Electronic Human Resource Management and Organizational Resilience in Pakistan

By

Khalil Ahmad Khan
644-PhD/MS/F16

Supervised by

Dr. Nadeem Talib

A Dissertation submitted to the Department of Management Sciences,
National University of Modern Languages Islamabad, Pakistan
In partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSHPHY IN MANAGEMENT SCIENCES

FACULTY OF MANAGEMENT SCIENCES
NATIONAL UNIVERSITY OF MODERN LANGUAGES, ISLAMABAD

2024

ABSTRACT

Despite the growing adoption of Electronic Human Resource Management (e-HRM) to enhance the strategic capabilities of the HR function, research indicates that many organizations have not yet reaped the benefits of achieving this transformational role in operations and strategic contributions—a role that e-HRM promises to deliver. At the same time, studies have not succeeded in providing a consistent understanding of how this can be achieved. To address this issue, the study examined the contribution of e-HRM to organizational resilience through correlation and causal analysis.

This research is built upon a synthesis of diffusion of innovations theory, Remenyi's and Zuboff's information technology frameworks, and resource-based view theory. These theories served as the foundation for the creation of correlational and causal models and hypotheses. In a single case study, hypotheses were explored using self-administered questionnaires, in order: 1) to examine the impact of antecedent factors, such as relative advantage, compatibility, complexity, trialability, and visibility, on the adoption of e-HRM practices; 2) to examine whether adoption of e-HRM practices influences operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes; 3) to establish if the influence of adopting e-HRM practices on transformational e-HRM outcomes is channelled through simple mediation by operational e-HRM outcomes and relational e-HRM outcomes; 4) to determine whether adoption of e-HRM practices and the resulting transformational e-HRM outcomes influence organizational resilience; and 5) to determine whether influence of adopting e-HRM practices on organizational resilience is mediated by operational e-HRM outcomes, relational e-HRM outcomes and transformational e-HRM outcomes.

Data was collected from 573 HR managers and executives working in various private and public-sector organizations in Pakistan. The main aim was to investigate their perceptions towards the adoption of e-HRM practices, the outcomes derived from such practices, and the level of organizational resilience exhibited. To analyze the quantitative data, SPSS 21 was used for descriptive statistics, inferential statistics, and regression analysis. SmartPLS 4.1 was used to examine the relationships between latent variables using structural equation modeling (SEM).

The main novelty of this study lies in the discovery that operational e-HRM outcomes and relational e-HRM outcomes play a partial mediating role in the impact of adoption of e-HRM practices on transformational e-HRM outcomes and that operational, relational, and

transformational e-HRM outcomes act as sequential mediators in the influence of e-HRM practices on organizational resilience. The serial mediation pathways through operational and transformational e-HRM outcomes accounted for 11.72%, 15.26%, and 6.68%, respectively, of the total effect on organizational resilience. Similarly, the serial mediation pathways through relational and transformational e-HRM outcomes accounted for 5.50%, 20.28%, and 4.41%, respectively, of the total effect on organizational resilience.

The outcomes of this research contribute to the existing knowledge base on the extent of e-HRM adoption in three distinct ways: 1) by investigating the relationship between e-HRM practices, their antecedents, and outcomes; 2) by providing organizations with valuable insights on how to select and adjust their e-HRM practices to fine-tune their e-HRM practices to achieve optimal levels of proximal and distal outcomes, such as HRM value-added activities, strategic orientation and involvement, sustained competitive advantage, and organizational resilience; and 3) by explaining the role of simple and serial mediators linking e-HRM practices and organizational resilience. Finally, implications and recommendations are put forward for managers and researchers.

Keywords: e-HRM, e-HRM practices, operational e-HRM outcomes, relational e-HRM outcomes, transformational e-HRM outcomes, organizational resilience

Table of Contents

List of Tables

CHAPTER 1

INTRODUCTION

The goals of this chapter are to outline the topic of the thesis as well as to provide some background information on the issue. The foundation for the research study will be laid out in this introductory chapter. It precisely defines the issue, justifies its significance, and contextualizes the issue within organizational setting. A key part of this chapter focuses on the need for the research through identifying the research gaps - areas that have been overlooked or not previously explored in research. In addition to a description of the purpose of this study, research questions and research goals are also listed. Moreover, significance and relevance of the study is discussed, emphasizing the vital role e-HRM practices play in making organizations more resilient to proact, adapt and thrive in turbulent, surprising, and continuously evolving situations and scenarios. This is simply intended to give a broad overview of the research issue and the framework for the investigation.

1.1 Background

Over the past three decades, organizations have encountered a more hostile and challenging environment driven by globalization, rapid technological advancements, the emergence of the knowledge-based economy, dynamically changing markets, shrinking opportunities for differentiation, and hyper competition (Micu, Capatina, Micu & Schin, 2017; Quaosar, Hoque & Bao, 2018). Organizational resilience represents the fundamental capability of today's organizations to effectively manage crises within a market environment characterized by volatility, uncertainty, complexity, and ambiguity. It enables companies to remain responsive and flexible in the face of external pressures, and to swiftly recover and rebound from the detrimental effects of unexpected events. Consequently, the enhancement of organizational resilience in a constantly evolving business landscape has emerged as a prominent subject of interest for both business leaders and academic researchers. The

utilization of technology is frequently the cornerstone for numerous enterprises, driving progress, effectiveness, and adaptability. As a result, there has been a surge in incorporating technology to facilitate the management of human resources (HRM). This includes everything from recruitment and onboarding to career development and performance management. As such, technology is increasingly being used to facilitate human resource management. Technology can help streamline processes and reduce costs, while also providing employees with greater access to their HR information. Electronic Human Resource Management (e-HRM) has become an indispensable tool for modern organizations. e-HRM is the strategic utilization of web-based technology platforms to effectively carry out human resource strategies, policies, and procedures within organizations, with the aim of attaining operational excellence. In organizational life, the utilization of e-HRM has been maturing (Poisat & Mey, 2017). Many potential benefits of contemporary e-HRM technologies for organizations include cost reduction, operational efficiency, improved HRM service delivery, and transforming the HR function as an important partner in strategy (Bell, Lee & Yeung, 2006; Bondarouk & Ruël, 2009; Foster, 2010; Keegan & Francis, 2008; Strohmeier, 2007). The advent of digitalization in HR has revolutionized the way organizations utilize their workforce, streamline internal processes, and enhance the overall employee experience. This transformation has had a direct impact on productivity levels, as well as the quality of decision-making within the organization. Moreover, the role of HR professionals has evolved to include a greater emphasis on strategic thinking, moving away from their previous focus solely on operational aspects. By implementing and adopting e-HRM solutions, organizations in industrialized nations have significantly improved their performance during the last few decades. Despite this, e-HRM adoption and research in the context of underdeveloped countries are still in their infancy (Bondarouk, Parry & Furtmueller, 2017; Rahman, Mordi & Nwagbara, 2018; Omran & Anan, 2018).

The primary objective of this study is to comprehend the strategic implications of e-HRM on organizational resilience by conducting an empirical analysis of the antecedents, practices, and outcomes of e-HRM. The perceived attributes of e-HRM as an innovation are one key determinant of the pace at which e-HRM is embraced. The implementation, adoption, and utilization of e-HRM practices differ across organizations. The e-HRM practices include e-recruitment, e-selection, e-training, e-performance appraisal, e-compensation, e-personal profile, e-advertising, e-application tracking, e-communication, e-grievance tracking and handling system, and e-leave (Milon, Alam & Pias, 2022). This list provided is not exhaustive. e-HRM outcomes are the experiences, occurrences, and consequences of using information technology in HRM. Operational e-HRM outcomes demonstrate the efficiency and effectiveness of e-HRM practices, highlighting the administrative aspects of e-HRM. Relational e-HRM outcomes are reflected in improvements in the quality, quantity, and scope of HRM services, thereby ensuring better service for both internal and external HRM customers. Transformational outcomes of e-HRM are transformative results within HR, ultimately leading to an improved strategic orientation HR. By redefining and revamping HR functions, organizations enhance their overall HR strategy and align it with their broader organizational goals. This research will also undertake mediation analysis to determine intervening impact of preliminary e-HRM outcomes in enhancing postliminary transformational e-HRM outcomes for HR.

The principles of human resource management were adopted by multinational corporations (MNCs) in Pakistan in the mid-1990s. Pakistan Institute of Management (PIM) and leading universities began to disseminate professional HRM knowledge. HRM departments are performing significantly better than in the past due to increased awareness (Hanif & Imran, 2017; Masood, 2010). The computerization of personnel in Pakistan commenced in the 1980s, initially implemented by a select few large industries, financial

institutions, and government departments. The 1990s witnessed the automation of human resources, with MNCs embracing digital HR systems to enhance their organizational efficiency through various means. A decade later, the rise of HR automation in Pakistan reached a tipping point, prompting well-established local organizations to consider transforming their HR structures. This decision was driven by their understanding of how it could enhance their organization's performance over time and enable them to formulate company policies more strategically. Conventionally, a standalone HR system was known as a human resources management system (HRMS) or human resources information system (HRIS). In the contemporary business landscape, HRIS and e-HRM have undergone a transformation from standalone applications to being seamlessly integrated within enterprise resource planning systems (ERP). Pakistan's increasing reliance on technology by organizations has resulted in a continuous growth in the application of e-HRM, bringing additional benefits and strategic advantages to the organization (Iqbal, Ahmad, Razik & Borini, 2019; Zafar, Shaukat & Mat, 2010). e-HRM in Pakistan is still in its early stages. Changes are occurring in Pakistan's IT landscape. Research has shown that the transformations in information and communication technology will impact HRM in the future. In this scenario, we need to know where Pakistan stands in terms of IT adoption, particularly in the discipline of human resource management, and to what extent e-HRM is practiced achieving the primal and distal consequences.

Strohmeier and Kabst (2014) have categorized e-HRM users into three groups: non-users, operational users, and power users. The power users are organizations that fully utilize e-HRM and surpass others in terms of success-related contributions. It has been noted that the power user configuration outperforms the other two categories in terms of enhancing organizational performance (Strohmeier & Kabst, 2014). Non-users mainly consist of micro- and small-sized organizations, while medium-sized organizations fall into the operational

user's category. These organizations either limit the use of e-HRM to HR functions within their department or do not extend it beyond the organization. Therefore, the target population of this study includes large-sized Pakistani private and public organizations that fully utilize e-HRM as power users, benefiting both their internal and external stakeholders.

1.2 Problem identification

With the advancement of technology, organizations are growingly turning to e-HRM technology to help them take benefit of the administrative and strategic advantages it offers. Several business goals have been identified in support of e-HRM, including those reducing costs, aiming better efficiency, driving strategic goals, and to improving services for clients. All of these are unquestionably beneficial from an organizational perspective. Lepak and Snell (1998) argue that e-HRM leads organizations to achieve: operational consequences representing efficiency and effectiveness gains; relational consequences linked to improved service for internal and external HR clients; and transformational consequences reflecting a reorientation of their strategic direction. According to Welbourne (2010), reducing costs, enhancing HR services, and evolving strategic alignment are the three main objectives of e-HRM implementation. This all sounds appealing to any organization. However, research indicates that HR functions in many organizations have not yet realized the benefit of achieving transformational roles as strategic partner (Marler & Fisher, 2013; Strohmeier, 2009). Recent research does not provide strong evidence in favour of the argument that new IT investments could change the HR department's role from one that is more functional to one that is more strategic. Motivated by the limitations of evidence-based validation of e-HRM contributions, this study plans to study the relationships between e-HRM antecedents, practices, and outcomes, in addition to the transformation of the HR function as a strategic partner in the development of organisational resilience.

1.3 Problem statement

The capability of an organization to recover from adversity, adjust to new circumstances, and surmount challenges is known as organizational resilience. This resilience plays a strategic role in ensuring the prosperity of organizations in a constantly evolving and unpredictable global landscape. By implementing a strategic human capital management approach, organizations can enhance their ability to adapt and recover from challenges, thereby fostering resilience (Douglas, 2021). The implementation of strategic human resource management serves as a catalyst in bolstering an organization's resilience and adaptability, enabling it to effectively respond to potential crises and navigate through turbulent business environments. Furthermore, e-HRM assumes a significant role in improving decision-making capabilities, augmenting the organization's human capital, facilitating employee training, and evaluating performance. As a result, these strategic initiatives provide organizations with a competitive edge. Almashyakhi (2022) demonstrated that e-HRM has a substantial positive effect on strategic human resource management. The adoption of sophisticated e-HRM technologies may come at a high cost for businesses aiming to revamp their internal human resource management processes. Currency depreciation also influences the expenses associated with onsite resources, as well as licenses and subscriptions that are paid in US dollars. Despite its strategic orientation, e-HRM may not always result in strategic outcomes. Research indicates that the anticipated strategic benefits may not be fully achieved (Cai, 2023; Marler & Fisher, 2013). The need to assess whether the implementation of e-HRM results in strategic HRM and subsequently enhances organizational resilience arises from the conflicting findings on the alignment between e-HRM and the strategic orientation of HRM. Therefore, further research is needed to provide a more complete understanding of the impact of e-HRM on organizational resilience.

1.4 Research gaps

From a critical review of extant literature, following research gaps are identified:

1. The primary objective of Cai's (2023) study has been to examine the implications and results of e-HRM, opening avenues for future exploration of how the transformational outcomes and competitive advantages of e-HRM influence the external environment (Cai, 2023, p. 175).
2. Galhena's (2022) investigation examined the factors that influence the utilization of operational e-HRM practices by businesses in emerging economies. Moreover, the study outlined several possible research directions for further exploring the adoption of e-HRM. Future studies could explore the application of the integrated model to provide insights into the behaviors of organizations implementing various types of e-HRM practices, including relational and transformational HR (Galhena, 2022, p. 44).
3. The study conducted by Thathsara and Sutha (2021) focused on investigating how e-HRM practices affect organizational performance, with an emphasis on the mediating role of organizational agility. A recommendation put forth by the researchers was for upcoming empirical studies to consider additional mediators and moderators during their research endeavor (Thathsara & Sutha, 2021, p. 7).
4. "In addition to climate, other contextual factors, such as leadership, national culture or structure may also serve as moderators, to interact with high-performance HR practices to affect competency development" (Esch, Wei & Chiang, 2018, p. 1701).
5. According to Poisat and Mey (2017), e-HRM has the potential to enhance organizational efficiency and redefine the role of human resources (HR) as a strategic business partner. Their study sought to assess the current state of e-HRM and investigate research findings on the correlation between e-HRM and

organizational productivity. The authors recommended further research to gain a comprehensive understanding of how e-HRM could lead to strategic benefits, such as increased productivity (Poisat & Mey, 2017, p. 7).

6. Future studying "the linkage of the type of e-HRM outcomes achieved with the actual performance of the organization would also strengthen the voice of those in favor of e-HRM system adoption" (Panos & Bellou, 2016, p. 1105).
7. The adoption of e-HRM can result in a variety of outcomes, including operational, relational, and transformational results, which should be investigated by the researchers (Galhena, 2015, p. 11).
8. "Future research designs should consider where possible the measurement of strategic outcomes such as better knowledge management, more productive human capital, better organizational performance and so on" (Marler & Fisher, 2013, p. 34).
9. Future researchers should conduct further fieldwork and evidence-based studies to test the theories and frameworks evolved by carrying out case studies and experiments (Marler & Fisher, 2010, p. 48).
10. "Further research is also needed on the theory concerning the staged approach to e-HRM: is it a matter of growth or planning, how should it be implemented, what are the real effects in the longer term, and how does it influence the role of the HR department?" (Ruël, Bondarouk & Looise, 2004, p. 379).

From current researchers to seminal researchers and thought leaders in the realm of e-HRM, there has been ongoing discourse concerning the strategic value of e-HRM in enhancing organizational competitiveness. Organizations that are innovative have the potential to create and maintain a competitive edge. If they can sustain this edge, they will also possess resilience. Despite this, there is insufficient theoretical or empirical backing to suggest that e-HRM plays a significant role in sustaining competitive advantage or

organizational resilience. Extant research shows that many researchers have studied e-HRM impact on employee productivity (Iqbal, Ahmad, Razik & Borini, 2019; Ishrat, Khan, Nadeem & Aziz, 2020, Manzoor & Sohaib, 2021), job satisfaction and turnover intention (Quaosar, Hoque & Bao, 2018), HRM service quality (Bondarouk, Harms & Lepak, 2017), HRM effectiveness (Bondarouk & Ruël, 2006; Obeidat, 2016; Omran & Anan, 2018; Ruël, Bondarouk & Van der Velde, 2007), information responsiveness, information autonomy, transformation activities, (Quaosar, Hoque & Bao, 2018), operational, relational, and transformational e-HRM outcomes (Panos & Bellou, 2016), HR strategic involvement (Marler & Parry, 2016), strategic HRM (Almashyakhi, 2022), and organizational performance (Thathsara & Sutha, 2021). Strategic value of e-HRM is extensively discussed in literature. Despite this, to the best of researcher's understanding, there is little theoretical or empirical evidence that e-HRM contributes to sustained competitive advantage or organizational resilience. This research gap is still relatively unexplored in existing research.

According to Ruël, Bondarouk, and Looise (2004), the use of information technology (IT) is argued to facilitate operational e-HRM outcomes, which forms the fundamental basis for transformational e-HRM outcomes. Similarly, Panos and Bellou (2016) observe that relational e-HRM outcomes, such as improved service delivery, optimized workflow, and enhanced communication and cooperation among HR function, management, and staff members, serve as a precursor to the transformative outcomes of e-HRM. However, the potential mediating role of operational e-HRM outcomes and relational e-HRM outcomes still requires empirical investigation or evidence. Researchers have emphasized the importance of replicating their studies on the linkage between e-HRM and its proximal and distal outcomes. It is worth noting that these outcomes may differ across diverse regions, nations, countries, sectors, employee groups, and settings. By conducting such replications, scholars can compare the findings, assess the generalizability of their results, validate the

robustness of their conclusions, and provide a comprehensive global perspective (Obeidat, 2016; Omran & Anan, 2018; Panos & Bellou, 2016; Poisat & Mey, 2017; Quaosar, Hoque & Bao, 2018; Rahman, Mordi & Nwagbara, 2018).

From literature review, it is observed that e-HRM literature has primarily originated from developed countries of North America, Europe, and Australasia. Lately, literature is emerging with e-HRM studies originated from Far and South-East Asia (including China, Taiwan, and Malaysia) and countries with emerging economies from Latin America and Middle East. According to Ruël, Bondarouk, and Van der Velde (2007), the rise of e-HRM in developed countries proves that e-HRM technologies help in the transformation of HR into a strategic partner. However, its nature and roles in developing nations are still largely unexplored. e-HRM adoption and research are still in their infancy from the perspective of developing countries (Bondarouk, Parry & Furtmueller, 2016) and the proposition that e-HRM creates value is not well supported by empirical data (Iqbal, Ahmad, Razik & Borini, 2019). In the context of Pakistan, there is scarcity of studies investigating the interrelationships of e-HRM practices as a contribution to strategic direction, competitive advantage, and organizational resilience. The few studies of the Pakistani banking industry and small and medium-sized businesses that are published in the literature have only focused on e-HRM implementation, usage, and its determinants, as well as employee productivity and value creation (e.g., Iqbal, Ahmad, Razik & Borini, 2019; Ishrat, Khan, Nadeem & Aziz, 2020, Manzoor & Sohaib, 2021; Sabir, Abrar, Bashir, Baig & Kamran, 2015; Zafar, Shaukat & Mat, 2010). The evolution of the HR function into a key strategic ally has not been addressed in these studies. This highlights the need for more empirical research to elucidate the complex relationships that exist between antecedent factors and consequent outcomes of e-HRM diffusion and adoption in a developing country like Pakistan

The current study aims to examine the impact of e-HRM practices to influence proximal and distal e-HRM outcomes to help organizations become more resilient. As reported by Bondarook, Parry, and Furtmueller (2017), 168 different factors were found to influence e-HRM adoption. Therefore, examining an all-exhaustive list of antecedents and precursors of e-HRM practices is beyond scope of this study. To reach at the most relevant antecedents measuring organizational readiness for e-HRM adoption, researcher has reviewed and evaluated a variety of theories, models and frameworks frequently applied in information systems and technology research. In this context, Diffusion of innovation Theory (DOI), Theory of reasoned action (TRA), Theory of planned behaviour (TPB), Technology acceptance model (TAM), and Unified theory of acceptance and use of technology (UTAUT) are significant to mention. Similarly, it is important to mention that Technology-Organization-Environment framework, Technology-Organization-People framework, People-Process-Technology framework, and Strategy, Technology, Organization, People and Environment framework might be relevant in this regard.

