.036	.198	4.123	.000	.630	1.587
4	(Constant)	8.419	1.307		6.440	.000		
	SUMINFQU	.667	.088	.421	7.560	.000	.463	2.160
	SUMEOU	.333	.087	.215	3.843	.000	.459	2.179
	SUMTMS	.132	.037	.176	3.607	.000	.604	1.655
	SUMFLX	.291	.127	.124	2.298	.022	.489	2.046
5	(Constant)	6.869	1.509		4.553	.000		
	SUMINFQU	.607	.093	.383	6.556	.000	.415	2.407
	SUMEOU	.312	.087	.201	3.598	.000	.452	2.210
	SUMTMS	.114	.037	.152	3.040	.003	.570	1.755
	SUMFLX	.268	.126	.114	2.117	.035	.485	2.064
	SUMITS	.138	.068	.105	2.022	.044	.524	1.909

a. Dependent Variable: SUMPU

Appendix 2 (c2) Satisfaction with HRIS regression

Table 2 c2.1 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	SUMTMS	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	SUMPU	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	SUMSAPP	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	SUMSI	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: SUMSAT

Table 2 c2.2 Model Summary^f

Mode	R	Adjusted R	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	Sig. F Change
1	.708 ^a	.502	4.87528	.502	257.834	.000
2	.782 ^b	.609	4.31243	.110	72.186	.000
3	.792 ^c	.623	4.23484	.015	10.430	.001
4	.800 ^d	.635	4.16546	.014	9.532	.002

a. Predictors: (Constant), SUMTMS

b. Predictors: (Constant), SUMTMS, SUMPU

c. Predictors: (Constant), SUMTMS, SUMPU, SUMSAPP

d. Predictors: (Constant), SUMTMS, SUMPU, SUMSAPP, SUMSI

e. Dependent Variable: SUMSAT

Table 2 c2.3 ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	6128.302	1	6128.302	257.834	.000 ^b
	Residual	6084.710	256	23.768		
	Total	12213.012	257			
2	Regression	7470.755	2	3735.378	200.858	.000 ^c
	Residual	4742.257	255	18.597		
	Total	12213.012	257			
3	Regression	7657.806	3	2552.602	142.334	.000 ^d
	Residual	4555.206	254	17.934		
	Total	12213.012	257			
4	Regression	7823.200	4	1955.800	112.720	.000 ^e
	Residual	4389.812	253	17.351		
	Total	12213.012	257			

a. Dependent Variable: SUMSAT

b. Predictors: (Constant), SUMTMS

c. Predictors: (Constant), SUMTMS, SUMPU

d. Predictors: (Constant), SUMTMS, SUMPU, SUMSAPP

e. Predictors: (Constant), SUMTMS, SUMPU, SUMSAPP, SUMSI

Table 2 c2.4 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	11.388	1.175		9.691	.000		
	SUMTMS	.548	.034	.708	16.057	.000	1.000	1.000
2	(Constant)	3.069	1.428		2.149	.033		
	SUMTMS	.358	.038	.462	9.505	.000	.644	1.552
	SUMPU	.426	.050	.413	8.496	.000	.644	1.552
3	(Constant)	2.115	1.433		1.476	.141		
	SUMTMS	.336	.038	.434	8.956	.000	.624	1.602
	SUMPU	.395	.050	.382	7.855	.000	.620	1.613
	SUMSAPP	.178	.055	.134	3.230	.001	.849	1.178
4	(Constant)	.544	1.499		.363	.717		
	SUMTMS	.275	.042	.355	6.543	.000	.483	2.070
	SUMPU	.358	.051	.346	7.031	.000	.585	1.709
	SUMSAPP	.168	.054	.127	3.097	.002	.846	1.182
	SUMSI	.161	.052	.159	3.087	.002	.537	1.863

a. Dependent Variable: SUMSAT

Appendix 2 (c3) Perceived usefulness as mediators

Appendix 2 c3.1 Ease of use → perceived usefulness → HR professionals' satisfaction with HRIS

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Release 2.13.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2013). www.guilford.com/p/hayes3

*

Model

Y = SUMSAT
 X = SUMEOU
 M = SUMP

Sample size
 258

*

Outcome: SUMP

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6693	.4479	24.7240	207.7197	1.0000	256.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	13.2932	1.4957	8.8874	.0000	10.3477	16.2387
SUMEOU	1.0386	.0721	14.4125	.0000	.8967	1.1805

*

Outcome: SUMSAT

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7054	.4976	24.0637	126.2647	2.0000	255.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.3732	1.6880	1.9983	.0467	.0490	6.6973
SUMP	.5684	.0617	9.2180	.0000	.4469	.6898
SUMEOU	.3300	.0957	3.4483	.0007	.1415	.5184