The diffusion of innovation, defined by DOI theory (Rogers, 2003), is the “process in which an innovation is communicated through certain channels over time among the members of a social system”. The preliminary argument of this theory is that the adoption of innovation by an individual or an organization goes through five stages, namely knowledge, belief, decision, implementation, and adaptation. The term "adoption of innovations" relates to individual-level decisions to use innovations, whereas the term "diffusion of innovations" refers to the cumulative adoption of innovations in a social system (Rogers, 2003). DOI theory states that five factors influence innovation diffusion within organizations. These factors include perceived attributes of innovations (PAI), decision-making processes, avenues for communication, form and structure of social networks, and degree of change agents' initiatives to drive the change (Rogers, 1995). Therefore, DOI is to explain the reasons for

why a technology or innovation has become widely adopted within the business (Rogers, 1995). The perceived attributes of an innovation are a significant contributing factor in determining how quickly that innovation is adopted. The five attributes that account for between 49% and 87% of the change in the adoption rate are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1983, Rogers, 2003, p. 206). Relative advantage is the measure of how much an innovation is considered superior to the previous idea it replaces. Compatibility refers to the level at which an innovation is believed to be consistent with and meet the values, demands, and previous experiences of the potential adopters, as well as align with their expectations. Complexity refers to the degree of challenge and difficulty associated with understanding and applying an innovation. The concept of trialability pertains to the extent to which an innovation can be subjected to trials and experiments before its adoption. Visibility or observability denotes the level at which the effects of an innovation can be observed by other adopters. The HRM tools and instruments that are made possible by e-HRM could not be devised without IT. Therefore, e-HRM can be considered a breakthrough innovation in the domain of human resource management (Ruël, Bondarouk & Looise, 2004). Rogers (2003, p. 206) highlights, in his study of innovation adoption rates, these five perceived attributes prove to be the most important influences on adoption rates, explaining 49 to 87 percent of variance between innovations. As a result, other factors are of less predictive importance when compared to perceived attributes of innovations.

1.5 Purpose of the study

For many years, human resources departments of private and public institutions in developed countries have employed e-HRM solutions for improving their performance. There is clearly a lack of understanding about the effective application and impact of e-HRM systems in the context of developing countries. To gain a better understanding of e-HRM

systems, their potential to improve organizational performance and resilience in developing countries must be explored. The purpose of this quantitative study is threefold: first, to provide a good theoretical critique of the contemporary knowledge about the nature and significance of e-HRM; second, to highlight the key emerging issues in e-HRM research; and third, to determine if e-HRM practices are effective in making organizations more resilient facing highly turbulent, surprising, and continuously evolving environments. Furthermore, to measure the contribution of relational e-HRM, operational e-HRM outcomes, and transformational e-HRM in mediating the links between e-HRM practices and organizational resilience.

1.6 Research questions

The following research questions are the focus of this study:

1. Do the perceived attributes of innovations serve as determinants of e-HRM adoption within organizational contexts?
2. Does the adoption of e-HRM practices have an impact on operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes?
3. Do operational e-HRM outcomes and relational e-HRM outcomes play a simple mediation role in the relationship between the adoption of e-HRM practices and the achievement of transformational e-HRM outcomes?
4. Does the adoption of e-HRM practices and the consequent transformational e-HRM outcomes have any influence on organizational resilience?
5. Does the mediating role of transformational e-HRM outcomes influence the relationship between the adoption of e-HRM practices and organizational resilience, encompassing both simple and serial mediation pathways?

1.7 Research objectives

The current research is designed to accomplish the objectives that include the following:

1. To examine the impact of antecedent factors, such as relative advantage, compatibility, complexity, trialability, and visibility on the adoption of e-HRM practices.
2. To examine whether adoption of e-HRM practices influences operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes.
3. To establish if the influence of adopting e-HRM practices on transformational e-HRM outcomes is channelled through simple mediation by operational e-HRM outcomes and relational e-HRM outcomes.
4. To determine whether adoption of e-HRM practices and the resulting transformational e-HRM outcomes influence organizational resilience.
5. To determine whether influence of adopting e-HRM practices on organizational resilience is mediated by operational e-HRM outcomes, relational e-HRM outcomes and transformational e-HRM outcomes.

1.8 Significance of the study

The influx of new technology and globalization has created a new type of business landscape that is constantly changing and more competitive than ever before. The business environment of today is marked by uncertainty, ambiguity, and hyper competition. Organisational resilience, on the other hand, is the potential of an organisation to recognise and respond to unpredictable situations. Organizations must develop resilience capacity that empowers them to respond appropriately to unforeseen events and take advantage of such events that may undermine the survival of their businesses. Yu et al. (2022) emphasize the

critical importance of strategic HRM in establishing and leveraging organizational resilience capabilities. Many researchers and professionals believe that e-HRM is transforming the way how HRM is carried out in companies, transforming it from being solely of an administrative nature to being of more strategic relevance (Lepak & Snell, 1998; Marler & Parry, 2016, Milon, Alam & Pias, 2022). Therefore, the intent of this research is to study the role of e-HRM practices in helping organizations to be more resilient through today's highly turbulent, surprising, and ever-evolving scenarios. This diligent inquiry enriches and contributes to existing knowledge and research on e-HRM and organizational resilience. e-HRM is a relatively new concept, and due to the rapidly changing nature of technology, it is important to understand how it affects the workplace and employees in countries with different economic and social structures. Knowing the worth of determinants that affect e-HRM adoption and implementation in developing nations like Pakistan can help inform future policies and initiatives. This study may be the first attempt from the standpoint of a developing nation to investigate e-HRM practices, their precursors, and scientifically research the ongoing consequences of e-HRM practices, including transformational e-HRM outcomes, HR strategic orientation and involvement, and organizational resilience in Pakistan. This study will provide guidance on how the adopting e-HRM technologies can improve HRM efficacy at both practical and policy levels. For organizations at start or at an early stage of e-HRM adoption, findings of this study must be an assessment tool for measuring organizational readiness for adoption. Similarly, findings would offer organizations with insights into how to select and tune their e-HRM practices to achieve optimal levels of distal outcomes, such as HRM value-added activities, strategic orientation, strategic involvement, sustained competitive advantage and organizational resilience. Moreover, this research will empower organizations better understand the strategic role of HRM in developing and deploying resilience capacity.

1.9 Delimitation

Information and Communication Technologies (ICTs) as a dynamic solution for socioeconomic development are extensively utilized by both private and public organizations in the developing countries. In the past decade, Pakistan has seen a significant increase in ICT usage (Arif, 2018). Therefore, the application of e-HRM continues to grow in organizations, as is the fact that organizations can derive more benefits from it and gain strategic advantages from it (Zafar, Shaukat & Mat, 2010). Organizations that use e-HRM fall into two main strata: Private and public organizations. Private and public sectors in Pakistan are so large in numbers that factors such as time constraints, geographic limitations, and resources make it impossible to fully cover these sectors. The focus of current research is examining how e-HRM practices contribute to the organizational resilience. Therefore, this restricts the researcher to conduct research related only to Pakistani organizations that use e-HRM. The second delimitation of this study is that it only examines the perspectives of HR managers and/or executives employed by organizations that have already adopted and are using e-HRM.

CHAPTER 2

LITERATURE REVIEW

This chapter outlines a general overview of the literature review process for carrying out the research, establishes linkages between literature and research objectives, and offers a theoretical framework and methodological approach to the research. This thesis employs a critical literature review method to better understand the earlier studies that served as the foundation for this research. For this purpose, a thorough search was conducted for doctoral theses, case studies, research articles, essays, and books in English language in ScienceDirect, Emerald, SpringerLink, Taylor & Francis, and Informs databases available through HEC Digital Library, Pakistan Research Repository and Google Scholar. The words, electronic human resource management, e-HRM, e-HRM determinants, e-HRM practices, e-HRM outcomes, e-HRM barriers, e-HRM benefits, e-HRM consequences, e-HRM effectiveness, strategic human resource management, SHRM, and organizational resilience were searched in text, abstract, keywords or titles. The research resulted in sufficient theoretical and empirical studies to develop and justify the hypotheses. There are eight main sections in this chapter. The first section describes the theories behind the research model. Research model relationships are underpinned by Diffusion of innovation theory, Remenyi's and Zuboff's Information Technology frameworks, and Resource-based view framework. The concept of e-HRM is introduced in the first section, along with definitions, a brief commentary on alternative concepts, benefits, and the transformative role of e-HRM. The third, fourth, fifth, and sixth sections review concepts and approaches relevant to the antecedents of e-HRM adoption, e-HRM practices, e-HRM outcomes, and organizational resilience, respectively. The seventh section discusses and argues theoretical and empirical support in the literature for hypothesis development. The eighth section presents theoretical

framework, detailed argumentation, and graphical representation of the research model associating the variables under study.

2.1 Theories underpinning the study

This research is theoretically underpinned by diffusion of innovations theory, Information Technology frameworks, and resource-based view theory.

2.1.1 Diffusion of innovations theory

Diffusion of innovations (DOI) is a fundamental theory governing the implementation of technologies in organizations. It focuses on how new technologies are implemented throughout organizations. It also explains how technology is used in organizations (Rogers, 1995). Diffusion of innovations theory states that five factors influence innovation diffusion: perceived attributes of innovations (PAI), type of innovation-decision, nature of communication channels, nature of social system, and level of promotional efforts by change agents (Rogers, 2003, p. 206).

How attributes of an innovation are perceived by its users is a key factor in determining how quickly the innovation gets adopted. Between 49% and 87% of the variation in adoption rates can be attributed to five features of innovations: Relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1983; Rogers, 1995, p. 206). There have been many researchers who have been inspired to apply DOI theory to the study of e-HRM implementation due to numerous advantages it provides. Substantial research has been conducted on e-HRM implementation. According to Rahman, Mordi, and Nwagbara (2018), DOI theory provides a well-developed paradigm for presenting these findings in addition to methods for quantitative and qualitative research to determine the extent or degree of e-HRM implementation in organizations.

2.1.2 Remenyi's and Zuboff's Information Technology frameworks

Three phases of usage are included in one of the most well-known models for IT impact in the research: *"automation, information, and transformation"* (Remenyi, Money & Twite, 1991; Zuboff, 1988). Information technology automation frequently minimizes the volume of repetitive tasks that are required and potentially allows people the chance to dedicate more time to thinking and utilizing their full intellectual capabilities. "Informating IT" raises the visibility into activities, events and objects to a higher standard through the generation of information about the underpinning administration and production processes that organizations draw on to get their work done (Zuboff, 1988, p. 9). As pointed out by Zuboff (1988), IT, because of its unique abilities to both automate and inform, has the potential to create transformative impact. Additionally, IT may have a transformational impact, redefining organizations with new business operations and practices. In this context, IT helps to restructure or re-engineer their business models, processes, practices, assets, capabilities, and relationships to develop new goods, services, or business processes (Angeles, 2013). It may also be the case that IT transformation may prompt HR practitioners to develop novel practices or offer HR services in an innovative way to their clients because of this transformation (Gardner, Lepak, & Bartol, 2003).

2.1.3 Resource-based view

Resource-based View (RBV) is a management framework that helps an organization identify strategic resources that it can exploit to gain competitive advantage over a long term. The 1991 article by Barney titled "Firm Resources and Sustained Competitive Advantage" is acknowledged as the pioneering work in the evolution of the resource-based view (Barney, 1991). RBV theory argues that organizations are most likely to succeed in the long term if they have valuable, highly unique, difficult to replicate, and irreplaceable resources. These strategic resources may act as the foundation for establishing company's capabilities that

eventually result in exceptional performance in the long run. Capabilities are needed to pool, manage, and otherwise leverage resources in such a manner that creates value for customers and gives firms an edge over their rivals. RBV investigates why organizations succeed or fail in the marketplace from the inside-out perspective or point of view. There has been considerable research conducted on the effect of information technology on the performance of companies applying resource-based view theory. Its main rationale is that competitive advantage of an organization is established by the rare and valuable resources that it controls. IT as a valuable resource has a beneficial effect on company performance (Liang & You, 2009). This theory states that a company's resources, such as technology, can be used as a competitive advantage if they are properly managed. Therefore, studying how information technology can be used to create a competitive advantage can help companies better understand how to use technology to improve their performance.

The RBV perspective has exerted significant influence across various domains of HRM, notably within the realm of strategic HRM. It has been applied to determine the types of HRM systems and configurations that contribute to superior outcomes within organizations. The strategic HRM field focuses on aligning human resource management practices with the overall strategic goals of the organization. From the RBV perspective, this means identifying and implementing HRM systems and configurations that leverage the organization's unique resources and capabilities to achieve superior firm performance. RBV provides a theoretical framework for understanding how HRM practices can contribute to a company's competitive advantage and long-term success. In practice, the RBV is often utilized to identify the resources that are most likely to shape a company's competitive advantage. Cai (2020) posits an optimistic perspective on the potential of RBV to enhance the theoretical underpinnings of e-HRM by explaining the connections between the adoption and outcomes of e-HRM.

2.2 Electronic Human Resource Management (e-HRM) and related definitions

Human Resource Management (HRM) is an essential component of any organization since is responsible for maximizing the value of its human capital and ensuring a successful organization. The profession of HRM has transformed over the last decade with the introduction of technological tools to enhance performance. The incorporation of information technology (IT) applications in HRM operations is known as "electronic human resource management" (e-HRM). Using technological tools, e-HRM attempts to accomplish all HRM related operations quickly and accurately in which HRM is involved. e-HRM has brought about a shift in the way organizations think about and manage their human resources. However, it is fairly a novel phenomenon to support organizations. As a result, it is simple to misunderstand. However, there is a variety of e-HRM definitions in the academic literature. Ruël, Bondarouk and Looise (2004) describe e-HRM as *"a way of implementing HR strategies, policies and practices in organisations through the conscious and directed support of web technology-based channels in order to comply with the HR needs of the organization".* e-HRM is defined by Strohmeier (2007) as the planning, implementation, and use of IT to connect and support at minimum two individuals or a group of actors in a collaborative implementation of HR operations. Ruël, Bondarouk and Looise (2004) contend that e-HRM is a workable choice for an HRM strategy.

Bondarouk and Ruël (2009) define e-HRM as *"an umbrella term covering all possible integration mechanisms and contents between HRM and information technologies aiming at creating value within and across organizations for targeted employees and management".*

According to Lepak and Snell (1998), there are three distinct forms of HRM, which are operational HRM, relational HRM, and transformational HRM. There are similar distinctions made between transactional HRM, traditional HRM, and transformational HRM by Wright and Dyer (2000), where organizations can choose to deliver human resource services in

person or electronically. With this line of reasoning, Ruël, Bondarouk and Looise (2004) distinguish three forms of e-HRM: Operational e-HRM, relational e-HRM, and transformational e-HRM. Research literature identifies three distinctive types of e-HRM practices in relation to prospective targets: Operational, relational, and transformational e-HRM practices (Bissola & Imperatori, 2014). Panos and Bellou (2016) investigated the influence of different sorts of e-HRM goals on distinctive forms of e-HRM outcomes. The results reveal that although change strategists achieve transformational e-HRM outcomes, administrative professionals prefer to achieve primary outcomes, such as operational and relational e-HRM outcomes.

Strohmeier and Kabst (2014) examined the types, contexts, and outcomes of e-HRM in a bid to better comprehend the likely causes, varieties, and achievements of various sorts of e-HRM. The findings show that there are three distinct types of e-HRM users existing in the organizations, including: "non-users" (organizations do not pursue e-HRM at all); "operating users" (organizations using operational e-HRM only) and "power users" (organizations fully leveraging operational, relational, and transformational e-HRM).

A new category of human resource information system called as e-HRM has evolved with the emergence of the Internet. e-HRM is a multidisciplinary concept and is described in various forms throughout the literature. It is possible to think of IT-enabled HR management as both a change agent and an active participant who is reliant on the usage of technology, and how it collaborates to work within an organization. The literature on e-HRM has other relevant terms as well. For example, *Web-based HRM* integrates the concept of human resource management and web-based technologies like enterprise resource planning (ERP) applications. *Virtual HRM* depicts a network of internal and external actors working together to provide services on part of HR function. *Business-to-Employee (B2E)* combines the concept of HRM with the use of any form of technology that facilitates both managers and

staff members to directly access human resources and variety of employment-related services (Strohmeier, 2007), and *digital HRM* conceptualizes the mutual dependencies of digitalization of HRM together with the general digitalization of organization (Strohmeier, 2020). After evaluating several definitions of e-HRM, potential of technology is recognised, from being utilised as tool for communication between actors, to replacing HR personnel in carrying out HR department activities (Strohmeier, 2007). Strohmeier (2007) argues that while some of the concepts proposed to replace e-HRM are broader, covering more topics than e-HRM, others are narrower, not covering enough topics for an adequate replacement. This highlights the complexity of the meanings of the concept and showing their inability to fully replace or represent it.

According to research to date, the time savings realized through IT's capacity to replace time-consuming processes that require the presence of HR professionals with automated procedures is the main reason organizations adopt IT for their HR operations (Lawler & Mohrman, 2003). In addition, e-HRM systems promise cost reductions by facilitating internal and external coordination and control over HR processes. As a result, implementation of e-HRM systems is usually aimed at freeing up HR practitioners' time to carry out initiatives e.g., employee training and development programmes and talent management (Dery, Hall, Wailes & Wiblen, 2013). Likewise, e-HRM systems often feature the ability to produce and analyze business data, whether in real time or otherwise, to aid in the development and discovery of novel corporate strategies and practices (Lawler & Mohrman, 2003; Lengnick-Hall & Moritz, 2003). Using e-HRM frees HRM from acting as an intermediary, enabling them to formulate organizational strategy plans, and turning HR professionals being transformed from administrative paper handlers to strategic planners. This shift in focus allows HR professionals to become more involved in the strategic planning process, providing valuable insight and ideas for the organization's future (De Alwis, Andrlić &

Šostar, 2022). For instance, employing e-HRM systems has made it possible to give personnel planning and performance indicators. Subject to these findings, it is widely believed that successful implementation of an IS strategy improves organizational effectiveness, thus transforms HR status from an ordinary operational standing to a fully functional strategic business partner's position (Lepak & Snell, 1998; Ruël, Bondarouk & Looise, 2004). Despite all the presumptions, recent research does not provide enough evidence for the argument that new investments in IT inevitably transforms the role of HR function from one that is strictly operational to one that is more strategically oriented (Besson & Rowe, 2012; Marler & Fisher, 2013; Parry, 2011).

2.2.1 Operational e-HRM

Operational e-HRM technology automates HRM procedures to make HR function more administratively and operationally effective. These technologies are also referred to as administrative e-HRM (Ball, 2001). According to Broderick and Boudreau (1998), transactional e-HRM is another term for these systems. Given that the "automate style" of information technology framework (Tansley, Newell, & Williams, 2001; Zuboff, 1988) serves as the foundation for operational e-HRM, it strives to automate numerous administrative processes to lessen administrative burdens, lower costs, and boost efficiency of HRM (Strohmeier & Kabst, 2014). Thus, operational e-HRM enables day-to-day transactional HRM tasks, including rudimentary business processes such as employee recordkeeping and administration, electronic access control, time and attendance, and salaries (Lepak, Bartol & Erhardt, 2005).

This kind of technology aims to improve the effectiveness and efficiency of HR service delivery by adding value to the process. HR functions can help organizations cut costs by lowering the expenses associated with providing HR services with staff downsizing, managing people by carrying out HR operations electronically, and storing HR data using

online storage systems (Lengnick-Hall & Moritz, 2003). The usage of operational e-HRM is projected to make it possible for HR specialists, managers, and staff members, to have access to the data and information they need to successfully and effectively perform their everyday HRM tasks.

On the contrary, Strohmeier and Kabst (2014) pin down that automation of HRM activities alone does not enable HR to fully utilize the technology. Rather, it outreaches automation of HRM activities and instead provides the necessary information to guide organizational decision-making. A comprehensive information system must perform these two functions to maximize its potential, since using information systems to automate organizational processes (such as bookkeeping) and to provide information that can be used as a basis for guiding organizational decisions can assist organizations in achieving and maintaining long-term competitive advantage and performance.

2.2.2 Relational e-HRM

Relational e-HRM technologies seek to enhance employee relationship management and HR customer service by using web-based technology to bridge the gap between HR practitioners and the people they serve, essentially managers, jobholders, job seekers, etc. It is intended to bring about better interaction among stakeholders (Strohmeier, 2013).

Relational e-HRM is more concentrated upon the development of advanced interpersonal activities, which are those that have the closest touch with people and their responsibilities inside an organization, than it is with administrative processes. Additionally, relational e-HRM strives to develop technologies that improve fundamental HRM procedures including hiring and selecting new employees, training, performance management and appraisal, motivating employees, and rewarding them (Ruël, Bondarouk & Looise, 2004). Furthermore, it develops heterogeneous networks within organizational divisions, providing new opportunities for interaction between geographically distant people, and not only within

the organization, but also enhancing integration and communication with a variety of "external stakeholders" like job searchers, outside information sources, and other HR professionals.

Regardless of the culture, language, or nation in which the organization conducts business, relational e-HRM potential encourages the standardization of processes amongst the actors (Strohmeier, 2007). Additionally, and as appraised by Ruël, Bondarouk and Looise (2004), relational e-HRM helps centralized policymaking on head of HR department while decentralising the execution of human resources tasks. The emphasis of relational e-HRM is not only to utilize the self-service capabilities of e-HRM, but also to extend the potential of e-HRM beyond the boundaries of the HRM department. It is anticipated that managers, supervisors, and workers would be granted direct access to the personal data relevant to human resource management through self-service technologies, allowing them to conduct their own HRM-related transactions that were previously processed by HR personnel only.

In other words, technology use has the potential to enhance the processes involved in relational activities. In addition, it seeks to achieve increased HR's transparency in relationships with its employees and to improve employees' perception of management's transparency (Bissola & Imperatori, 2014). However, because HR functions are so closely related to the routine activities of people management processes, they frequently have a strong transactional component to them.

2.2.3 Transformational e-HRM

Transformational e-HRM, which is referred to as informational e-HRM as well, has a diagnostic (analytical) character and is used to raise the standard of decision-making related to HR (Strohmeier and Kabst, 2014). Due to its foundation in a "informate style" of information management, it offers enterprises a favourable setting that allow them to extract strategically significant human resource information which could be utilized to guide

organizational decisions and foster organizational accomplishments. As a result, it is anticipated that it will facilitate HR's transition to a strategic partner that adds value to corporate strategy and improves business performance (Rogers & Wright, 1998).

Transformational e-HRM is a strategy-oriented technology with a strategic focus that manages non-administrative and non-routine HR tasks meant to execute strategy, promote an entirely novel culture, or meet corporate objectives (Lepak & Snell, 1998; Ruël, Magalhaes & Chiemeke, 2011). At the same time, this is also important to note that the human resource information used in the analysis originates from operational processes and is highly dependent on the effectiveness and efficiency of those processes.

From a technological perspective, this technology is anticipated to enhance strategic sense of direction of HR and its share in organizational performance by transforming HR information into strategically relevant (Tansley, Newell & Williams, 2001). Since it is anticipated that transformational e-HRM will give managers the ability to combine their HR-focused goals with larger business goals, it is aimed to ensure they can leverage the HR data that technology has made available to them to arrive at frontline HR decisions that will allow them to guarantee that their workforce is able to promptly react to ever-evolving organizational needs. According to Foster (2010), operational e-HRM should be implemented before relational and transformational e-HRM. Organizations will be able to build more strategic competency, as they transition in sequence from e-HRM utilizing first for operational, then to relational, and subsequently to transformational stages (Foster, 2010).

2.3 The antecedents of e-HRM adoption

The current study aims to investigate how the relationships between e-HRM practices and both proximal and distal e-HRM outcomes strengthen the resilience of organizations. Bondarouk, Parry, and Furtmueller (2017) conducted a literature review spanning forty years of research on electronic HRM and reported that 168 factors were recognized empirically as

contributing to the adoption of electronic HRM since the 1970s. Therefore, examining an all-exhaustive list of antecedents and precursors of e-HRM practices is beyond scope of this study. However, the researcher has examined and evaluated a variety of theories, models, and frameworks that are frequently applied in information systems and technology studies to arrive at the most relevant antecedents measuring organizational readiness for e-HRM adoption. In this context, Theory of reasoned action (TRA), Theory of planned behaviour (TPB), Unified theory of acceptance and use of technology (UTAUT), Diffusion of innovation Theory (DOI), Technology acceptance model (TAM), are significant to mention. Similarly, it is important to mention that Technology-Organization-Environment framework (TOE), Technology-Organization-People framework (TOP), People-Process-Technology framework (PPT), and Strategy, Technology, Organization, People and Environment framework (STOPE) might be relevant in this regard.

Drawn from social psychology, TRA (Ajzen & Fishbein, 1980) and its extension TPB (Ajzen, 1985) are influential theories of human behaviour. The major purpose of both theories is to anticipate future behaviour in people based on their prior held attitudes and behavioural intentions. TRA and TPB are theories of individual acceptance (Venkatesh, Morris, Davis & Davis, 2003). Further, there might be cases where individual intentions and behaviour do not turn in to actual decision and adoption due to socio-economic and cultural constraints. Similarly, UTAUT, as formulated by Venkatesh, Morris, Davis, and Davis (2003), is a derivative of theory of reasoned action, TPB, TAM, motivational models, combined TAM and TPB, models of PC use, diffusion of innovation theory, and social cognitive theory. UTAUT explains only individual acceptance and usage decisions. Concepts like behavioural intention, attitude, usage decision and use behaviour are of dichotomy nature and are restricted to decision-making at individual consumer level. Furthermore, specific intentions may not always influence the interplay between attitudes and behaviour.

The population of this study included organizations that fully utilize relational, operational, and transformational e-HRM. According to Oliveira and Martins (2011), TAM, TPB, and UTAUT work on an individual level. Therefore, application of TPB, UTAUT and also of TRA that emphasise individual acceptance is not relevant where organization decisions have already been taken at collective and/or authority levels and organizations have already invested in planning, implementation, operation, and application of e-HRM.

According to the TOE paradigm (Tornatzky & Fleischer, 1990), three different organizational context factors affect adoption decisions. These factors include “the technological context, organizational context, and environmental context”. "Technological context" corresponds to both internal and external technologies significant to the organization. "Organizational context" describes organizational attributes, for example size, scope, and structure of the organization. "Environmental context" refers to the setting in which an organization functions, encompassing its sector, its rivals, and its interactions with the government (Tornatzky & Fleischer 1990). Although Technology-Organization-Environment framework has been extensively used in extant research, it is frequently criticized for failing to offer a theoretical foundation for establishing causal correlations. TOE seems to disregard that the three contextual factors behave differently across varying situations or studies in reality (Rahman, Mordi & Nwagbara, 2018). Additionally, Baker (2011) concludes that TOE framework has not evolved much since it was first created. Dependent variable of TOE is technological innovation decision making which does not sufficiently capture extent of actual usage or practices of technological innovation. Therefore, TOE framework is not recommended for this study.

According to the TOP framework (Bondarouk, Parry & Furtmueller, 2017), there are three main areas in which predictors impacting the adoption of e-HRM can be classified: Technology; organization; and people. The environmental aspect of the TOE framework, that

is the driving competitive force behind technology innovation decision-making, has been replaced in the TOP framework with people aspects, which have appeared to be extremely crucial for effective adoption of technology. People aspects comprises of senior management encouragement, user acceptance, cross-unit cooperation and communication; human resource competence and skills; and leadership and culture (Bondarouk, Parry & Furtmueller, 2017). However, majority of people factors of TOP framework overlap with the organizational context or alternate factors of competing theories, models, and frameworks. TOP framework is introduced rather lately in 2017. Bondarouk, Parry, and Furtmueller (2017) recommended that future research should investigate the known predictors and their effects on various functional HRM areas. Due to lack of extant empirical evidence, TOP framework is not considered further for this study.

PPT framework is a holistic model for process improvement. It refers to the methodology that drives action by balancing people, process, and technology. For an organization, people perform a specific type of job, and they typically use processes (and frequently technology) to better manage and enhance those processes. The roots of this concept are not very clear. In IT industry, this concept first appeared in the Information Technology Infrastructure Library (ITIL) (Prodan, Prodan & Purcarea, 2015) and Information Technology Service Management (ISTM). Organizations use the PPT framework in the fields of information security, business intelligence, and IT service management. Complementary to this, STOPE framework (Bakry & Bakry, 2001) was developed as an integrating tool for concerns related to the usage of digital technology. The first level of STOPE domains are strategy, technology, organization, people, and environment. STOPE frameworks were previously used in e-business development, e-government development, ERP system integration, e-readiness evaluation, and managing requirements for ISO 27001 Standard for information security management system (ISMS) compliance. PPT and STOPE frameworks

share domains concurring with few of UTAUT, TOE, and TOP factors. However, both provide only a methodology for process improvement and compliance, but not establish a causal relationship. Hence, PPT and STOPE frameworks are not appropriate for this study.

DOI theory (Rogers, 2003) refers to diffusion of innovations as a "process in which an innovation is communicated through certain channels over time among the members of a social system". The fundamental tenet of this theory is that innovation adoption by individuals or organizations occurs through five stages: knowledge, belief, choice, implementation, and adaptation. The adoption of innovations refers to individual-level decision-making to use an innovation, whereas cumulative adoption of innovations in a social system is referred as to the diffusion of innovations (Rogers, 2003). DOI theory states that five factors influence innovation diffusion within organizations. These factors include innovation's perceived attributes (PAI), decision-making processes, avenues for communication, form and structure of social networks, and degree of change agents' initiatives to drive the change (Rogers, 1995). Therefore, DOI is to explain the reasons for the diffusion of an innovation or a technology within an organization (Rogers, 1995). Perceived attributes of an innovation are one significant contributing factor in determining how quickly that innovation is adopted. The five characteristics that explain between 49 and 87 percent of the variation in adoption rates are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1983, Rogers, 2003, p. 206). TAM (Davis, 1989) is a customized version of TRA which mainly deals with the information systems contexts. TAM model, basically, helps in understanding of the acceptance level as well as the attitude towards the IT systems which have been adopted by the organization. Additionally, TAM and Rogers' (1983) DOI theory are both consistent. TAM, an incredibly constrained model, describes the adoption procedure using just two antecedent constructs: Perceived usefulness and perceived ease-of-use. In the case of TAM, the perceived usefulness corresponds to the perceived

relative advantage in the case of DOI. In a similar way, complexity in the DOI model represents perceived ease of use in the TAM model as being simple (Quaosar, Hoque & Bao, 2018). Perceived ease of use is seen as a measure of how simple a technology is to use. In the DOI model, complexity is seen as the opposite of simplicity and is evaluated based on how difficult the technology is to use.

Use of e-HRM system provides an opportunity for both line managers and staff members to take charge of the employee-management relationship through a collaborative approach. Without IT, it would be impossible to build HRM instruments and tools in the manner that is made possible by e-HRM. From this perspective, use of e-HRM is viewed as an innovation in the discipline of human resource management (Ruël, Bondarouk & Looise, 2004). e-HRM is the application of digital technology to manage an organization's HR activities. It is seen as an innovation because it provides an extraordinary efficient and effective way of managing HR activities than traditional methods. The study of both individual-level adoption and organizational-level diffusion can benefit greatly from the application of DOI theory (Rogers, 2003). The current research work thus develops the research model using both the DOI and TAM. The use of Rogers' (2003) DOI theory and Davis's (1989) TAM model enable the consideration and proposed investigation of factors most likely to influence e-HRM adoption and practices.

In his study of innovation adoption rates, Rogers (2003, p. 206) notes that these five perceived factors are those that appear to have the most significant impacts on adoption rates, accounting for 49 to 87 percent of variation between inventions. The perceived characteristics of innovations are more accurate predictors as opposed to other four factors including decision-making processes, avenues for communication, form and structure of social networks, and degree of change agents' initiatives to drive the change. As such, other variables are of less predictive relevance.

The influence of five or fewer perceived features of innovations as predictors of adoption of technological innovations, information systems, and IT has been investigated by numerous studies based on the current literature.

Quaosar, Hoque, and Bao's (2018) investigated the antecedents and consequences of HR information system use in context of a developing country. Based on DOI theory, this study examines only four perceptions of innovation attributes within the research scope, which are relative advantage, compatibility, complexity, and visibility originated from DOI theory.

Ndayizigamiye and McArthur (2014) investigated the determinants influencing e-commerce adoption within South African small, medium, and micro enterprises (SMMEs). Only three of the DOI's persuasive factors: relative advantage, compatibility, and complexity, were examined for e-commerce potentials.

Jebeile and Reeve (2003) investigated the widespread adoption of E-Learning innovations in a secondary level educational institution in Australia. To predict the dependent variable, the three perceived characteristics of innovations (PCI), image, ease of use, and results demonstrability from the TAM model and the four perceived attributes of innovation (PAI), relative advantage, compatibility, visibility, and trialability from the DOI theory (Rogers, 1983) were both taken into consideration. These factors have an impact on the adoption and diffusion of E-Learning technologies.

Frennert, Forsberg and Östlund (2013) conducted research and reported the findings of their study which examined what older people think about the use of tele-healthcare systems in Sweden. The research questions were addressed using the DOI theory. Only four characteristics of the tele-healthcare systems, such as relative advantage, compatibility, complexity, and observability were researched to get insight into how older users evaluate the systems.

Mndzebele (2013) investigated the current situation and level of e-commerce adoption in the South African hotel sector. Only three determinants from DOI theory were studied to determine whether there is a correlation between each of these technological aspects and the level of adoption of e-commerce. These three determinants are relative advantage, compatibility, and complexity.

Kassim, Ramayah and Kurnia (2012) analyzed predictor and response variables of HR information systems usage in Malaysia. The target was companies that use human resource information systems. In accordance with the DOI theory, they predicted the degree to which HRIS innovations would be utilized by considering five aspects related to relative advantage, compatibility, complexity, testability, and visibility. Their research framework incorporated each of these characteristics. This approach ensures that researchers conduct a well-rounded analysis that encompasses diverse viewpoints.

An evaluation of competing frameworks, models, and theories in the literature, as well as the application of DOI theory's perceived attributes of innovations as predictors, are cited here. It has been established through past research that user perceptions of all the five innovation characteristics conceived by Rogers (2003) are sufficient precursors in reliably predicting the adoption of e-HRM practices in the workplace. A brief discussion of the underlying reasons is presented here. First, DOI theory can be used to analyze the adoption of innovations at both individual and organizational levels. Second, these five factors account for between 49% and 87% of the variation in adoption rates (Rogers, 1983; Rogers, 2003, p. 206). Third, other factors have less predictive power than perceived attributes of innovations. Finally, in the body of existing research, there is precedent for using these five attributes, or even fewer, as significant prognosticators of innovation diffusion.

Behavioural intention as a construct, stems from human behaviour and social psychology theories like TRA, TPB, and UTAUT and does not act as a link between attitude

and behaviour. Whereas DOI explains the direct linkage connecting perceived innovation characteristics and the dependent variable, innovation adoption rate. DOI establishes a direct connection between the perceived characteristics of an innovation and the probability of its adoption by the user. By analyzing the user's perceptions towards the innovation, it aims to elucidate the factors influencing the rate of adoption. Consequently, the primary focus of this study will be on the adoption of e-HRM practices, as it represents the pivotal construct of interest.

DOI offers three types of innovation decisions as (1) optional, allowing individual flexibility; (2) Collectively, creating a balance between maximum efficiency and freedom; and (3) authority, resulting in high adoption rates but also significant resistance (Rogers, 1995). The target population of the study includes power user organizations that make full use of e-HRM for both internal and external stakeholders. Such organizations have already invested heavily in e-HRM systems through collective or authority decisions and little leverage is left for individual behavioural intentions and decisions to reject e-HRM adoption. Heavy investments bring along enhanced efforts on the part of change agents to diffuse innovations. Additionally, it is impossible for HR managers and executives to fulfil HR's transformation function as a partner in strategy if they have negative behavioural intentions, attitudes, and usage patterns.

The literature also supports the precedent to use DOI theory in research without intention to adoption variable.

Tan and Eze (2008) explore the determinants and trends of internet-based information and communication technology adoption among SMEs in Malaysia. The conceptual framework links independent variable with dependent variable ICT adoption. However, the researchers did not employed the intention to adopt ICT construct as an intervening or criterion variable.

Amini and Bakri (2015) specify a research model centred around DOI theory and TOE framework for better understanding the dynamics of cloud computing adoption among Malaysian SMEs. To explain causal links, any hypothetical variable such as intention to cloud computing adoption is not included in their research.

Mndzebele (2013) used adoption of e-commerce as a predicted variable rather than intention to adopt e-commerce to analyze the existing state and level of adoption in the hotel industry in South Africa.

In the same manner, Jebeile and Reeve (2003) establish a direct link between the diffusion of E-Learning innovations and perceived characteristics of innovations. In their study, they refrained from using the intent to use E-Learning as a variable. This was most likely since the study focused on the effectiveness of E-Learning as opposed to the intention to use E-Learning. The authors felt that measuring the effectiveness of E-Learning was more important than measuring the intention to use it.

Ndayizigamiye and McArthur (2014) examined the relative benefits, compatibility, and complexity compared to e-commerce adoption in their study, The study did not mention or rely on intention to adopt e-commerce variable.

Likewise, relative advantage, compatibility, complexity, trialability, and visibility factors are used to predict the degree of adoption of HR information systems in Kassim, Ramayah, and Kurnia's (2012) research framework. But this extent of HR information system use variable is not substituted with a variable such as intention to use HR information system.

The reasons for including the variable “Adoption of e-HRM practices” rather than the variable "Intention to adopt e-HRM practices” have been summarized here. Firstly, DOI theory explains a simple, straightforward, and direct linkage between variables predicting adoption rate as predictor variables and rate of adoption of innovations as criterion variable. Secondly, the act of performing a behaviour is not always preceded by a strong intention. It is

not the intention to adopt e-HRM but rather is adoption of e-HRM practices itself that would result in e-HRM outcomes like strategic orientation and involvement of HRM. Thirdly, such proposition turns out to be illogical when heavy investments in e-HRM systems has already made and HR managers and senior executives demonstrate negative intention, attitude, and use behaviour against e-HRM. Fourthly, evidence from literature suggests inclusion of adoption of innovations variable as direct consequent of factors influencing the adoption.

The most common aspect of e-HRM system is that it begins as a straightforward processing or transactional tool, evolves into a tool that facilitates the exchange of information or supports decision-making, and then morphs into a tool that supports transformational initiatives as a strategy (Foster, 2010). The strategic tool stage of e-HRM concentrates on the use of technology to support long-term organizational objectives, such as strategic planning, workforce development, and competitive advantage. Academicians typically simplify the process of e-HRM development into three stages: "Automation, information, transformation" (Remenyi, Money & Twite, 1991); Adoption, implementation, institutionalisation (Shrivastava & Shaw, 2003); "Transactional, traditional, transformational" (Wright & Dyer, 2000); Reduce cost, improve HR services, improve strategic orientation (Ruël, Bondarouk & Looise, 2004); and Publishing information on the Internet, automating transactions, transforming HR function (Lengnick-Hall & Moritz, 2003). This three-stage maturity model of e-HRM development is often cited in the literature and appears to be widely supported (Foster, 2010).

The perceived characteristics of an innovation are a key component in determining how quickly that innovation is adopted. Since its application in information systems (IS) research, DOI theory has been used in a wide range of study areas.

In accordance with the DOI theory, user perspectives on innovations are shaped by five essential attributes: relative advantage, compatibility, complexity, trialability, and visibility. The way

users perceive these aspects influences their adoption behaviour. If users believe that an innovation offers superior benefits compared to existing solutions, fits well with their beliefs, is not overly complex, can be tested before full implementation, and demonstrates visible results, they are more likely to accept it.

The subsequent paragraphs provide a brief explanation of each attribute.

2.3.1 Relative advantage

Relative advantage *"is the degree to which an innovation is perceived as being better than the idea it supersedes"* (Rogers, 2003). Relative advantage is the measure of how much an innovation is considered superior to the previous idea. Financial success, productivity improvements, and other advantages are typically included while evaluating it. It is commonly observed that the adoption rate of an innovation is generally higher when individuals perceive a greater relative benefit associated with it. In general, the adoption rate of an innovation typically correlates positively with its relative benefit perceived by a member of the system.

2.3.2 Compatibility

Compatibility, as defined by Rogers (2003), refers to the degree to which an innovation may be trusted considering underlying assumptions, established values, established ethics, prior experiences, and the demands of potential consumers, depending on how compatible the innovation is with those factors. An innovation's compatibility is determined by socially and culturally accepted beliefs, norms and standards, earlier ideas that were previously initiated, or consumer's aspirations from the innovation When an idea is more congruent with prevalent norms and beliefs, potential adopters regard it as being clearer and compatible. When an innovation aligns more with people's preferences and needs, it becomes more probable for adopters to seamlessly incorporating it into their daily routines. If an innovation is more

compatible with people, then it will be more likely that adopters will readily incorporate it into their daily lives.

2.3.3 Complexity

In accordance with Rogers (2003), the extent to which an innovation is considered tough and challenging to understand and apply is referred to as complexity. The assessment of complexity is determined by the level of difficulty in using the innovation. Depending on this point of view, an innovative concept can be categorised as complex or simple to use. In DOI theory, complexity is seen as the opposite of simplicity or ease of use in the TAM model and is evaluated based on how difficult it is to use the innovation.

2.3.4 Trialability

Trialability is how easily an innovation can be tried out on a relatively small scale (Rogers, 2003). The capacity to attempt and explore a novel concept serves as a significant mechanism for dispelling any ambiguities associated with it. Experimenting with an innovation in person is an approach to understand an innovation and to learn how it works under one's own parameters and circumstances. This ability to try and experiment with a new idea is an important mechanism for doing away with uncertainty about it.

2.3.5 Visibility

According to Rogers (2003), visibility or observability refers to *"the degree to which the results of an innovation are visible to others"*. In some cases, the results of innovations are difficult to observe as their effects are not immediately apparent, whereas other innovations have easy to observe outcomes, and it does not take much effort to communicate the outcomes of some ideas to others. The adoption rate of an innovation is positively correlated with its observability as regarded by members of the social community (Rogers, 2003). This is because people are more inclined to adopt an innovation when they can

observe it being used successfully by others in their social environment. Seeing the innovation in use provides them with a greater sense of security, as well as an increased understanding of the innovation's potential benefits.

2.4 e-HRM practices

Organizations vary in their implementation, adoption, and usage of e-HRM practices. Embracing e-HRM practices can significantly facilitate the reduction of workloads, reduce time waste, and improve the effectiveness of human resource management practices. According to Bissola and Imperatori (2013), there are three categories of e-HRM practices: operational, relational, and transformational. Operational e-HRM practices relate to the delivery of administrative services to employees through online facilities, resulting in reduced spending on paper, data retrieval and IT infrastructure installation. Relational e-HRM practices are intended to maintain a healthy relationship between the organization and its employees by using web-based intranets and creating online communities. Transformational e-HRM practices are closely tied to the creation of "strategic character" that synchronises employee frame of mind and conduct with the organizational business plans (Bissola & Imperatori, 2013).