***** DIRECT AND INDIRECT EFFECTS *****

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.3300	.0957	3.4483	.0007	.1415	.5184

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
SUMP	.5903	.0834	.4382	.7787

***** ANALYSIS NOTES AND WARNINGS

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
 1000

Level of confidence for all confidence intervals in output:
 95.00

----- END MATRIX -----

Appendix 2 c3.2 HRIS Flexibility → perceived usefulness → HR professionals' satisfaction with HRIS

Run MATRIX procedure

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Release 2.13.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2013). www.guilford.com/p/hayes3

 *

Model

Y = SUMSAT
 X = SUMFLX
 M = SUMPUP

Sample size
 258

 *

Outcome: SUMPUP

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.6234	.3887	27.3787	162.7563	1.0000	256.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	20.5616	1.1314	18.1743	.0000	18.3336	22.7895
SUMFLX	1.4579	.1143	12.7576	.0000	1.2329	1.6830

 *

Outcome: SUMSAT

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.6989	.4884	24.5028	121.7164	2.0000	255.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	5.0645	1.6197	3.1267	.0020	1.8747	8.2542
SUMPUP	.6124	.0591	10.3577	.0000	.4960	.7288

```

SUMFLX      .3686      .1383      2.6660      .0082      .0963      .6409

***** DIRECT AND INDIRECT EFFECTS
*****

Direct effect of X on Y
      Effect      SE      t      p      LLCI      ULCI
      .3686      .1383      2.6660      .0082      .0963      .6409

Indirect effect of X on Y
      Effect      Boot SE      BootLLCI      BootULCI
SUMPU      .8929      .1295      .6473      1.1545

***** ANALYSIS NOTES AND WARNINGS
*****

Number of bootstrap samples for bias corrected bootstrap confidence
intervals:
      1000

Level of confidence for all confidence intervals in output:
      95.00

----- END MATRIX -----

```

Appendix 2 c3.3 Information quality → perceived usefulness → HR professionals' satisfaction with HRIS

Run MATRIX procedure:

```

***** PROCESS Procedure for SPSS Release 2.13.2 *****

      Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
      Documentation available in Hayes (2013). www.guilford.com/p/hayes3

*****
*
Model
  Y = SUMSAT
  X = SUMINFQU
  M = SUMPU

Sample size
      258

*****
*
Outcome: SUMPU

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .7398      .5473      20.2748      309.4809      1.0000      256.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      13.1791      1.2375      10.6496      .0000      10.7421      15.6161
SUMINFQU      1.1730      .0667      17.5921      .0000      1.0417      1.3043

```

```

*****
*
Outcome: SUMSAT

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .7072      .5001      23.9426      127.5475      2.0000      255.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      4.3830      1.6155      2.7132      .0071      1.2017      7.5644
SUMPUPU      .5279      .0679      7.7719      .0000      .3941      .6616
SUMINFQU      .3918      .1077      3.6387      .0003      .1798      .6039

***** DIRECT AND INDIRECT EFFECTS
*****

Direct effect of X on Y
      Effect      SE      t      p      LLCI      ULCI
      .3918      .1077      3.6387      .0003      .1798      .6039

Indirect effect of X on Y
      Effect      Boot SE      BootLLCI      BootULCI
SUMPUPU      .6192      .0923      .4490      .8124

***** ANALYSIS NOTES AND WARNINGS
*****

Number of bootstrap samples for bias corrected bootstrap confidence
intervals:
      1000

Level of confidence for all confidence intervals in output:
      95.00

----- END MATRIX -----

Appendix 2 c3.4 IT staff support → perceived usefulness → HR professionals'
satisfaction with HRIS

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Release 2.13.2 *****

      Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
      Documentation available in Hayes (2013). www.guilford.com/p/hayes3

*****
*
Model
      Y = SUMSAT
      X = SUMITS
      M = SUMPUPU

Sample size
      258

*****
*
Outcome: SUMPUPU

```

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6033	.3640	28.4840	146.5066	1.0000	256.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	12.1038	1.8705	6.4710	.0000	8.4203	15.7872
SUMITS	.7932	.0655	12.1040	.0000	.6641	.9222

*

Outcome: SUMSAT

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7132	.5087	23.5320	131.9974	2.0000	255.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.2881	1.8339	.7024	.4831	-2.3234	4.8996
SUMPU	.5656	.0568	9.9563	.0000	.4537	.6775
SUMITS	.3162	.0747	4.2332	.0000	.1691	.4632

***** DIRECT AND INDIRECT EFFECTS

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.3162	.0747	4.2332	.0000	.1691	.4632