In their study, Strohmeier and Kabst (2014) examined e-HRM configurations by organizing a concise set of e-HRM practices into three categories. These practices were then used as indicators to measure the e-HRM configurations. e-personnel record keeping and administration, e-payroll, e-time and attendance management, and e-access control were considered as indicators of operational e-HRM practices since these are ubiquitous in administrative HR operations and explicitly target operational goals. e-HRM practices help organizations reduce costs and increase efficiency by reducing manual efforts and increasing accuracy. Relational e-HRM practices allow for the electronic connection and participation of two important stakeholders. These two practices allow for managers and employees to

connect and engage with each other electronically, which helps to simplify the HR management process. This also reduces the amount of paperwork and manual processes that are involved in HR management. Finally, transformative e-HRM practices such as e-recruitment, e-compensation, e-training and development, and e-performance management were highlighted. These practices can be used to supplement corporate strategy (Strohmeier & Kabst, 2014). Emphasizing the significance of these practices, the HR function can help organizations in achieving their strategic objectives.

According to Iqbal, Ahmad, Razik, and Borini (2019), the literature has two different categories of e-HRM studies. Research studies in the first category, like that conducted by Bissola and Imperatori (2013), examined how different types of e-HRM practices independently impact value outcomes at operational, relational, and transformational levels. The second category of research focuses on operating, interrelating, and transforming e-HRM practices from a holistic angle.

e-HRM makes use of the cutting-edge web-based technologies for providing a concurrent online human resource management system. The fundamental objective of e-HRM is to increase the efficiency and cost effectiveness of human resource management while also transforming HR function into a strategic partner accomplishing corporate goals (Milon, Alam & Pias, 2022). e-HRM practices are designed to lower HRM expenses and boost HR effectiveness. Moving HR processes online and automating repetitive tasks are both part of e-HRM practices. This reduces costs associated with manual HR processing, increases accuracy, and allows HR staff to focus on more strategic tasks. In this context, Bissola and Imperatori (2013) identify "record keeping, payroll, benefit management, recruitment, learning and training, performance appraisals, compensation management, knowledge management, and firm communities" as e-HRM practices. According to Strohmeier and Kasbt (2014), e-functions include "e-Records and Administration, e-Payroll, e-Time and

Attendance, e-Access Control, e-M(S)S, e-E(S)S, e-Recruiting, e-Training and Development e-Performance Management, and e-Compensation". According to the findings of a comprehensive discussion with HR specialists, seven e-HRM practices implemented in the Turkish service industry are: "e-Recruitment, e-Selection, e-Learning, e-Compensation, e-Training, e-Performance, and e-career development" (Fındıklı & Bayarçelik, 2015).

According to Choochote and Chochiang (2015), e-HRM is made up of nine key systems, including "recruitment system, employee system, basic organizational information management system, salary management system, learning and training system, idea and creativity exchange system, assessment system, welfare system, and career development system". In that respect, Hosain (2017) outlines thirteen e-HRM practices including "e-advertising, e-application tracking, e-recruitment, e-selection, e-learning, classical & virtual training, e-performance management system, e-compensation & benefit, HRIS & e-communication, e-personal profile, e-grievance tracking & handling, green HRM and e-leave" in his study.

Iqbal, Ahmad, Razik, and Borini (2019) examine value creation prospects provided by e-HRM practices including "e-payroll, employee self-profiling systems, e-benefits, time schedules, e-attendance registers, e-performance management systems, e-recruitment and selection, e-succession planning and career management, e-talent management, e-training, e-grievance management, knowledge creation, access and sharing practices, and firm communities". Rathee and Bhuntel (2022) claim that "e-recruitment, e-training, e-learning, e-selection, e-performance management, and e-compensation" are the novel e-HRM practices used in IT companies.

Aityassine (2022) examines the relationships between e-HRM practices and HR service effectiveness mediated through user training. According to the study, operating e-HRM practices consist of "e-attendance registers, e-grievance, e-leave, e-payroll practices,

e-personal profile, and e-benefit management". Interrelating e-HRM practices comprise "e-recruitment and selection, e-application tracking, e-training, e-communication, e-career management, e-performance appraisal and e-learning". While transforming e-HRM practices include a wide spectrum of practices, involving "knowledge management systems, HR decision support systems, web-communities, talent management, strategic organizational change, strategic competence management and strategic planning and development".

In their study, Milon, Alam, and Pias (2022) provide an overview of eleven prominent e-HRM practices within the industry. These practices have demonstrated increased potential, widespread acceptance, and seamless integration into web-based platforms as a replacement for traditional HRM methods. This study adopts these key e-HRM practices such as e-communication, e-personal profile, e-training, e-application tracking, e-recruitment, e-compensation, e-selection, e-performance appraisal, e-advertising, e-grievance tracking and handling system, and e-leave.

A detailed description of some important e-HRM practices follows:

2.4.1 e-Recruitment

e-Recruitment is the practice of sharing open positions on corporate websites or on online recruitment platforms where candidates may electronically submit their resumes. This process involves actively searching the Internet for locating resumes. Furthermore, technology can be deployed for improving communication and screening candidate. The Internet may ease the employment process, especially when it involves long and remote destinations (Khashman & Al-Ryalat, 2015). During the preliminary stages of the selection process, for instance, video conferencing through the Internet was frequently employed. Organizations post job vacancies online to engage and attract large numbers of applicants. This includes conducting initial and final discussions via audio and video conference and conducting online assessments (Milon, Alam & Pias, 2022). This method can save time and

money in amazing ways. Additionally, there are several advantages to online hiring in terms of time savings and response time while searching the candidate pool.

According to Armstrong (2009), e-Recruitment makes use of the internet to publish job openings, inform applicants about open positions and the company, and facilitate email communication between employers and applicants. Candidates can apply for jobs online and send their resumes and application forms to recruiters or employment agencies via email. Online testing is an option. e-Recruitment is all about finding a suitable candidate for a job online. The various company websites that e-Recruitment uses help with application ranking. It also supports the organization in the novel and creative idea for e-recruiting. Company websites allow candidates to submit their applications online for inclusion in the organization's database (Rathee & Bhuntel, 2022). According to Choochote and Chochiang (2015), the first step in an online application is to download an application form that is specifically tailored to the desired opening and work requirements. The online application must be submitted through the system, after which the system will begin its initial assessment procedure, for example using keywords or unique talents necessary for the post to be filled. Following the initial assessment, an interview will be considered. Applicants are interviewed about their background, required skills and job-related experience, or they can take a test to determine their attitude and competence. for the position. The last stage of online recruiting process is largely concerned with calendars and appointments, which can be promptly ensured by means of phone, SMS, or email (Choochote & Chochiang, 2015).

According to the resource-based view, human capital is an organization's most valuable resource for acquiring a competitive advantage because it is valuable, distinctive, inimitable, and only partially replaceable (Barney, 1991). e-HRM practices, such as e-Recruitment, can be viewed in the light of this strategy as initiatives that help the organization achieve these goals (Fındıklı & Bayarçelik, 2015). Employers can reach a wider and more varied candidate

pool by using e-Recruitment, which leverages web-based technology. The decision to switch to an e-Recruitment process is motivated by a multitude of organizational goals, such as the need to: enhance recruitment efficiency and reduce costs; maximise the quality and quantity of applicants; develop, communicate, and boost brand identity; improve objectivity and standardize hiring practices; and increase the comfort for applicants (Johnson & Gueutal, 2011).

2.4.2 e-Selection

e-Selection is an intelligent web-based application that relies on information collected from applicants or some form of electronic dialogue between employers and applicants (so-called voice or video-based electronic interviews) to find the most suitable potential employee to fill the vacancy. e-Selection will only be considered if a set of application data has been gathered and needs to be screened for the company's website. According to Rathee and Bhuntel (2022), e-Selection comes after e-Recruitment. With e-Selection, the best candidates are chosen from e-Recruitment. It is the system used to select new hires for a company through various methods including online tests, interviews, reference checks and final interviews.

e-Selection, according to Khashman and Al-Ryalat (2015), is the usability of a company website to help with selecting employees, especially over longer distances. Use of video conferencing through the Internet, for instance, during the preliminary phases of selecting procedure, can help reduce costs and save time. In general, it can be said that the e-Selection process consists of two steps: the pre-selection and the final selection. This goes further by concentrating on various e-Selection methods including keyword searching, online testing and online interviewing. The e-Selection software will typically run on the vast pool of resumes it has received and filter through them for a short list of applicants who are more likely to be qualified for the position based on the presence of particular words in their

resumes. It is obvious that this approach qualifies as a pre-selection process. Online testing may be used in conjunction with obtaining biological information from the applicant and any other tests that may be designed to meet the requirements of the organization. Test scoring can be instantaneous, allowing a large pool of applicants to be narrowed down to a small number of potential applicants who better fit the context. Online interviewing has attracted many companies who see them as a powerful selection tool by interacting with them, listening to their ideas and, most importantly, observing how they present themselves. This approach might be viewed as the last phase in the selection process.

e-Selection makes use of technology to support organizations in managing the selection of qualified job seekers more efficiently, those are suitable for the organization and have the knowledge, skills, abilities, and other qualities necessary for each position. Companies are resorting to technology as an avenue to manage their selection process and give more proof of efficacy of their preferred selection methods to comply with regulatory requirements and the demand to continuously enhance the accuracy of their selection methods more proactively (Johnson & Gueutal, 2011). The business case for adopting e-Selection practices is to minimize resources and time needed for managing selection process, increasing the flexibility with which selection testing is conducted, increasing the usefulness of selection testing, and improving an organization's capacity to offer candidates with adaptive tests (Johnson & Gueutal, 2011). Technology-based selection methods such as online searching, online testing and online interviewing can help companies to make more accurate decisions about the candidates they are considering, as these methods allow for more extensive and reliable data collection. Additionally, technology-based methods can cut down on both time and spendings on the selection process since they are often more cost-effective than traditional methods.

2.4.3 e-Performance Management

e-Performance management is a comprehensive web-based solution for human resources (HR) performance management. The system offers a software toolkit for the entire performance management lifecycle in organizations. e-Performance management, according to Bhattacharyya (2011), is the outlining, execution, and applying of information technology in the administration of performance management system (PMS). An IT-enabled PMS can integrate an organization's strategy, policies, and practices into its performance management process (Bhattacharyya, 2011). An environment where employees can perform to their full potential is created via e-Performance management. e-Performance management aids in capacity of an organization to track employee performance and gathering data for evaluating various performance factors. Online performance management databases safeguard information security better than traditional employee files piled in offices (Payne, Mendoza & Horner, 2018, as cited in Rathee & Bhuntel, 2022).

Any computer software application or component that raises user performance is considered an e-Performance management system. The centrepiece of e-Performance management is the ongoing assessment and improvement of individual and team performance to support alignment with the organization's strategic objectives for performance management. An effective performance management system strives to elevate the overall organizational performance by enabling managers to continuously monitor and control individual and team performance to achieve the organization's overarching goals and ambitions. By doing so, the performance of the organization is improved in all its operations. Electronic performance management is a relational e-HRM practice that supports business processes (Bhattacharyya, 2011).

Fındıklı and Bayarçelik (2015) highlighted that the primary purpose of incorporating web technologies into performance management is to provide workforce essential

knowledge, skills, capabilities, and support systems they need to improve their individual performance. The online evaluation of employee performance, knowledge, and abilities conducted through company website is known as e-Performance appraisal (Milon, Alam & Pias, 2022). Performance of the entire organization can be evaluated online on corporate intranet. This implies that managers and employees can electronically submit performance data to the human resources department. This reduces the amount of time and money managers, and line managers must spend on paperwork for performance review documentation (Khashman & Al-Ryalat, 2015).

e-Performance management employs technology to enable organizations by automation of performance data collection, tracking workforce, and assisting the creation and delivery of performance reviews. Organizations choose e-Performance management for a variety of reasons, such as greater accessibility to performance data, information that result in more valuable and objective performance appraisals, reduction in appraisal bias, and being able to connect performance data to other human resource data (Johnson & Gueutal, 2011). e-Performance management can present workers with real-time feedback and access to resources that can help them improve. This helps them to develop the skills they need to be successful in their roles, and it also allows organizations to track and measure individual performance, which can help them identify areas that need improvement.

2.4.4 e-Compensation

Compensation was among the first functions of HR to be computerized, and virtually every organization now uses technology to digitize and process their payrolls. Computerized compensation systems are more than just payroll automation systems. They offer significantly more value to a company than that. e-Compensation leverages web-enabled technology to assist managers with the design, implementation, and administration of compensation policies (Johnson & Gueutal, 2011). In accordance with Dulebohn and Marler

(2005), e-Compensation is a web-based strategy for a collection of tools that enable organizations to collect, store, edit, analyze, use, and disseminate data and information about compensation. In today's world, a computer with access to the Internet and a web browser allows employees to have access to electronic transmission of software applications, databases, and analytical tools relating to compensation whenever they want, from anywhere in the world. Web-enabled systems also allow managers, employees, and other stakeholders to enter and process relevant data remotely via a web browser. e-Compensation technologies help in minimizing the difficulties involved in creating and putting into effect a successful compensation system (Dulebohn & Marler, 2005). These technologies enable companies to collect and analyze data more quickly and accurately, enabling them to make informed decisions about compensation that are fair and competitive. It also streamlines the process of setting up and maintaining a compensation system, allowing for more efficient use of resources.

Milon, Alam, and Pias (2022) consider e-Compensation to be the practice of employees' remuneration planning using a company website. Organizations are implementing e-Compensation solutions over their intranet and the internet so that employees can access them from anywhere. It includes both direct and indirect employee compensation, such as salaries, wages, and other perks (Rathee & Bhuntel, 2022). Additionally, with e-Compensation technologies, employees may readily check their pay, benefits, bonuses, and deductions on a handheld or a portable device (Milon, Alam & Pias, 2022). Likewise, Ishrat, Khan, Nadeem, and Aziz (2020) view electronic compensation as tools that businesses develop or buy to help them make decisions precisely and accurately and support in allocation and distribution of benefits to employees.

The use of e-Compensation technologies enhances the process of planning and maintaining compensation programmes in a fast-paced and competitive economy in three

basic ways. e-Compensation solutions, in the first place, can facilitate on-demand electronic access to crucial compensation information. Second, e-Compensation solutions make significant compensation information available to top management, HR managers, and employees 24 hours a day, 7 days a week. Third, e-Compensation solutions can expedite time-consuming administrative procedures by integrating workflow and real-time data processing capabilities (Dulebohn & Marler, 2005). The development of e-Compensation technology is fuelled by several business factors, including the need to control labour costs, an increase in employee awareness of salary information from the outside market, and a faster recognition of pay structures that are insufficient (Johnson & Gueutal, 2011).

Employee perceptions of the fairness of the system are one of the most crucial factors in any compensation or salary scheme. Employees desire to be compensated fairly both within the company (internal equity) and for the value of the services they provide on a per-employee basis (individual equity). Additionally, they seek external equity (rewards that are equitable with respect to competitors) in the market. Prioritization for developing individual equality, external equity, and internal equity procedures underpin organizational compensation systems. Establishing the proportional value of occupations within the firm is referred to as internal equity. Determining an organization's remuneration in proportion to the external job market is known as external equity. Recognition and compensation for individuals for their accomplishments is a part of individual equity. With the use of an e-Compensation, organizational compensation strategy can be developed that promotes individual, internal, and external views of fairness (Dulebohn & Marler, 2005; Johnson & Gueutal, 2011). Employees perceptions of the fairness are one of the most crucial factors in any compensation scheme. Employees want fair pay. Electronic compensation systems help companies to develop reward strategies that support perceived fairness individually, internally, and externally. Electronic compensation systems allow companies to develop

flexible reward strategies based on performance, and that is important for employees who feel like they aren't being adequately rewarded for their contributions. It also allows companies to track and review their reward strategies, making sure they are fair and equitable.

2.4.5 e-Training

According to Dalston's (2009) definition, e-Training refers to “a computer or technology-mediated experience or process of interventions developed and implemented to economically and ethically address human performance gaps, in an effort to improve workplace practices and meet measurable personal and organizational work-related goals”. e-Training involves the acquisition of specialized skills that empower employees to effectively execute specific operations, processes, or tasks. Employees who receive ongoing training can update their skills and stay informed of any changes. The planning and monitoring of e-Training needs must be meticulous. The topics covered in training, their order, and the timeline are determined by the instructors or subject matter experts. e-Training must be incorporated into the tasks that employees have planned to complete, and the manager must monitor employee participation and evaluation of results. The outcomes of e-Training can be directly tied to how well your employees are performing in their current roles. The training plan needs to be updated as soon as possible with the results of assessments.

e-Training improves employees' knowledge, skills, and abilities (Rathee & Bhuntel, 2022). e-Training is an effective way to equip employees with the knowledge and skills they require for the jobs and help them remain competitive in the workplace. Organizations utilize various e-Training techniques such as online tutoring, smart classes lectures, peer meetings, and mentoring to increase their employees' knowledge and abilities. e-Training initiatives boost talent and capability while enhancing employee satisfaction, morale, and productivity. e-Training opportunities enable employees to quickly gain the necessary expertise and

competency to excel in their positions. They also help to create a more engaging and motivating work environment, as employees can learn at their own pace and have access to up-to-date information. Successively, this results in increased morale, satisfaction, and production.

The concept of e-Training is the process of learning or training through a company website. Training on an electronic platform is referred to as e-Training. It can be used by organizations to train staff without having to gather them all in one place at once (Fındıklı & Bayarçelik, 2015). This type of training is advantageous because it allows employees to access training materials and get information anytime, anywhere. Additionally, e-Training is often more affordable and inexpensive compared to conventional in-person instructions. e-Training allows distance learners to participate in training and learning in the event participants are unable to physically attend training sessions (Milon, Alam & Pias, 2022). It is important to acknowledge that one of the major components of e-HRM is the use of the Internet to facilitate training and development. The assessment of training requirements, learning engagements in purely functional domains, and career management can all be done online. When used to gather data for assessing training needs, email and electronic forms found on the organization's website or intranet have produced several advantages, for example less paperwork, lower administrative expenses, quicker distribution and response times, and increased response rate, etc. (Khashman & Al-Ryalat, 2015). The most significant advantages of e-Training are convenience for both learners and L&D professionals, a learner-centric approach to closing knowledge gaps by providing on-demand learning and self-paced learning, easy employee feedback to measure training effectiveness, and cost-effectiveness due to reduced travel expenses, classroom setup costs, and content creation costs. Additionally, e-Training is industry-agnostic to provide cross-functional value.

2.4.6 e-Learning

e-Learning is the process of obtaining knowledge to apply it in unforeseen scenarios. A culture of lifelong learning encourages individuals to develop and brings outstanding outcomes to the companies. e-Learning tends to be learner directed. Employees are offered on-demand courses on a variety of topics, and they can take courses on their own time and at their own speed. A proactive plan and strategy are required for e-Learning because it is more in free-form and of long-term nature. The effectiveness of e-Learning becomes apparent in the long haul. e-Learning can be viewed as an autonomous framework that promotes learning provided the interconnected community of learners gets sufficient flexibility (Dalston, 2009). e-Learning enables learners to create their own learning paths and learn in an asynchronous way, which gives them the freedom to choose when, where and how they learn. This autonomy gives learners the opportunity to explore and experiment with different topics and subjects, allowing them to develop their own understanding of the subject matter.

e-Learning or web-based learning can take place in a variety of settings, including traditional classrooms, corporate training rooms, and even online. It allows employees to access educational contents from any location, at any time, and often for a fraction of the cost of traditional education methods. This includes dissemination of content through the Internet, intranets and extranets, audio and video tapes, satellite broadcasts, interactive television, CD-ROM, etc. (Khashman & Al-Ryalat, 2015; Nenwani & Raj, 2013). Employee training and development is one of the most essential components in enhancing employee efficiency. As a result, e-Learning courses are designed to be time and location independent (Fındıklı & Bayarçelik, 2015). The pursuit of fresh prospects and ideas for further growth is constant among employees; therefore e-Learning helps boost employee performance and productivity. It saves employees time while requiring less effort. e-Learning is essentially low-cost (Rathee & Bhuntel, 2022).

Learning or training programs are typically promoted through announcements. If employees are interested in a particular program, they can apply by email with scheduled date and time. e-Learning will generate alert to the employees via alert notification to confirm their registration (Choochote & Chochiang, 2015). After completing a learning or training program, employees are obliged to share their knowledge with their colleagues. This approach allows the organization to see employees' passion and learning goals, which is a valuable tool for evaluating employee performance. By having employees share what they have learned, the organization can gain a better knowledge of how they are able to apply the new knowledge and skills. This also enables them to evaluate the employee's capacity to effectively share their knowledge with others, which is an important factor in evaluating employee performance. This is an important factor when evaluating employee performance. According to Johnson and Gueutal (2011), some of the business motivations for e-Learning are lower training expenses, enhanced employee freedom and autonomy on learning, and better management and tracking of staff training. e-Learning has been shown to dramatically reduce training costs compared to traditional methods of training. It also gives employees more control over their learning, as learning can be done on their own time and at their own pace. Additionally, e-Learning provides better tracking and management of staff training, as it is easy to monitor progress and ensure that training is completed.

2.4.7 e-Communication

Capriotti (2009) defines e-Communication as the “Actions and techniques of communication that are characterized by the utilization of new technologies and, in particular, the Internet tools of communication (World Wide Web, electronic mail, Weblogs, chats, forums, wikies, etc.)”. e-Communication can be understood as using of the company's website to facilitate communication via emails. The preferred method of communication in businesses is now email (Khashman & Al-Ryalat, 2015; Milon, Alam & Pias, 2022). This is

because emails are fast, reliable, and easy to manage. Furthermore, emails can be sent to multiple recipients simultaneously, making them much more efficient than traditional methods of communication. e-Communication is using the Internet and a website to send and receive emails inside or outside of organizations. This is especially useful when organizations have multiple branches in different locations. It allows for quick and easy communication between different branches, saving time and money. e-Communication also allows for easy file sharing and collaboration on projects, making it a great tool for many organizations.

With the advancement of technology, electronic communication has gained a new level of potential. Rao and Alshar (2021) define e-Communication as any kind of electronic communication, including instant messages, emails, websites, blog pages, and messaging in text, voice, and video formats. The way businesses communicate with one another has altered because of e-Communication. e-HRM system has an e-Communication component. Prior to it, postal service was used to distribute all mail. e-Communication has grown more crucial for communication and information exchange with the shift to physically scattered yet digitally connected workplaces (Elsawy & Ali, 2021). Two additional advantageous ways that e-HRM makes use of e-Communication to stimulate employees perform and think more creatively are web-based information exchange opportunities and online suggestion programs (Umar, Yammama & Shaibu, 2020). These programs can also provide a platform for employees to network, develop relationships, and share best practices amongst colleagues, which can lead to a more cohesive workplace. Likewise, group meetings through internal mail systems and open-door management methods are conducted through various electronic communication channels (Fındıklı & Bayarçelik, 2015). This allows for more efficient, timely, and cost-effective communication between employees, managers, and other stakeholders. It also saves time and resources that would otherwise be spent on physical meetings and travel.

2.4.8 HR Portal

Ruta (2009) defines HR Portal as "an application that enables companies to unlock internally and externally stored information and provides users with a single gateway to personalized information needed to make informed business decisions". An HR portal (also known as an employee portal) is an online platform for employee engagement that gives employees access to a variety of HR services. An HR portal enhances the employee service experience by giving them access to useful HR content, self-service tools for getting their queries answered, live chat, and case tracking capabilities. It also enables employees to personalize the layout and information on their portal (Liang, 2009). By having all the content and self-service tools in one place, employees can easily and quickly find the information they need and track their progress on any queries they have. HR portal also allows HR professionals to provide a more personalized experience by enabling case tracking and live chat capabilities.

e-HRM technology allows for improved communication between managers, employees, and HR professionals, and allows for faster and more efficient data exchange. It also enables managers to access the data they need quickly and make decisions based on the data in a timely manner. According to Johnson and Gueutal (2011), HR portals offer each employee (and even each job seeker) with a single, focused, and frequently customized access point. Alternatively, Ruta (2009) considers HR portals as applications that provide a single, personalised access point configured for a particular user profile and organizational position. Employees have access to information and services relevant to their own situation and work via HR portal. This enables employees to take ownership of their own career development and access resources such as job postings, performance reviews, and training opportunities quickly and easily. Additionally, the HR portal provides a central hub for employees to access important information, such as policies and procedures. Employees can

personalize the portal interface to display the most pertinent information in accordance with their needs.

Since, majority of HR portals are web-based, employees are able to utilise HR services whenever and wherever they need through a range of devices, such as laptops, cell phones, and tablets. Implementing and using HR portal to showcase the services and products HR offers can also assist the HR department in building a stronger brand among employees (Johnson & Gueutal, 2011). This makes it possible to guarantee that employees are aware of the value of the HR department and are confident in the high quality of the services they offer. It also helps to increase employee engagement and morale, as employees feel more connected to the HR team and the services they offer. The extent how well the HR portal has been designed in accordance with the organizational mission, goals, and plans is known as HR portal alignment. When there is a match, the HR portal offers the systems and services necessary for the business' strategy, operations, or user requirements (Ruta, 2009). An HR portal empowers an organization to acquire and utilize collective knowledge, skills, and experience of its employees. It can help streamline processes, improve communication, and increase engagement and collaboration. Any system upgrade now needs to include an HR portal as a critical strategic opportunity (Johnson & Gueutal, 2011).

2.4.9 Employee self-service

Employee Self-Service (ESS) is a trendy HR technology which empowers employees to perform a variety of work-related tasks such as requesting reimbursements, updating personal data, and getting into workplace benefits information. Previously, these tasks were primarily done on paper or required administrative or administrative staff to maintain them (Sutner, 2022). This has also helped to reduce the amount of paperwork and staff needed to manage them. Employees can update their personal information, modify their own benefit preferences, or sign up for training using ESS technology. The organization can dedicate less

specialised resources to these tasks by offloading these obligations to the individual employee, which frequently enables HR to concentrate on more strategic functions (Marler, Fisher & Ke, 2009). By placing the responsibility of certain tasks on the individual employee, the organization is able to free up resources that were previously used to execute these tasks. This, in turn, gives HR the opportunity to focus on more strategic objectives which can have a more meaningful impact on the organization in the long run.

Johnson and Gueutal (2011) define ESS as a method for allowing employees to access and manage their own HR data. ESS enables employees to take ownership of their personal data, thus facilitating increased engagement and motivation. The ESS website is generally activated through an HR portal, allowing employees to directly handle numerous HR queries and business transactions. This makes it easy for employees to quickly submit their requests and be informed of any updates in real-time. An effective ESS empowers workers to make knowledgeable decisions and develop self-reliance for various HR services. This results in greater employee convenience and huge reductions in expenditures for organizations (Johnson & Gueutal, 2011). By giving employees access to the required tools and resources, an effective ESS fosters an environment of self-sufficiency and encourages independent problem solving. This not only brings increased convenience for employees, but also allows organizations to capitalize on significant cost savings.

2.4.10 Manager self-service

Manager self-service (MSS) is a sort of employee management software that enables supervisors to undertake crucial duties that often call for HR support. Supervisors may effortlessly conduct numerous work-related tasks, like scheduling, managing time-off requests, and performance evaluations, with the help of manager self-service capabilities. Additionally, MSS gives supervisors access to a range of information on employees, including payroll, human resources, and attendance (Julie, 2021). Majority of the suppliers of

e-HRM or ERP software now provide some form of self-service feature for managers, and an increasing number of organizations are integrating these services. According to Robb (2010), MSS enables managers to complete tasks online that would otherwise have called-for the support of HR staff. These include obtaining data on direct and indirect reporting, employing paperless hiring processes, managing compensation and performance reviews, and conducting status modifications. All these tasks are necessary for effective human resource management and can be done faster and more efficiently with the use of technology. For example, data can be obtained more quickly using automated systems, and paperless hiring processes can save time and money.

MSS applications are software tools which may be accessible through a HR portal. Supervisors can use these tools to conduct various HR transactions interactively and generate and retrieve HR reports instantaneously (Johnson & Gueutal, 2011). Through MSS, organizations can configure how many and how difficult HR-related tasks should be assigned to managers. Mid-level managers are the intended users for manager self-service. These managers use MSS to set priorities and carry out employee-related responsibilities. Managers are ideally able to use their computers or smartphones to access manager self-service solution. Because of this accessibility, they can manage their employees from any location. Additionally, MSS makes it simpler for HR managers to assign duties to department heads while upholding corporate accountability (Julie, 2021). According to Johnson and Gueutal (2011), MSS gives managers the ability to examine data and generate reports about employees without the assistance of HR, fulfil tasks that HR previously handled, and manage strategic HR functions.

2.5 e-HRM outcomes

According to the research, it is apparent that various objectives of e-HRM, as well as different types of e-HRM, can result in a variety of benefits. These can include an increased

efficiency in HRM, improved client service levels, as well as a more advantageous strategic contribution to an organization's goals (Omran & Anan, 2018). The experiences, occurrences, and consequences of using information technology in HRM are referred to as e-HRM outcomes. These phenomena occur simultaneously with or following the application of information systems. e-HRM outcomes may or may not be desirable for HRM or the organization. Likewise, these outcomes may or may not be expected from the introduction of the e-HRM initiative (Strohmeier, 2009).

It stands to reason that a company that has adapted its e-HRM strategies should anticipate seeing visible results and outcomes. Martin and Reddington (2010) affirm that the e-HRM structure that an organization chooses to deploy to deliver its HR services determines the outcome of the e-HRM. However, they pointed out the matter that different e-HRM effects may be interpreted as intentional or unintended. Because unexpected and undesirable outcomes can also happen along with expected and desired results.

There are basically three major categories of e-HRM outcomes: Operational, relational, and transformational e-HRM outcomes (Ruël, Bondarouk & Looise, 2004). Table 2.1 lists the e-HRM outcomes categories, and their corresponding indicators grounded in the researchers' perspectives.

Table 2.1 *Types of e-HRM outcomes and indicators*

e-HRM outcomes	**Prominent indicators**	**Source**
Operational e-HRM outcomes	• Reduction in time and effort for administrative functions	Ruël, Bondarouk & Looise, 2004
	• Simplification	Ruël, Bondarouk & Looise, 2004; Strohmeier, 2007
	• Superior execution of processes	
	• Lower resources investment	
	• Improved HRM service quality in terms of outcome, interaction, and environment	Obeidat, 2016
Relational e-HRM outcomes	• Improved service delivery and communication and optimized workflow	Panos & Bellou, 2016
	• Improved communication, cooperation, relationships	Bondarouk, Parry & Furtmueller, 2017
	• HR service improvements	
	• Better relationship between HRM, management and employees	Omran & Anan, 2018
Transformational e-HRM outcomes	• Enhanced strategic effectiveness	Ruël, Bondarouk & Van der Velde, 2007
	• Facilitated strategic role of HR	
	• Improved strategic orientation of HR	Bissola & Imperatori, 2014
	• HR strategic involvement	Marler & Parry, 2016

2.5.1 Operational e-HRM outcomes

Operational e-HRM outcomes reflect efficiency and effectiveness of e-HRM practices and point to administrative angles of e-HRM (Panos & Bellou, 2016). Simplification of HRM processes is the most significant advantage of computerization of HRM tasks. This results in

better execution of processes and lower resource investments (Ruël, Bondarouk & Looise, 2004; Strohmeier, 2007).

2.5.2 Relational e-HRM outcomes

Relational e-HRM outcomes relate to the cross-departmental communication, connectivity, and collaboration made possible by adopting e-HRM (Parry & Tyson, 2011). Relational e-HRM outcomes reflect enhancements in the standard, volume, and scope of HRM services, hence both HRM internal customers and external customers are better served. Relational e-HRM outcomes make certain that workflow among the HR department, management, and employees is optimized (Panos & Bellou, 2016). Thus, it induces a fresh perspective on the dynamics of the partnership between management, HRM, and workers. (Omran & Anan, 2018).

2.5.3 Transformational e-HRM outcomes

Transformational e-HRM outcomes reflect improved strategic focus of HR function. The primary premise behind transformational outcomes is that the use of technology frees up HR departments to concentrate more on value-addition endeavours and strategic goals by reducing the time and effort required for administrative responsibilities (Ruël, Bondarouk & Looise, 2004). Transformational outcomes of e-HRM translate into improved HR strategic orientation through the transformation of HR functions (Bissola & Imperatori, 2014).

2.6 Organizational resilience

Organizational resilience is an essential attribute of any organization. Essentially, it is the ability to anticipate the challenges that may arise from ever-evolving changes and sudden disruptions, to prepare for, respond to and adapt to them so that the organization can endure and thrive despite these difficulties. “Resilience” is a concept that is being used more and more frequently across a range of academic fields, including HRM, organizational studies,

and engineering. Whereas its roots are primarily in psychology and ecology literature (Kantur & Iseri-Say, 2015). Numerous scholars in the field of organizational science describe organizational resilience as the distinctive capacity of an organization to resist adverse and demanding circumstances, the ability of organizations to hold onto their positions, and the ability of organizations to adapt to and earn advantages of the adverse and challenging circumstances (Doe, 1994; Horne, 1997; Horne & Orr, 1998; Linnenluecke, 2017; Mallak, 1998). A relatively recent definition of organizational resilience can be found in Lengnick-Hall, Beck, and Lengnick-Hall (2011) as *"a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival"*.

According to Annarelli and Nonino (2016), organizational resilience is now recognized as more than just a matter of balancing redundancy and flexibility. For a competitive advantage, organizational resilience must be established as part of a final strategy decision-making process. Annarelli and Nonino (2016) have been put forth the following definition: *"Organizational resilience is the organization's capability to face disruptions and unexpected events in advance thanks to the strategic awareness and a linked operational management of internal and external shocks. The resilience is static, when founded on preparedness and preventive measures to minimize threats probability and to reduce any impact that may occur, and dynamic, when founded on the ability of managing disruptions and unexpected events to shorten unfavorable aftermaths and maximize the organization's speed of recovery to the original or to a new more desirable state".*

In today's competitive business environment, organizational resilience is regarded as a core competency for survival and success. The ability to operate effectively in the modern business environment requires organizations to have a high level of organizational resilience. Organizational resilience refers to the capacity of an organization to uphold its operations and

swiftly rebound from challenging circumstances by effectively mobilizing and accessing the necessary resources. Organizational resilience is contingent upon the way in which an organization responds to adversity, the resources it can draw upon to maintain stability, and the capabilities it possesses to innovate and grow in the midst of challenges. Growth and learning are the outcomes that ensue from an organization's ability to effectively address and overcome adversity (Hillmann & Guenther, 2020). When faced with challenges, organizations have the opportunity to adapt, innovate, and develop new strategies that ultimately lead to their expansion and acquisition of knowledge. By embracing adversity, organizations can transform setbacks into valuable lessons, enabling them to enhance their capabilities and thrive in an ever-changing environment.

The primary strength of contemporary organizations lies in their organizational resilience, which enables them to effectively navigate through crises in a market environment characterized by volatility, uncertainty, complexity, and ambiguity. This capability ensures that organizations remain attuned and adaptable to the external environment, allowing them to promptly recover and rebound from the adverse impact of challenging events (Yu et al., 2022). The development of individual capabilities and resilience within an organization can be harnessed and consolidated to enhance the overall capacity for resilience at an organizational level. By nurturing and strengthening the skills and adaptability of each individual, these qualities can be harnessed and combined to create a collective resilience that permeates throughout the entire organization. According to Yu et al. (2022), organizational resilience is characterized as a dynamic and adaptable organizational attribute that empowers organizations to endure, adjust, recuperate, and ultimately thrive in challenging circumstances.

Liu et al. (2021) explored the various elements that contribute to organizational resilience. Their study identified organizational resources, organizational competence,

organizational relationships, organizational communication, social capital, organizational strategy, organizational learning, and work passion as the primary factors influencing organizational resilience.

The organizational resilience methodology is defined by its focus on foresight for problem anticipation, insight for situation interpretation and response, oversight for action assessment, and hindsight for learning from past experiences. In challenging and unpredictable circumstances, resilient organizations not only survive, but also thrive. By adopting a human capital management strategy, an organization can build its capacity for resilience. When this strategy is integrated throughout the organization, it empowers the organization to respond resiliently to disruptions, changes, or shocks (Douglas, 2021). The enhancement of an organization's resilience can be achieved by implementing human capital management strategies that prioritize the capabilities, training, and development of employees. It is important for organizations to provide an environment that promotes the growth of individual capabilities and resilience, thereby cultivating a collective capacity for resilience at the organizational level as well.

2.7 Hypotheses development

2.7.1 Relative advantage and e-HRM practices

It has been recognised that relative advantage is a key factor that explains how new ideas are adopted. At a theoretical level, Rogers (1983) and Davis (1989) argue that individual attitudes, behaviours, and innovation adoption are influenced by what they perceive as features of innovation relative advantage or usefulness. Galhena (2022) discovered that the positive relationship between the relative advantage of e-HRM systems and the intention to adopt e-HRM exists. Based on the existing empirical literature (Bondarouk, Schilling & Ruël, 2016; Galhena, 2015; Galhena (2022); Quaosar, Hoque & Bao, 2018; Schaupp, Carter & McBride, 2010), it emerges that implementation, acceptance,

and usage of e-HRM in organizations tends to be positively influenced by relative advantage or usefulness perceived by the members of the organizations. As part of their study, Bondarouk, Schilling, and Ruël (2016) examined which extrinsic factors influence an organization's adoption of e-HRM in an emerging economy context. According to their findings, the studied organizations gained a relative advantage through transitional e-HRM by standardizing and simplifying HRM processes. Depending upon how individuals view e-HRM technologies and the validity of their relative advantages or usefulness, they may adopt e-HRM practices and change their attitudes, behaviors, and the adoption of e-HRM. Thus, the first hypothesis is given as:

H1: Perceived relative advantage is positively related to adoption of e-HRM practices.

2.7.2 Compatibility and e-HRM practices

Perceived compatibility and the adoption and utilization of e-HRM are conceptually related, according to Rogers' (1983) DOI theory. If individuals feel that the innovation is compatible with their values, attitudes, and beliefs, they are more willing to adopt and use the technology. According to Tornatzky and Klein (1982), people are much more inclined to adopt an innovation if they think it fits both their beliefs and professional obligations. Whereas if they believe it is not compatible, they are less likely to adopt it. According to empirical investigations, compatibility, and intention to work with information systems have a significant positive link (Bondarouk, Schilling & Ruël, 2016; Galhena, 2015; Galhena, 2022; Ojha, Sahu & Gupta, 2009; Quaosar, Hoque & Bao, 2018; Teo, Lim & Fedric, 2007; Tornatzky & Klein, 1982). As an important consideration when making the decision to adopt e-HRM, compatibility of the system with the existing systems is of great importance. A compatible e-HRM system allows for seamless integration with existing systems, minimizing disruptions, and ensuring smooth data transfer. Thus, the following hypothesis is developed:

H2: Perceived compatibility is positively related to adoption of e-HRM practices.

2.7.3 Complexity and e-HRM practices

Rogers (1983) DOI's theoretical perspective explains how the perceived complexity of an innovation influences the extent of acceptance of that innovation. This quality is also represented in TAM as perceived ease of use (Davis, 1989). Research shows that innovations that are inherently complex are only likely to be adopted if more technical expertise along with implementing efforts are applied on the part of adopters (Bondarouk, Schilling & Ruël, 2016; Cooper & Zmud, 1990; Quaosar, Hoque & Bao, 2018). Bondarouk, Schilling, and Ruël (2016) discovered a negative and statistically significant link between complexity and the intention to adopt e-HRM. According to previous studies, there exists an empirical correlation between complexity and the adoption of e-HRM and HRIS systems; however, Galhena (2015) and Teo, Lim, and Fedric (2007) found no empirical evidence in support of complexity. The perceived complexity of an innovation by participants in a social entity has a negative correlation with the rate at which it is adopted. It is anticipated that people will be less likely to adopt an e-HRM if it is more complex and difficult to use. The following hypothesis is derived from this argument:

H3: Perceived complexity is negatively related to adoption of e-HRM practices.

2.7.4 Trialability and e-HRM practices

According to Rogers (1995), the acceptance rate of an innovation is positively correlated with its testability, which is established by how members of a social system perceive it following trial or test runs. This means that if system members view an innovation as risk-free and easy to try, they are naturally inclined to use. Conversely, if they view it as difficult to try and risky to use, they are less likely to adopt it. According to Karahanna, Straub and Chervany (1999), the trialability is one of the significant factors of adoption of innovations. Empirical research by Galhena (2015), Premkumar and Roberts (1999) and Teo, Lim and Fedric (2007) support the assumption that there is a significant and positive

association involving the extent of e-HRM adoption and adopters' appraisal of the trialability of e-HRM practices. Empirical studies provide support for the proposition that there is a substantial and positive relationship between the adopters' assessment of the trialability of e-HRM practices and the degree of e-HRM adoption. This suggests that employees may be more likely to embrace e-HRM practices when they are given the opportunity to trial before fully committing to them. As a result of this logic, the following hypothesis emerges:

H4: Perceived trialability is positively related to adoption of e-HRM practices.

2.7.5 Visibility and e-HRM practices

The degree to which other adopters can see the effects of an innovation is known as its visibility or observability. There are innovations that can be easily observed, whereas there are also innovations that are not as easily observable. Rogers' (1983) DOI theory helps explain variation in individuals' willingness to adopt e-HRM practices because of e-HRM's perceived visibility. Results from several studies have demonstrated a favourable association between the visibility or observability of an information system and the intention to use that system (Bondarouk, Schilling & Ruël, 2016; Plouffe, Vandenbosch & Hulland, 2001; Quaosar, Hoque & Bao, 2018; Venkatesh, Morris, Davis & Davis, 2003). The findings indicate that visibility attribute of an information system, can act as a cue to users to use it. It is rational to expect that individuals are readily willing to adopt e-HRM when its use is apparent to them, or its benefits are easily observable to them. This is because when e-HRM is visible or its benefits are easily observable, individuals can more easily recognize the value it adds. They can understand the potential impact it will have on their work and career, and this can motivate them to be more willing to use it. Given the preceding arguments, it is plausible to suggest the following hypothesis:

H5: Perceived visibility is positively related to adoption of e-HRM practices.