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
SUMPU	.4486	.0714	.3191	.6058

***** ANALYSIS NOTES AND WARNINGS

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

1000

Level of confidence for all confidence intervals in output:

95.00

----- END MATRIX -----

Appendix 2 (c4) Organisational commitment as mediator

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Release 2.13.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2013). www.guilford.com/p/hayes3

*

Model

Y = SUMITL
 X = SUMSAT
 M1 = SUM1AC
 M2 = SUMCC
 M3 = SUMNC

Sample size
 258

*

Outcome: SUMAC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3661	.1340	15.8810	39.6200	1.0000	256.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	15.2080	1.0964	13.8707	.0000	13.0488	17.3671
SUMSAT	.2270	.0361	6.2944	.0000	.1560	.2980

*

Outcome: SUMCC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.1204	.0145	20.6747	3.7631	1.0000	256.0000	.0535

Model

	coeff	se	t	p	LLCI	ULCI
constant	18.5935	1.2510	14.8631	.0000	16.1300	21.0571
SUMSAT	.0798	.0411	1.9399	.0535	-.0012	.1608

*

Outcome: SUMNC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2415	.0583	12.3950	15.8535	1.0000	256.0000	.0001

Model

	coeff	se	t	p	LLCI	ULCI
constant	9.2046	.9686	9.5027	.0000	7.2971	11.1120
SUMSAT	.1268	.0319	3.9817	.0001	.0641	.1896

*

Outcome: SUMITL

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4123	.1700	9.2337	12.9515	4.0000	253.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	15.9723	1.2472	12.8063	.0000	13.5161	18.4286
SUM1AC	-.2212	.0507	-4.3651	.0000	-.3209	-.1214
SUMCC	-.1335	.0498	-2.6793	.0079	-.2317	-.0354
SUMNC	.0016	.0626	.0248	.9802	-.1217	.1248
SUMSAT	-.0282	.0300	-.9420	.3471	-.0873	.0308

***** TOTAL EFFECT MODEL

Outcome: SUMITL

Model Summary

R	R-sq	MSE	F	df1	df2	p
.1852	.0343	10.6170	9.0912	1.0000	256.0000	.0028

Model

	coeff	se	t	p	LLCI	ULCI
constant	10.1406	.8965	11.3118	.0000	8.3752	11.9060
SUMSAT	-.0889	.0295	-3.0152	.0028	-.1470	-.0308

***** TOTAL, DIRECT, AND INDIRECT EFFECTS

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.0889	.0295	-3.0152	.0028	-.1470	-.0308

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.0282	.0300	-.9420	.3471	-.0873	.0308

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	-.0607	.0178	-.0971	-.0281
SUM1AC	-.0502	.0151	-.0842	-.0246
SUMCC	-.0107	.0073	-.0317	-.0006
SUMNC	.0002	.0092	-.0192	.0183
(C1)	-.0395	.0167	-.0754	-.0061
(C2)	-.0504	.0185	-.0894	-.0167
(C3)	-.0109	.0123	-.0420	.0100

Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	-.0183	.0054	-.0300	-.0087
SUM1AC	-.0152	.0045	-.0256	-.0075
SUMCC	-.0032	.0022	-.0096	-.0002
SUMNC	.0001	.0028	-.0058	.0055

Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	-.1264	.0363	-.2031	-.0609
SUM1AC	-.1046	.0302	-.1693	-.0532
SUMCC	-.0222	.0150	-.0661	-.0015
SUMNC	.0004	.0189	-.0390	.0369

Ratio of indirect to total effect of X on Y				
	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	.6823	.8487	.3129	1.9143
SUM1AC	.5647	.7047	.2347	1.5299
SUMCC	.1199	.1768	.0070	.5338
SUMNC	-.0022	.1420	-.2796	.2716

Ratio of indirect to direct effect of X on Y				
	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	2.1479	1087.7010	.3390	2207.6176
SUM1AC	1.7775	808.9381	.2298	1432.3184
SUMCC	.3774	178.7588	.0011	637.7783
SUMNC	-.0070	102.2705	-1.8751	8.6512

Normal theory tests for specific indirect effects				
	Effect	se	Z	p
SUM1AC	-.0502	.0141	-3.5568	.0004
SUMCC	-.0107	.0071	-1.5040	.1326
SUMNC	.0002	.0082	.0240	.9808

Specific indirect effect contrast definitions

(C1) SUM1AC minus SUMCCT
 (C2) SUM1AC minus SUMNCT
 (C3) SUMCC minus SUMNCT

***** ANALYSIS NOTES AND WARNINGS *****

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

1000

Level of confidence for all confidence intervals in output:

95.00

----- END MATRIX -----

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