2.7.6 e-HRM practices and operational e-HRM outcomes

Remenyi's and Zuboff's IT frameworks offer explanation of automational, informational and transformational impacts of utilization of e-HRM practices. The industry has already adopted widespread automation of human resource management. Information technology is primarily used in the automation stage to automate manual systems, reduce the cost, time, and efforts essential for administrative functions; simplify and improve execution of processes, invest fewer resources (Ruël, Bondarouk & Looise, 2004; Strohmeier, 2007), and raise the standard of HRM services (Obeidat, 2016).

According to recent research on the implementation of e-HRM and e-HCM at the organizational level (Al-Ameri, 2017; Bondarouk, Harms & Lepak, 2017; Micu, Capatina, Micu & Schin, 2017; Omran & Anan, 2018; Panos & Bellou, 2016), through the effective use of e-HRM practices, companies can ensure that desired operational e-HRM outcomes are successfully achieved. The effective utilization of e-HRM practices has been found to be crucial in achieving desired operational e-HRM outcomes at the organizational level. By implementing e-HRM effectively, companies can ensure the successful attainment of these outcomes. Some of the benefits that organizations can achieve through the successful utilization of e-HRM include improved efficiency in HR processes, increased accuracy in data management, and improved HRM service quality. Consequently, it is hypothesized that:

H6: Higher adoption of e-HRM practices is significantly related to better operational e-HRM outcomes.

2.7.7 e-HRM practices and relational e-HRM outcomes

Strohmeier (2013) posits that relational e-HRM innovations aim to improve HR customer service and efficiently manage employee relationships by facilitating enhanced interactions between HR and customers of their services through web-based technologies. Relational e-HRM practices like employee self-service (ESS) and manager self-service

(MSS) empower employees and managers with self-sufficiency. The concept of an HR Portal revolves around a single online platform that harmonizes and connects the operations of an organization. By providing a gateway to a multitude of information, data, systems, and processes, this comprehensive platform facilitates seamless interactions and transactions among the relevant parties involved.

The adoption of e-HRM practices has brought about a decrease in processing times, an improvement in communication between managers and employees, and a reduction in organizational expenses (Fındıklı & Bayarçelik, 2015). Relational e-HRM system offers the possibility for both line managers and staff members to take charge of the employee-management relationship through a collaborative approach (Ruël, Bondarouk & Looise, 2004) and unfold new opportunities for employees and the organization to greater relationships and interactions (Lepak & Snell, 1998; Marler, 2009). Many empirical inquiries in current scholarly works (Bondarouk, Harms & Lepak, 2017; Bondarouk, Parry & Furtmueller, 2017; Fındıklı & Bayarçelik, 2015; Obeidat, 2016, Omran & Anan, 2018; Panos & Bellou, 2016) have established significant correlations between e-HRM practices and relational e-HRM outcomes. This suggests that organizations need to focus on adopting effective e-HRM innovations to achieve successful relational e-HRM results. Effective e-HRM innovations can lead to improved communication and collaboration within an organization, enhanced employee engagement, and increased productivity. By adopting these innovations, organizations can achieve successful relational e-HRM outcomes, ultimately contributing to their overall success and competitiveness in the market. Taking this into consideration, the following hypothesis is presented:

H7: Higher adoption of e-HRM practices is significantly related to better relational e-HRM outcomes.

2.7.8 e-HRM practices and transformational e-HRM outcomes

Remenyi et al. (1993) and Zuboff (1988) proposed framework for IT impact to assess the impact of information technology, which identifies three distinct levels of IT usage: *"automation, information, and transformation".* e-HRM practices provide organizations with a way to reduce the time and effort required for administrative tasks by automating processes. This automation helps HR professionals save time, thereby enabling them to allocate their attention to more strategic initiatives. By allocating their attention to more strategic initiatives, HR professionals can focus on long-term planning, developing innovative HR strategies, and enhancing employee engagement. This allows HR professionals to contribute more effectively to the company's strategic objectives and goals. By automating time-consuming tasks, HR professionals can devote their energy to these critical areas that drive organizational success. They may also devote more time on other pursuits, switch between recent tasks with ease, and concentrate more on corporate policies and initiatives (Remenyi et al., 1993; Zuboff, 1988). Thus, HR practitioners may devote greater attention to challenges relating to organizational change and strategy formulation and spend more time accomplishing additional transformational work (Quaosar, Hoque & Bao, 2018). Gardner, Lepak and Bartol (2003) argue that the transformation stage of ICT use can encourage HR practitioners to develop and offer novel HR practices to their clientele in innovative ways.

The transformative impact of e-HRM predicted by Zuboff's framework is supported by the results of a quantitative analysis of HR professionals survey done by Gardner, Lepak, and Bartol (2003). In recent empirical literature, Panos and Bellou (2016) investigated how different forms of e-HRM goals affected various sorts of e-HRM outcomes. The results validated that e-HRM technologies with higher user adoption yielded significantly better transformative effects than those with low user adoption. However, Foster (2010) and Njoku

(2016) observe that despite the deployment of e-HRM system, many firms have not yet benefited from HR playing a transformational role. Therefore, it is hypothesized that:

H8: Higher adoption of e-HRM practices is significantly related to better transformational e-HRM outcomes.

2.7.9 Mediation role of operational and relational e-HRM outcomes

This research draws on the three stages of IT usage described by Remenyi et al. (1991) and Zuboff (1988) in their frameworks for analysing the impact of information technology: *"automation, information, and transformation"*. With the implementation and adoption of e-HRM practices, the time and effort required for administrative chores will decrease giving HR practitioners will have more time. Accordingly, they can devote more time on other pursuits, switch between recent tasks with ease, and concentrate more on corporate policies and initiatives (Remenyi et al., 1993; Zuboff, 1988). As a result, HR practitioners may concentrate on organizational change and strategy development concerns and may devote more time to carrying out transformative work (Quaosar, Hoque & Bao, 2018). The results of a quantitative investigation of HR professionals conducted by Gardner, Lepak, and Bartol (2003) provide evidence in favour of transformational impact of e-HRM as anticipated in Zuboff's framework. Panos and Bellou (2016) investigated how different sorts of e-HRM objectives affect various types of e-HRM outcomes as described in recent empirical literature. The results demonstrated that e-HRM technologies with higher user adoption yielded significantly better transformative effects than those with low user adoption. The fundamental premise that the adoption of IT is instrumental in achieving operational e-HRM outcomes i.e., reduced time and effort required for administrative responsibilities, serves as the cornerstone for realizing transformational e-HRM outcomes (Ruël, Bondarouk & Looise, 2004). Likewise, the realization of transformational e-HRM outcomes is facilitated by the positive outcomes of relational e-HRM. These outcomes include improved service delivery to

clients, enhanced communication, and optimized workflow between the management, HR team, and staff members (Panos & Bellou, 2016). Therefore, this study theorizes that operational e-HRM outcomes and relational e-HRM outcomes may significantly mediate the causal association involving e-HRM practices and transformational e-HRM outcomes. S. Panos (personal communication, September 26, 2019) indorses the expectation that *"certain operation practices that companies apply to workforce lead to operational outcomes that in return (by better time management, improved data management etc.) give a strong boost to HR executives to put effort on transformational practices and outcomes".*

Although there is still some ambiguity surrounding the relationship between e-HRM goals and outcomes, it is evident that establishing a strong operational foundation for e-HRM is crucial for achieving both transformational and relational outcomes (Ruël, Bondarouk & Looise, 2004). Similarly, the main tenet of relational e-HRM lies in its ability to integrate HR information across various units and subsidiaries, thus offering significant potential for driving organizational transformation (Tansley, Newell & Williams, 2001).

Foster (2010) suggests that the first step in implementing e-HRM should be operational e-HRM, followed by relational and transformational e-HRM. Organizations will be able to build more strategic competency, as they transition in sequence from e-HRM utilizing first for operational, then to relational, and subsequently to transformational stages (Foster (2010). Utilizing e-HRM for operational outcomes allows organizations to automate routine HR tasks, saving time and increasing efficiency. Transitioning to relational outcomes enables organizations to improve employee engagement and foster better communication and collaboration within the workforce. Finally, achieving transformational outcomes through e-HRM empowers organizations to strategically align HR practices with business goals, drive innovation, and adapt to changing market conditions.

Finally, fundamental argument underpinning transformational e-HRM outcomes is that IT utilization in form of e-HRM practices facilitates operational e-HRM outcomes, i.e., reduction in time and effort required to perform administrative responsibilities (Ruël, Bondarouk & Looise, 2004) and relational e-HRM outcomes i.e., improved service to clients, enhanced communication, and improved workflow between the management, HR team, and staff members (Panos & Bellou, 2016). In this study, it is theorized that operational and relational e-HRM outcomes may significantly mediate the causal relationship between e-HRM practices and transformational e-HRM outcomes. It is believed that operational and relational e-HRM practices will serve as a catalyst for the implementation of more transformational approaches, which in turn will lead to even better organizational outcomes. Therefore, it is hypothesized that the relationship between e-HRM practices and transformational e-HRM outcomes is mediated by operational and relational e-HRM outcomes. Accordingly, the following hypotheses are proposed:

H9: Operational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes.

H10: Relational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes.

2.7.10 e-HRM practices, transformational e-HRM outcomes and organizational resilience

The RBV framework contends that e-HRM can boost an organization's strategic value if technology is customized according to the organization's needs and used in novel ways to help the organization become more competitive (Barney, 1991). IT systems can help organizations to reduce costs by streamlining processes and automating tasks. Additionally, IT systems can help organizations to improve their communication, organization, storage, and retrieval of information, as well as increase productivity and efficiency. IT, being a valuable

resource, will contribute to enhanced organizational performance (Liang & You, 2009). e-HRM facilitates the strategic HRM approach by providing the technology and processes to make sure that HR activities are in line with the goals and objectives of the organization. e-HRM practices enable HR to create sustainable competitive advantage and contribute to organizational resilience over the long run.

The widely recognized concept of best practice suggests that specific human resources practices can be universally applied and that implementing a combination of these practices can enhance organizational effectiveness irrespective of geographical location or contextual factors. This perspective is often considered by organizations when they aim to align themselves with industry standards. The adoption of e-HRM systems, which are regarded as "best practices", may also lead to elevate the strategic position of HR managers. Thus, e-HRM can play an instrumental role in making HR more strategic in its activities, improving organizational performance in a fast-paced, dynamic business environment, and improving organizational resilience.

By adopting the RBV perspective, the e-HRM can be seen as an asset, either as a resource itself or as a lever that enhances the value of other resources. Consequently, these resources can be transformed into organizational capabilities (Cai, 2023). The strategic outcomes of e-HRM are essentially twofold. For organizations, these outcomes are characterized by the attainment of competitive advantages, while for HRM within organizations, e-HRM enables HR to operate from a more strategic standpoint. Strategic HRM facilitates the strategic management of organizations. By prioritizing individual resilience, strategic HRM has the capacity to improve the overall resilience of the organization (Douglas, 2021). In the long run, this makes it possible for the transformed HR to support organizational resilience.

Parry (2011) examined how e-HRM could potentially enhance the strategic significance of the HR function using the RBV paradigm. The results of the research indicate that e-HRM may boost the value of HR by enabling HR to evolve into being more strategic and effective. By using e-HRM, HR departments can streamline processes, automate administrative tasks, and use information-driven insights to make more strategic and effective decisions. This can lead to improved efficiency and effectiveness, as well as a better user experience for employees. Al-Ayed (2019) conducted a study investigating the association between strategic HRM practices and organizational resilience. The results indicated a positive impact of these practices on the resilience capability of the organization. The transformational outcomes of e-HRM are intended to enhance the strategic orientation of HRM through the transformation of the HR departments (Bissola & Imperatori, 2014), enable and strengthen the strategic role of HRM (Ruël, Bondarouk & Van der Velde, 2007), and thereby result in organizational resilience (Al-Ayed, 2019).

The resilience capability of an organization has a direct bearing on its HR system (Lengnick-Hall, Beck & Lengnick-Hall, 2011). This is due to the ability of a resilient organization to absorb shocks and bounce back quickly. For an organization to do this, it must have an HR system that can develop and retain a workforce that is able to quickly adapt to changing environments and handle any potential crises. Building organizational resilience requires the availability of resources, particularly those related to time, money, and human resources (Duchek, 2019). According to the literature, one of the advantages of e-HRM is better strategic direction for HRM (Ruël, Bondarouk & Van der Velde, 2007).

Organizational resilience is the ability of an organization to effectively adjust to the changes in its internal and external environment and to use these changes for its own benefit. Transformational e-HRM outcomes can help organizations become more resilient by transforming HR departments and providing the necessary support for strategic HRM. The

RBV framework provides the foundation for direct and mediated linkages among the adoption of e-HRM practices, transformational e-HRM outcomes, and organizational resilience. Therefore, it is hypothesized that:

H11: There is a positive relationship between e-HRM practices and organizational resilience.

H12: There is a positive relationship between transformational e-HRM outcomes and organizational resilience.

H13: Transformational e-HRM outcomes mediate the positive relationship between e-HRM practices and organizational resilience.

2.7.11 Serial Mediation role of operational and transformational e-HRM outcomes

Extent literature has linked adoption of e-HRM practices to operational e-HRM outcomes. For example, Bondarouk, Harms, and Lepak (2017) conducted an empirical investigation into the relationship between e-HRM and HRM service quality. The direct effects models demonstrated a satisfactory overall model quality, explaining between 18.4 to 46.6% of the variance in HRM service quality. Omran and Anan (2018) conducted a study to analyze the impact of e-HRM adoption on the efficiency of HRM practices. Their research demonstrated a significant and beneficial association between the extensive use of e-HRM and the effectiveness of HRM practices. The optimal utilization of e-HRM practices has been recognized as pivotal in achieving operational e-HRM outcomes like improved efficiency in HR processes, enhanced precision in data management, and superior quality of HRM services.

The realization of operational e-HRM outcomes allows HR professionals to contribute more effectively to the company's strategic objectives and goals. Some specific operational e-HRM outcomes that contribute to strategic objectives include efficiency in HR processes and accurate data analytics for informed decision-making. and the ability to align HR

practices with the overall business strategy. By achieving these outcomes, HR professionals can allocate more time and resources towards strategic initiatives and transformational e-HRM outcomes that drive the company's overall success (Ruël, Bondarouk & Looise, 2004). Transformational e-HRM outcomes aim to elevate the strategic focus of HRM by metamorphosing HR departments, empowering and reinforcing the strategic function of HRM, and consequently fostering organizational resilience. By leveraging e-HRM, organizations can enhance their agility and adaptability to rapidly changing business environments. The digitalization of HR processes enables real-time data analysis and decision-making, facilitating proactive responses to emerging challenges. This, in turn, strengthens the organization's ability to anticipate and navigate disruptions, ultimately promoting organizational resilience.

It is imperative to understand that, once the adoption of e-HRM practices has taken place, it will serve as the conduit for achieving operational e-HRM outcomes, which will be instrumental in bringing about transformational e-HRM outcomes. These transformational outcomes play a pivotal role in developing organizational resilience in the long run. In this study, following serial mediation model hypothesis is proposed:

H14: There is a serial mediation effect of e-HRM practices on organizational resilience through operational e-HRM outcomes and transformational e-HRM outcomes.

2.7.12 Serial Mediation role of relational and transformational e-HRM outcomes

Effective e-HRM practices can lead to improved communication and collaboration within an organization, enhanced employee engagement, and increased productivity. By streamlining administrative processes, automating tasks, and providing real-time access to information, e-HRM practices can greatly improve efficiency and productivity within an organization. Additionally, e-HRM systems provide real-time access to important information and resources, facilitating faster decision-making and efficient coordination

among team members, further enhancing overall productivity within the organization. Several empirical studies in contemporary academic literature Bondarouk, Parry & Furtmueller, 2017; Omran & Anan, 2018; Panos & Bellou, 2016) have established meaningful associations between e-HRM practices and relational e-HRM outcomes.

Relational e-HRM has a significant impact on the realization of transformational e-HRM outcomes. This impact is reflected in the positive outcomes it brings, such as enhanced communication, optimized workflow among management, HR team, and staff members, and improved service delivery to clients (Panos & Bellou, 2016). e-HRM outcomes foster strong relationships between employees and the HR department, leading to increased trust, engagement, and collaboration. This, in turn, enhances the effectiveness of transformational e-HRM initiatives. The goal of transformational e-HRM outcomes is to increase the strategic focus of HRM through the transformation of HR departments, the empowerment and reinforcement of the strategic role of HRM, and the subsequent development of organizational resilience. Employing e-HRM can help organizations become more agile and flexible in response to quickly evolving business challenges. Digitalizing HR processes gives organizations the ability to analyze data in real-time and make decisions, so they can respond proactively to emerging challenges when they arise. Therefore, the organization will be able to better anticipate disruptions and navigate them successfully, ultimately promoting organizational resilience.

The adoption of e-HRM practices will contribute to the attainment of relational e-HRM outcomes, which will be instrumental in fostering transformational e-HRM outcomes. These transformational e-HRM outcomes are very important for building organizational resilience in the long run. In this study, following serial mediation model hypothesis is proposed:

H15: There is a serial mediation effect of e-HRM practices on organizational resilience through relational e-HRM outcomes and transformational e-HRM outcomes.

2.8 Theoretical framework

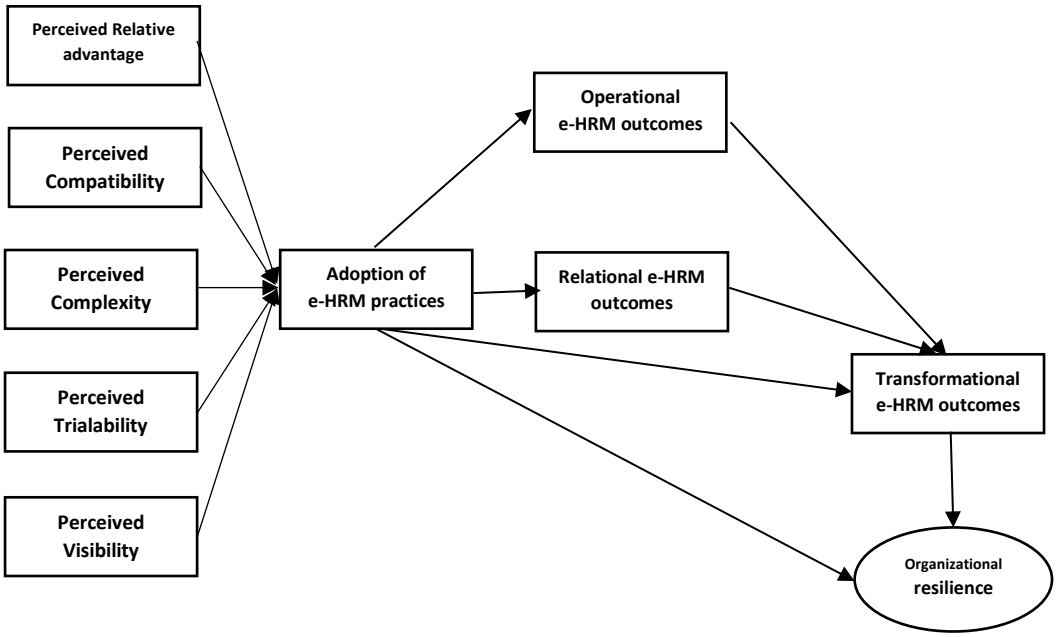
The primary aim of this study is to examine the interrelationship among e-HRM antecedents, practices, outcomes, and transformation of HRM into a strategic partner that fosters organizational resilience. This research is particularly relevant in the context of today's highly turbulent, surprising, and continuously evolving environment. The synthesis of the diffusion of innovation theory, information technology frameworks, and RBV theory serves as the foundation for this research. By integrating these three theoretical perspectives, a robust framework is established to analyze the subject matter in a comprehensive manner. e-HRM can be regarded as a breakthrough innovation in the field of human resource management because of two key factors. First, e-HRM makes it possible to build HRM tools and instruments in a manner that would have been unimaginable without IT (Ruël, Bondarouk & Looise, 2004), and second, e-HRM system offers the possibility for both line managers and staff members to take charge of the employee-management relationship through a collaborative approach.

The DOI theory provides a theoretical basis for explaining the associations between the attributes that individuals perceive regarding relative advantage, compatibility, complexity, trialablity, and visibility e-HRM and the subsequent adoption and usage of e-HRM practices. Remenyi's and Zuboff's IT frameworks, along with the theoretical perspective presented by Strohmeier (2013), explain the relationships between the adoption of e-HRM practices and e-HRM outcomes. Together, these frameworks shed light on how the adoption of e-HRM practices can lead to positive outcomes such as improved efficiency, improved HRM service quality and delivery, increased communication, cooperation, relationships between HRM, management, and employees, a facilitated strategic role for HR, and enhanced strategic decision-making processes. The theoretical perspectives advanced by Ruël, Bondarouk, and Looise (2004) and Panos and Bellou (2016), in conjunction with RBV theory, are applied to

examine the relationships. These perspectives establish the rationale behind the direct and mediating relationships among e-HRM practices, operational, relational, and transformational e-HRM outcomes, and organizational resilience, thereby emphasizing the strategic value proposition of e-HRM. These theories and perspectives contribute to a deeper comprehension of the strategic value proposition of e-HRM and how it can provide organizations with resilience capabilities.

Research model based on theoretical framework is presented in Figure 2.1.

Figure 2.1: Research model



2.9 Summary of Hypotheses and Theoretical support

Hypotheses based on the above literature survey are summarized below:

H1: Perceived relative advantage is positively related to adoption of e-HRM practices.

H2: Perceived compatibility is positively related to adoption of e-HRM practices.

H3: Perceived complexity is negatively related to adoption of e-HRM practices.

H4: Perceived trialability is positively related to adoption of e-HRM practices.

H5: Perceived visibility is positively related to adoption of e-HRM practices.

H6: Higher adoption of e-HRM practices is significantly related to better operational e-HRM outcomes.

H7: Higher adoption of e-HRM practices is significantly related to better relational e-HRM outcomes.

H8: Higher adoption of e-HRM practices is significantly related to better transformational e-HRM outcomes.

H9: Operational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes.

H10: Relational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes.

H11: There is a positive relationship between e-HRM practices and organizational resilience.

H12: There is a positive relationship between transformational e-HRM outcomes and organizational resilience.

H13: Transformational e-HRM outcomes mediate the positive relationship between e-HRM practices and organizational resilience.

H14: There is a serial mediation effect of e-HRM practices on organizational resilience through operational e-HRM outcomes and transformational e-HRM outcomes.

H15: There is a serial mediation effect of e-HRM practices on organizational resilience through relational e-HRM outcomes and transformational e-HRM outcomes.

The hypothesized relationships between the constructs in the suggested research model and the pertinent research and literature support are summarized in Table 2.2 below:

Table 2.2 *Hypothesized relationships and literature support*

Hypothesized relationship	**Literature support**
H1: **RA → EP**	Rogers (1983); Davis (1989); Galhena (2022); Bondarouk, Schilling & Ruël, (2016); Galhena, (2015); Quaosar, Hoque & Bao (2018); Schaupp, Carter & McBride (2010).
H2: **CP → EP**	Rogers (1983); Tornatzky & Klein (1982); Bondarouk, Schilling & Ruël, (2016); Galhena (2015); Galhena (2022); Ojha, Sahu & Gupta (2009); Quaosar, Hoque & Bao (2018); Teo, Lim & Fedric (2007); Tornatzky & Klein (1982).
H3: **CX → EP**	Rogers (1983); Davis (1989); Bondarouk, Schilling & Ruël (2016); Cooper & Zmud (1990); Quaosar, Hoque & Bao (2018).
H4: **TR → EP**	Rogers (1995); Karahanna, Straub & Chervany (1999); Galhena (2015); Premkumar & Roberts (1999); Teo, Lim & Fedric (2007).
H5: **VS → EP**	Rogers (1983); Bondarouk, Schilling & Ruël (2016); Plouffe, Vandenbosch & Hulland (2001); Quaosar, Hoque & Bao (2018); Venkatesh, Morris, Davis & Davis (2003).

H6: **EP → OO**	Remenyi et al. (1993); Zuboff (1988); Ruël, Bondarouk & Looise (2004); Strohmeier (2007); Obeidat (2016); Al-Ameri (2017); Bondarouk, Harms & Lepak (2017); Micu, Capatina, Micu & Schin (2017); Omran & Anan (2018); Panos & Bellou (2016).
H7: **EP → RO**	Strohmeier (2013); Fındıklı & Bayarçelik (2015); Ruël, Bondarouk & Looise (2004); Lepak & Snell (1998); Marler (2009); Bondarouk, Harms & Lepak, (2017); Bondarouk, Parry & Furtmueller (2017); Obeidat (2016); Omran & Anan (2018); Panos & Bellou (2016).
H8: **EP → XO**	Remenyi et al. (1993); Zuboff (1988); Quaosar, Hoque & Bao (2018); Gardner, Lepak & Bartol (2003); Panos & Bellou (2016).
H9: **EP → OO → XO**	Remenyi, Money & Twite (1991); Remenyi et al. (1993); Zuboff (1988); Quaosar, Hoque & Bao (2018); Gardner, Lepak & Bartol (2003); Panos & Bellou (2016); Ruël, Bondarouk & Looise (2004); Foster (2010).
H10: **EP → RO → XO**	Remenyi, Money & Twite (1991); Remenyi et al. (1993); Zuboff (1988); Ruël, Bondarouk & Looise (2004); Quaosar, Hoque & Bao (2018); Panos & Bellou (2016); Tansley, Newell & Williams (2001); Foster (2010).
H11: **EP → ORes**	Barney (1991); Liang & You (2009); Cai (2023); Douglas (2021); Parry (2011).

H12: **XO → ORes**	Al-Ayed (2019); Bissola & Imperatori (2014); Ruël, Bondarouk & Van der Velde (2007); Lengnick-Hall, Beck & Lengnick-Hall (2011).
H13: **EP → XO → ORes**	Remenyi et al. (1993); Zuboff (1988); Quaosar, Hoque & Bao (2018); Gardner, Lepak & Bartol (2003); Panos & Bellou (2016). Al-Ayed (2019); Bissola & Imperatori (2014); Ruël, Bondarouk & Van der Velde (2007); Lengnick-Hall, Beck & Lengnick-Hall (2011).
H14: **EP → OO → XO → ORes**	Remenyi, Money & Twite (1991); Zuboff (1988); Ruël, Bondarouk & Looise (2004); Quaosar, Hoque & Bao (2018); Panos & Bellou (2016); Foster (2010); Lengnick-Hall, Beck & Lengnick-Hall (2011); Al-Ayed (2019); Bissola & Imperatori (2014).
H15: **EP → RO → XO → ORes**	Remenyi, Money & Twite (1991); Zuboff (1988); Ruël, Bondarouk & Looise (2004); Quaosar, Hoque & Bao (2018); Panos & Bellou (2016); Tansley, Newell & Williams (2001). Lengnick-Hall, Beck & Lengnick-Hall (2011); Al-Ayed (2019); Bissola & Imperatori (2014).

Note. RA = Relative advantage, CP = Compatibility, CX = Complexity, TR = Trialability, VS = Visibility, EP = e-HRM practices, OO = Operational e-HRM outputs, RO = Relational e-HRM outputs, XO = Transformational e-HRM outputs, ORes = Organizational resilience.

CHAPTER 3

STUDY DESIGN AND RESEARCH METHODOLOGY

The primary objective of this investigation was to analyze the precursors that influence the level of e-HRM adoption, as well as its immediate effects on e-HRM outcomes and distal effects on organizational resilience. In addition, the study also examined the mediating effects of operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes. Research methodology, study design, and methodological techniques are discussed in the following chapter. These topics also include underlying assumptions for the various research components used, such as population and sampling. The chapter also covers instrumentation and operationalization, data collection instruments, and associated concepts like pilot study, reliability, and validity. In Section 3.4, a thorough explanation of the pilot study carried out is presented. A pilot study is conducted to confirm and demonstrate the psychometric properties of the equipment, including reliability and validity testing, before conducting the main study. By utilizing Cronbach's alpha, the reliability of the instrument was established, while both face and content validity measures were employed to evaluate its validity. Finally, the data collection process, along with the methodologies and techniques used for data analysis, is explained in detail.

3.1 Research philosophy and approach

Saunders, Lewis, and Thornhill (2012) developed the research onion, which explains the stages that researchers go through while developing a research strategy. By looking at the onion from the outside, one can interpret its layers to illustrate each step of the research process in more intricate detail (Saunders et al., 2012). The research onion offers a useful sequence that the researcher must go through when developing a useful approach. To begin, research philosophy requires a definition. This lays the foundations for an appropriate research approach. Following the philosophy, the second phase will focus on the research

approach. The methodological choice is selected in the third phase. The fourth tier is where the research strategy is approved, and at the fifth stage, the time period of interest is decided. The sixth step is to determine the data collection methods. As a result, the research onion's usefulness lies in the fact that it provides a string of stages that let us comprehend various data collection techniques and offers steps to further clarify methodological studies.

This study adhered to the research onion model outlined by Saunders et al. (2012) during its execution.

3.1.1 Positivist philosophical worldview

A worldview is defined as “a basic set of beliefs that guide action” (Guba, 1990, p. 17). According to Creswell (1994), the researcher's worldview is the fundamental philosophical attitude he brings to his research. Depending on the types of beliefs each researcher holds, they will frequently decide to use a qualitative, quantitative, or mixed approach to do their studies.

The philosophical outlook of natural scientists is known as positivism. This necessitates being aligned with observed social reality, and generalizations could be the final results that resemble laws, similar to generalizations of the natural and physical sciences (Saunders et al., 2012). The traditional research method has been represented by positivist presumptions, which are more logical for quantitative research than for qualitative research (Creswell, 1994).

The researcher employed pre-existing theories to formulate hypotheses, gathered data about observable realities, tested and confirmed or refuted these hypotheses, in whole or in part, and looked for patterns and causal connections to produce generalizations like those made by scientists in an objective manner. Therefore, the positivist paradigm supporting data collection and analysis aided in meeting the research objectives.

3.1.2 Deductive approach

According to Saunders et al., (2012), the quality of your understanding of the theory at the beginning of your research poses crucial questions regarding the design of your research project. There are often two approaches to follow: deductive or inductive, depending on the line of reasoning you choose.

If a researcher begins studies with a theory, which is frequently the result of analyzing scientific literature, and develops a strategy that investigates the developed theory, the researcher is adopting a deductive approach. Once a researcher has started with data collection to study a phenomenon and eventually ends up generating or developing a theory, usually in the form of a theoretical framework, they take an inductive approach.

If a researcher begins studies with a theory, which is frequently the result of analyzing scientific literature, and develops a strategy that investigates the developed theory; the researcher is adopting a deductive approach. Once a researcher has started with data collection to study a phenomenon and eventually ends up generating or developing a theory, usually in the shape of a theoretical framework, the researcher takes an inductive approach. If a researcher who has started research with collecting data to examine a phenomenon, discovers underlying themes, and clarifies patterns, to revise an existing theory or to develop a new theory that is successively tested by way of collecting supplementary data, the researcher is employing an abductive approach (Saunders et al., 2012).

This study adopted a deductive approach. The rationale behind adopting a deductive approach is that the theoretical framework and hypotheses developed are founded on the diffusion of innovation theory, information technology frameworks, resource-based view theory, and research studies found in extant literature. Research variables are measured quantitatively through employees' perceptions and are subject to statistical testing for interpretation and inference.

3.1.3 Monomethod quantitative methodical choice

The methodical choices outlined by Saunders et al. (2012) comprise monomethod quantitative, monomethod qualitative, multimethod quantitative, multimethod qualitative, mixed method simple, and mixed method complex. Monomethod entails only one technique of data collection and its associated analysis process, which may fall under either a quantitative or qualitative research approach. A multimethod employs more than one technique for collecting data as well as more than one procedure to address the research question. Mixed methods research, on the other hand, integrates quantitative and qualitative research into only one single study design. They can be integrated in various ways, ranging from simple, convergent, to complex forms (Saunders et al., 2012). The researcher must first determine whether the research question requires a monomethod, multimethod, or mixed methods design.

A descriptive study by Vizcarguenaga-Aguirre and López-Robles (2020) highlights the research methodologies used by top-ranked studies. The findings imply that most of the researchers stick to single methodologies, primarily using qualitative techniques.

Recognizing the quantitative nature of the current study, given the available time, and avoiding the weaknesses of mixed and multimethod methods, the monomethod was the logical choice for this study.

Research can be carried out in one of two ways, either quantitatively or qualitatively. The use of words (qualitative) as opposed to figures (quantitative) or the use of open-ended questions (qualitative interview questions) in contrast to closed-ended questions (quantitative hypothesis) are two ways to distinguish between the two types of study. Quantitative research is a method for testing objective theories by delving into the relationships between variables. As a result of that, these variables are certainly measurable, usually by instruments, and the

resulting numerical data can then be analyzed statistically to reveal underlying trends (Creswell, 1994).

In the domains of management science, positivist ontology-based quantitative approaches are most suited and most widely used by researchers interested in precise measurements, minimizing subjectivity of judgment, and obtaining improved reliability (Bernard & Bernard, 2012; Cooper & Schindler, 2003). On the other hand, Cooper and Schindler (2003, p. 196) define qualitative approach (i.e., interpretive) as an "array of interpretive techniques that seeks to describe, decode, translate, and otherwise come to terms with meaning, not the frequency, of certain or more or less naturally occurring phenomena in the social world.".

The quantitative research methodology is focused on numerical (quantitative) data. It allows for investigating a wide spectrum of social phenomena, including individual opinions and sentiments; and it aims to validate theories and hypotheses regarding the phenomena. This study aims to measure e-HRM antecedents, contributions of e-HRM practices, and outcomes and their direct and interactionist influence on organizational resilience through the objective viewpoints of employees. The data generated from the measurements is numerical in nature and can be measured numerically and analyzed statistically. Therefore, this study adopted a monomethod quantitative approach for research.

3.1.4 Survey strategy

Saunders et al. (2012) suggest that strategies could involve an experiment, a survey, archival research, a case study, ethnography, action research, a grounded theory, or a narrative inquiry. The strategy is selected depending on the data required for the study and the intended outcome of the research. A deductive research approach typically links to a survey strategy. To address "what," "who," "where," "how much," and "how many" questions, it is a widely held and frequently employed strategy in business and management

research. Surveys using questionnaires are popular because they are a low-cost way to collect standardized data from large populations that can be easily compared. Furthermore, respondents generally perceive the survey strategy as reliable, and it is reasonably straightforward to describe and comprehend. The survey strategy can be used to collect quantitative data, which can then be analyzed quantitatively with descriptive and inferential statistics to gain insight into the data (Saunders et al., 2012). Furthermore, data collected in surveys can be leveraged to provide potential justifications for specific relationships between variables, and they can also be used to generate models that reflect and explain these relationships.

The researcher has more control over the research process when they employ a survey strategy. It is less expensive to get results indicative of the population than to gather data for the entire population (Saunders et al., 2012). A survey research strategy examines a small sample of the population and gives a numerical or quantitative assessment of trends, attitudes, or opinions of the entire population (Creswell, 1994). Hence, a survey strategy was adopted for this study, as surveys are inexpensive, administered with ease and in less time, and allow desired sampling from a sizeable population.

3.1.5 Cross-sectional time horizon

The time horizon of a research project is the period of time over which it is anticipated to be finished. According to Saunders et al. (2012), there are two time-based horizons for data collection: longitudinal and cross-sectional time horizons. In longitudinal investigations, data is collected repeatedly over a longer period of time. The use of a longitudinal time horizon is advantageous for studying change and development over time or when attempting to establish some control over the study variables. Cross-sectional studies are limited to a pre-established time frame, where data collection is carried out once at a particular point in time. The advantage of using a cross-sectional time horizon is that it can be used to look at a specific

phenomenon at a specific time. Cross-sectional investigations frequently adopt the survey strategy (Saunders et al., 2012). In most academic research, the cross-sectional time horizon tends to be a snapshot of the variables being investigated in the organization (Bryman, 2012; Saunders et al., 2012).

The current study is academic in nature and has a limited time frame for completion. One-time snapshots of how employees perceive, view, and feel are used as measures of the research variables. Hence, this study adopted a cross-sectional time horizon.

Criticisms are frequently directed towards the use of cross-sectional data in mediation analysis. Mediation is fundamentally a causal and longitudinal process. However, given specific assumptions, mediation analysis conducted with cross-sectional data can produce unbiased estimations of indirect effects, which essentially denote causal effects (Montoya, 2024). The scope of this study encompasses HR managers and executives working in large organizations, both in the private and public sectors, who extensively employ e-HRM. These organizations are recognized as early adopters of technological innovations. It is highly likely that these organizations have already experienced e-HRM maturity and have achieved or are close to achieving the transformation stage because of their early adoption of e-HRM. It is important to note that the current study is constrained by a limited time frame. Additionally, the estimation of the research model can be achieved using PROCESS, a statistical method capable of estimating indirect effects in cross-sectional data. Thus, the use of cross-sectional data is considered appropriate for conducting mediation analysis in the study.

3.1.6 Data collection and data analysis techniques

Data collection is the acquisition, measurement, and analysis of reliable data from a range of appropriate sources for identifying solutions to research problems, answering research questions, evaluating results, and predicting probabilities and trends. There are two different methods to acquire data: primary and secondary. Primary, as the term suggests, is

original, first-hand evidence that the researchers have gathered. This procedure is the first information-gathering stage that is carried out before someone does additional or related research. Secondary data refers to second-hand information that has already undergone statistical analysis after being collected by another party. Interviews, questionnaires, and observations are the three main types of primary data collection approaches (Saunders et al., 2012, p. 14). Questionnaires are a simple and effective method of collecting data. A set of open-ended or closed-ended questions on the subject being dealt with is presented to the respondents. Sanders et al. (2012, p. 416) use the term "questionnaires" broadly to refer to all data gathering strategies in which participants are asked to respond to a sequence of identical questions in a predetermined order. There are no specialized techniques for gathering secondary data due to the fact that data has already been acquired and the researcher considers and refers to a variety of data sources. Quantitative research is commonly paired with positivism, especially because it uses highly structured and pre-determined data collection methods (Saunders et al., 2012, p. 162). Additionally, the deduction approach employs data collection to assess propositions or hypotheses pertaining to an already established theory (Saunders et al., 2012, p. 144).

This study employs a positivistic stance and a deductive approach to develop hypotheses based on existing theories, collect data about observable realities, test and confirm or refute these hypotheses, and search for causal relationships. Considering the above discussion, the questionnaire data collection technique is adopted.

3.2 Research design

The research design is the framework of the research methods and techniques that a researcher chooses to use when conducting a study. According to Kumar (2011), once a subject matter has been chosen for research, the researcher explains how he will carry out his research study and what procedure he will employ to respond to the research questions.

Research design is the overarching strategy chosen to bring the several elements of the research together in a coherent and convincing way to make sure that the research problem is handled effectively. This blueprint defines research variables, sample size, data collection methods, and methods of statistical analysis. It also helps researchers identify potential threats to validity and how to address them (De Vaus, 2001; Trochim, 2006).

3.2.1 Nature of study and study setting

This research inquiry is correlational and causal in nature and would collect data in a natural setting. Therefore, it will be non-contrived study. Additionally, due to time constraints, the current study used a cross-sectional time horizon for data collection.

3.2.2 Study population

The target population is the grouping of all the elements from which the researcher hopes to derive conclusions. Ruël, Bondarouk and Van der Velde (2007) argue that e-HRM practices are a means of putting HR strategies, policies, and practices into operation in organizations rather than simply "electronization" of centrally located HR systems and application tools. Power users employ more extensive and full use of e-HRM than other organizations, which outweighs their success-related contributions (Strohmeier & Kabst, 2014). Therefore, the target population of this study includes organizations that use e-HRM to its full potential for the benefit of their internal and external stakeholders. To find potential organizations for this study, customers of e-HRM solution providers such as SAP, Oracle, Microsoft, and others were used as a guide.

The exact number of Pakistani organizations that have fully implemented e-HRM remains unknown due to a lack of authenticated statistics. Key players in the software industry, such as SAP, Oracle, and Microsoft, conduct their operations in Pakistan through their network of business partners. These business partners are responsible for providing software

licensing, subscriptions, support, and training services for their parent companies. Although approached for their customer lists, these partners were hesitant to divulge such information. As a result, their official websites and other online resources were explored to gather information about their clientele. The information proved to be perplexing, as it revealed that certain business partners were affiliated with multiple software companies, some of which were direct competitors. On the contrary, there were business partners whose clientele included companies from the Middle East and Africa.

Leading enterprises in Pakistan opt for ERP solutions from Oracle, SAP, Microsoft, and other software vendors. Oracle stands out with the highest user base, owing to its early involvement in e-Business applications. SAP follows closely behind in the second position in terms of ERP market share. Microsoft Dynamics 365, a newcomer in the ERP market, targets SME users similar to other small HRIS and HRMS systems. The opinion expressed by A. N. Khan (personal communication, January 26, 2023) indicates that most ERP users invariably install and actively utilize the HRM or HCM module within their chosen ERP platform. Therefore, for the purpose of this study, the focus will be on SAP and Oracle ERP users from large enterprises who make extensive use of the e-HRM module.

The distribution of the population strata is outlined in the table provided below (refer to Appendix A):

Table 3.1

ERP/e-HRM User organizations

Sector e-HRM	Private (Count)	Private (%age)	Public (Count)	Public (%age)	Total (Count)	Total (%age)
SAP ERP/HCM	94	32.30	26	8.93	120	41.24
Oracle e-Business/HCM	140	48.11	31	10.65	171	58.76
Total	234	**80.41**	57	**19.59**	291	**100.00**

The target population comprises private and public organizations in a ratio of 4:1, with 80% representing private organizations and 20% representing public organizations.

3.2.3 Unit of analysis

A unit of analysis is defined as the object that researchers hope to have some insight into by the end of their study. The unit of analysis is the level at which the data obtained is aggregated during the next stage of data analysis (Sekaran, 2003, p. 132). The current study aims to investigate the effect of e-HRM practices in assisting organizations in becoming more resilient; therefore, HR managers and executives from private and public sector organizations making full use of e-HRM are considered units of analysis for this study.

3.2.4 Sampling technique

In this study, the target population is organizations that make full use of e-HRM software packages, which fall into two main starta: private and public organizations with a 5:1 ratio. Understanding the differences between the sectors is very crucial. Therefore, a stratified random sampling strategy was adopted in the investigation. According to Sekaran and Bougie (2013), this is a probability sampling strategy in which the population is separated into relevant, appropriate, and meaningful, mutually exclusive categories, and then the subjects are randomly chosen from each stratum. In proportionate stratified sampling, the researcher ensures that individuals are equally or proportionately represented depending on whatever attribute is thought to be the foundation of the stratum. However, Sekaran and Bougie (2013) recommend using disproportionate stratified sampling if the strata's elements are not equal. Proportional stratified samples were employed to attain the goal of accurate representation of the organizations from the two sectors (private and public) after which respondents were chosen by simple random sampling from each stratum. However, Sekaran and Bougie (2013) recommend using disproportionate stratified sampling if the strata's elements are not equal. Proportional stratified samples were employed to attain the goal of accurate representation of the organizations from the two sectors (private and public), after which respondents were chosen by simple random sampling from each stratum. Proportionate

stratification was used. Because the sample size of each stratum in proportionate stratification is proportional to the stratum's population size, this indicates that the sampling fraction for each stratum is the same. It is justifiable to use stratified random sampling because it guarantees to represent all the necessary groups in the population.

The sampling process involved selecting every third organization from each stratum, starting from the first organization. Table 3.2 outlines the distribution of the target population as well as the number of samples that were selected.

Table 3.2

Proportionate stratified sampling

Sector e-HRM	Private (Stratum)	Private (Sample)	Public (Stratum)	Public (Sample)	Total (Stratum	Total (Sample)
SAP ERP/HCM	94	31	26	8	120	39
Oracle e-Business/HCM	140	46	31	10	171	56
Total	234	**77**	57	**18**	291	**95**

The 4:1 proportion of private to public organizations in the survey sample is carefully maintained.

3.2.5 Sample size

There is no consensus regarding the ideal sample size for any research project. Sekaran (2003) suggests that sample sizes ranging from 30 to 500 respondents are adequate. In addition, Sekaran (2003) also recommends that multivariate research projects should have at least 10 or more respondents for each study variable. The type of study being conducted, and the data analysis techniques employed have a substantial impact on the sample size. Some techniques such as Chi-squares, are sensitive to sample size. Its significance becomes less dependable when the sample size falls behind 100 or when the respondents are more than 200. Small size differences can become significant in large samples, while even large differences can be considered insignificant at small sizes (Siddiqui, 2013). Various researchers have put forth different scales for structural equation modeling, resulting in no set

standard sample size. Bentler and Chou (1987) suggested using a case-to-indicator ratio of 5. Nunnally (1994) suggested using a case-to-indicator ratio of 10. Siddiqui (2013) suggested using a case-to-indicator ratio of 15, and so on. In accordance with Sekaran's recommendations (2003, p. 296), the sample size for multivariate research should be a minimum of ten times (preferably higher) the total number of variables being evaluated. To ensure adequate results, it is generally considered appropriate for most types of investigations to have sample sizes greater than 30 and less than 500, according to the general rule of thumb. Second, at least 30 participants must be included in each group if the sample is to be broken down into subgroups (amateur/professional, countryman/foreigner, men/women, private/public, etc.). The third rule stipulates that for multivariate analyses, including regression and others, the sample size must be a minimum of ten times larger than the research's variables. Furthermore, Thomas (2004) suggests that for most analyses, a sample of about 200 cases is adequate. According to Saunders et al. (2012, p. 265), sample size is always an issue of judgment in addition to calculation. Sekaran (2003, p. 296) proposed that sample sizes between 30 and 500 are acceptable. However, other scholars agree with the generalization that, for a regression analysis to be meaningful, a minimum of 10 observations should be collected for each variable.

The target subjects are HR managers and executives from private and public organizations. After considering the suggestions made by Sekaran (2003) and Thomas (2004), it was resolved to draw a sample of 1,000 HR managers and executives.

3.2.6 Measurement Scale

The Likert Scale, a measurement instrument, was originally developed by Likert (1932), who was interested in measuring people's attitudes or thoughts about several items. In contemporary research, it is a frequently utilized tool. The participants rate each statement or

item on a 5-point scale with a range numerically coded from 1 (Strongly disagree) to 5 (Strongly agree).

3.3 Operationalization and instrumentation

The operational definitions and instrumentation of the variables in question are the main subject of emphasis in the current segment of the study. The data were collected using a questionnaire. The extensive survey questionnaire includes 54 questions/items that are used to reflect both the respondent's demographic information and the variables and constructs of the study. The questionnaire basically consists of five sections. In the first section, respondents are prompted to give general information about themselves, such as their gender, age, education level, work experience in years, profession, organization of employment, sector of organization ownership (Private/Public), and number of years since their organization began an e-HRM initiative. The second section contains 18 items that capture the five antecedents or factors that make up the attributes of e-HRM innovations to examine. The antecedents include relative advantage, compatibility, complexity, trialability, and visibility. In the third section, which consists of a total of 11 items, the adopted HRM practices of the organization are assessed. The fourth section measures e-HRM outcomes through sixteen items. These outcomes include operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes. The fifth and last part contains nine elements and measures organizational resilience.

The degree to which each item or phrase is agreed upon by the participants is determined using a 5-point Likert scale. There is a score assigned to each item. Strong disagreement is indicated by a 1, while disagreement is indicated by a 2, neutrality is shown by a 3, agreement is indicated by a 4, and strong agreement is indicated by a 5.

3.3.1 The antecedents of e-HRM adoption

Items evaluating the e-HRM antecedents (i.e., relative benefit, compatibility, complexity, trialability, and visibility) are adapted from Moore and Benbasat (1991). The survey that served as the basis for these questions was previously employed in research on the DOI model. This study draws principally on the comprehensive work of Moore and Benbasat (1991) and Rogers (1983), whose operationalization of the following five general characteristics of innovations served as the fundamental inspiration for this study:

Relative Advantage: The extent to which an innovation is considered better than what it is replacing.

Compatibility: The extent to which an innovation is thought to align with and adhere to the values, requirements, and prior experiences of the prospective adopters and conform to their expectations.

Complexity: The extent to which an innovation is viewed as challenging and difficult to apply.

Trialability: The extent to which an innovation can be tried out and experimented before adoption.

Visibility: The extent to which results of an innovation can be observed by other adopters.

The study by Quaosar, Hoque, and Bao (2018) demonstrates that Rogers' attributes of innovations can be used to appropriately quantify different aspects linked to the intention to use HRIS. The original questionnaire has been adapted to fit the perspective of e-HRM environment. Five items are used to measure relative advantage (e.g., "Using e-HRM improves the quality of work I do."). Three items are used to measure compatibility (e.g., "Using e-HRM is compatible with all aspects of my work."). Three items are used to measure complexity (e.g., "My interaction with e-HRM is clear and understandable."). Three items are

used to measure trialability (e.g., “Before deciding to use e-HRM applications, I was able to properly try them out.”). Three items are used to measure visibility (e.g., “I have had plenty of opportunity to see e-HRM being used.”).

3.3.2 e-HRM practices

Eleven items that emerged from a related study (Milon, Alam & Pias, 2022) are adapted to measure e-HRM practices. For operationalization of e-HRM practices, Milon et al. (2022) selected a group of e-HRM practices that were perceived to have been adopted rather than examining the effects of each category of e-HRM practices separately (Bissola & Imperatori, 2013; Parry, 2011) and focused on eleven e-HRM practices: e-recruitment, e-selection, e-training, e-performance appraisal, e-compensation, e-personal profile, e-advertising, e-application tracking, e-communication, e-grievance tracking and handling system, and e-leave. Respondents are prompted to express the level of their usage of e-HRM practices on a five-point Likert scale in this survey. Sample items are “My organization finds the candidates through online as their recruitment process for the purpose of cost and time saving.” for e-recruitment and “My organization uses the software programs to measure employee performance, record performance and review the feedback of employees for future improvement.” for e-performance appraisal.

3.3.3 Operational e-HRM outcomes

Panos and Bellou (2016) define operational e-HRM outcomes as “the administrative aspects of e-HRM, reflecting the efficiency of HR practices.” Operational e-HRM outcomes are measured using four items extracted from the work of Panos and Bellou (2016). One of the operational e-HRM outcomes items is “The adoption of e-HRM system by the organization improved effectiveness of the HR functions.”.

3.3.4 Relational e-HRM outcomes

The scale provided by Panos and Bellou (2016) is the basis for the measurement of relational HRM outcomes. Relational e-HRM outcomes are operationally defined as "interdepartmental connection and communication, and the cooperation that e-HRM adoption enables." Four elements are extracted from the work for measuring the relational e-HRM outcomes. The sample item is "The organization gained high internal client satisfaction with the implementation of the current e-HRM system.".

3.3.5 Transformational e-HRM outcomes

Transformational e-HRM outcomes are also measured using eight items adopted from Panos and Bellou (2016). The transformational e-HRM outcomes refer to "facilitating focus on more strategic and value-adding tasks and plans." The items included "The e-HRM system implementation led to the decentralization of HR activities by shifting execution responsibility to line management and employees." and "e-HRM systems allow HR staff to redirect time onto strategic initiatives.".

3.3.6 Organizational resilience

Organizational resilience is to be measured using nine items adopted from the Organizational Resilience Scale (Kantur & Iseri-Say, 2015). To measure the level of organizational resistance, the scale consists of three dimensions: robustness, agility, and integrity. These dimensions are operationally defined as follows:

Robustness: The degree to which an organization can tolerate adverse circumstances and bounce back;

Agility: The degree of an organization's capability to act quickly; and

Integrity: The degree of harmony among employees in an organization when adverse conditions are present.

The robustness dimension consists of four elements designed to quantify the organization's potential for resistance (for example, “My organization stands straight and preserves its position.”). Three questions in the agility dimension evaluate how quickly and readily organizations adjust to changing conditions (for example, “My organization rapidly takes action.”). Two items in the integrity dimension measure how knitted employees are to each other within the organization (for example, “My organization is a place where all the employees engaged to do what is required from them.”).

3.4 Pilot study, reliability, and validity of instrument

Before the main study begins, the instrument can be improved with the help of a pilot test or pre-test, which also provides the researcher with the best prospects to revise the report's contents (Cooper & Schindler, 2006). In the pilot study, a reflection of the main study must take place. Reflection on the pilot study allows researchers to make any necessary changes and improvements to the main study before it is conducted. It is important that the pilot study captures the same information as the main survey. The researchers must undertake a pilot study as a means of evaluating the validity and reliability of the measurement tools before starting the anticipated comprehensive main study. Before going on to the next stage of the study, it is mandatory to determine the reliability and validity of the measuring scales (whether they have been adopted or adapted), as this will allow for early identification of issues and problems. As a result of this process, researchers have more confidence since they can be sure that the population they are studying is accurately represented by high validity and reliability values. In addition, this process also allows researchers to understand how accurately the construct measures what was intended (Cooper & Schindler, 2006).

A small-scale pilot study was conducted prior to moving forward with the main study to pre-test the measurement instrument and verify its reliability and validity. Cronbach's alpha coefficient is a statistical measure of the internal consistency of a set of survey items.

For determining the internal consistency and reliability of scales, Cronbach's alpha is a well-known and most frequently used method. As part of the pilot study, Cronbach's alpha was applied to evaluate the reliability of the scale. Similarly, for content validity and face validity, expert judgment was sought from academia and industry experts to improve the instrument.

Researchers should conduct pilot studies, which are an effort to validate the measuring tools, their reliability, and their validity, prior to proceeding further with full-scale intended studies. The instrument, whether adopted or adapted, must be proven to be reliable and valid prior to moving on to the next stage of the study. This allows for early identification of potential issues and problems with the measurement instrument. Accordingly, high levels of validity and reliability accurately depict the population under study, which offers the researchers more confidence. Furthermore, the process also enables researchers to understand that the constructs are really measuring what they are intended to measure (Cooper & Schindler, 2006). The present study was also initiated by a pilot study to pre-test the measurement instrument and verify its reliability and validity. To achieve this objective, a convenient sample of one hundred HR managers and executives who could potentially participate in the main study was selected from twenty-two organizations: cement, commercial banks, fertilizer, higher education institutions, oil and gas manufacturing companies, pharmaceutical, refinery, technology and communication, and transport companies. Cooper and Schindler (2006) suggest using a sample size of 25–100 for the pilot study. These managers and executives (i.e., respondents) were chosen from the study's intended target population to administer the instrument at this stage. From the Director Academics at the National University of Modern Languages in Islamabad, a letter of recommendation was obtained to present to pilot study participants. In the end, fifty completed questionnaires with no missing values at a response rate of 50% were deemed suitable for the pilot study's analysis.

3.4.1 Profile of participants for pilot study

As mentioned above, 50 human resource managers and executives from 22 organizations responded. General information about the participants who responded can be found in the tables below, i.e., Table 3.3 and Table 3.4.

Table 3.3

Participants' General information – Pilot study

Participants' characteristics	Frequency	Percent (%)	Cumulative Percent (%)
Gender			
Male	42	84.0	84.0
Female	8	16.0	100.0
Total	**50**	**100.0**	
Age			
25 years or below	1	2.0	2.0
26-30 years	6	12.0	14.0
31-35 years	8	16.0	30.0
36-40 years	13	26.0	56.0
41-45 years	6	12.0	68.0
46-50 years	5	10.0	78.0
51 years and above	11	22.0	100.0
Total	**50**	**100.0**	
Education			
Bachelor's degree	6	12.0	12.0
Master's degree	41	82.0	94.0
MPhil	1	2.0	96.0
MS	2	4.0	100.0
Total	**50**	**100.0**	

Source: Data from pilot study

Table 3.4

Participants' General information – Pilot study

Participants' characteristics	Frequency	Percent (%)	Cumulative Percent (%)
Experience			
5 years or below	6	12.0	12.0
6-10 years	9	18.0	30.0
11-15 years	14	28.0	58.0
16-20 years	7	14.0	72.0
21-25 years	9	18.0	90.0
26 years and above	5	10.0	100.0
Total	**50**	**100.0**	
Profession			
HRD	2	4.0	4.0
HRM	32	64.0	68.0
HRM/Admin	4	8.0	76.0
Oracle ERP/HCM	2	4.0	80.0
SAP ERP/HCM	10	20.0	100.0
Total	**50**	**100.0**	
Sector			
Private	36	72.0	72.0
Public	14	28.0	100.0
Total	**50**	**100.0**	
e-HRM Maturity			
Less than 1 year	2	4.0	4.0
1-3 years	4	8.0	12.0
4-5 years	10	20.0	32.0
More than 5 years	34	68.0	100.0
Total	**50**	**100.0**	

Source: Data from pilot study

Information on the respondents to the pilot research is provided in Tables 3.3 and 3.4. According to Table 3.3, the pilot study had 16% female respondents and 84% male respondents. Male respondents made up the majority, compared to female respondents. Males are predominately in the Pakistani workforce. The same holds true for human resources departments in public and private sector organizations.

The majority, or 54% of respondents, were aged between 31 and 45 years. 14% of respondents belong to the 26–30-year age range, while 32% are in the 46–50 year and 51+ year age brackets. Only 2% of the participants surveyed fall into the age bracket of under 25 years old. In Table 3.3, the frequency distribution of respondents by age groups is displayed.

Education was also considered as a demographic factor. The respondents were required to specify whether they had a bachelor's degree, master's degree, or other educational qualification. According to Table 3.3, 82% of respondents reported having completed their master's degree education, with 14% having completed their bachelor's degree education. MPhil, and MS make up 2%, and 4% of the total. According to statistics, the vast majority (88%) hold advanced degrees, indicating a strong area of specialization. This implies that the process of managing human resources generally includes education as a crucial component.

As shown in Table 3.4, participants with more than ten years of expertise made up 70% of the survey, which is indicative of the senior or executive level experience of the respondents. This demonstrates that most of the participants have extensive experience in this field, which likely contributed to their ability to answer the survey questions accurately and effectively. The career profile of respondents in the pilot phase is presented in Table 3.4. From the professions of the participants, it can be deduced that they worked as HRD, HRM, HRM/Admin, Oracle ERP/HCM, or SAP ERP/HCM experts in the human resources department. This certainly indicates the value and importance of the information they can provide.

Furthermore, Table 3.4 shows that the pilot study included 28% public sector and 72% private sector organizations. This is because public sector organizations tend to take fewer innovative initiatives than their private-sector counterparts. e-HRM adoption is maturing in organizational life. 68% of participants reported that their organizations had been using e-HRM for more than five years. The remaining 20% used e-HRM for four to five years, 8% for one to three years, and 4% for less than a year.

It is important to note that the demographics of the respondents in the pilot survey sample matched the demographics of the targeted population for the study.

3.4.2 Descriptive statistics analysis for pilot study

Table 3.5 summarizes the responses of the respondents to each of the variables under consideration. Furthermore, to demonstrate the behaviour of the score against each construct or variable, the normality of each construct or variable was assessed. The variables include relative advantage (RA), compatibility (CP), complexity (CX), trialability (TR), visibility (VS), e-HRM practices (EP), operational e-HRM outcomes (OO), relational e-HRM outcomes (RO), transformational e-HRM outcomes (XO), and organizational resilience (ORes). The mean, standard deviation, skewness, and kurtosis for each variable under discussion are tabulated in the following table, Table 3.5.

Table 3.5

Descriptive statistics– Pilot study

Variable/Construct	Mean	SD	Skewness	Kurtosis	N
Relative advantage	4.40	0.75	-0.95	0.71	50
Compatibility	3.85	0.70	-1.46	4.34	50
Complexity	3.69	0.85	-0.41	-0.39	50
Trialability	3.65	0.63	0.19	-0.29	50
Visibility	3.57	0.75	-0.05	-0.41	50
e-HRM practices	3.87	0.56	-0.23	-0.42	50
Operational e-HRM outcomes	4.00	0.66	-0.23	-0.32	50
Relational e-HRM outcomes	4.16	0.60	-0.14	-1.06	50
Transformational e-HRM outcomes	3.83	0.60	0.26	-0.66	50
Organizational resilience	3.11	0.71	0.12	-0.01	50

Source: Data from pilot study

Table 3.5 contains descriptive figures for each variable, including the mean and standard deviation. Responses are assessed on a scale of 1 (Strongly disagree) to 5 (Strongly agree), with 5 being the strongest agreement. It is also significant to remember that the mean scores of the constructs and variables were also evaluated as percentages (%) to specify the status of the constructs and variables, i.e., unsatisfactory (less than 3, i.e., less than 60%), good (greater than 3, but less than 4, i.e., more than 60% but less than 80%), and excellent (greater than 4, i.e., more than 80%).

The mean of the variable relative advantage (RA) is 4.40, or 88.0%, which shows that the variable is in an excellent state. This demonstrates that HR managers and executives give relative advantage the due value and that there is broad agreement regarding its importance in ensuring better adoption of e-HRM. The dispersion of the variable (SD = 0.75) also indicates that the participants' response to the relative advantage in supporting the adoption of e-HRM

deviates from the mean and clusters close to it, indicating stable dispersion. Additionally, the skewness (-0.95) and kurtosis (0.71) reaffirm that responses are evenly distributed.

The average compatibility (CP) score is 3.85 (77.0%), which is above the neutral point or threshold of 60%. This demonstrates that organizations agree on the relevance of e-HRM traits that are congruent with the values, requirements, and prior experiences when adopting e-HRM practices. The standard deviation (0.70) of this variable was lower than 1, showing that responses are bunched all around the mean value. The skewness value of -1.46 and kurtosis value of 4.43 fall beyond the acceptable range for normality, indicating that the distribution cannot be classified as normal. A larger sample size in the main study may help improve this issue.

The mean value of complexity (CX), a variable that measures how difficult e-HRM is perceived to be, was 3.69, i.e., 73.8%, pointing to disagreement about the potential for complexity to play a supporting role when using innovations such as e-HRM. Moreover, the standard deviation (0.85) for this variable was less than 1. This also gives us information that the respondents' answers are spread out in terms of complexity and clustered around a central value, indicating a stable deviation. This is further confirmed by the skewness (-0.41) and kurtosis (-0.39) values, confirming that the responses are evenly distributed.

The mean trialability (TR) was 3.65, which is 73.0% with SD = 0.63, indicating that organizations recognize the value of hands-on training, trial-outs, and experimenting prior to e-HRM adoption. As indicated by the measurements of standard deviation (0.52), skewness (0.19), and kurtosis (-0.29), the variable has a normally spread distribution, and responses cluster around the mean.

The mean score for visibility (VS) was 3.57, or 71.4%, showing that respondents believe they witness others in their organization deriving benefits from the implementation of

e-HRM practices. The SD is 0.75, the kurtosis is -0.05, and the skewness is -0.41. These values all exhibit a stable deviation from the mean, and the variable behaves normally.

e-HRM Practice (EP) demonstrated an average value of 3.87, i.e., 77.4%, with a SD of 0.56, indicating that organizations recognize the benefit and significance of implementing, adopting, and leveraging e-HRM practices. Organizations make extensive use of information technology-based infrastructure and supporting technologies to execute their human resources practices, policies, and strategies. The standard deviation (0.56), skewness (-0.23), and kurtosis (-0.42) values indicate that the variable observations are distributed normally and that the sample responses are clustered around the mean.

Operational e-HRM outcomes (OO) with a mean of 4.00, i.e., 80.0%, and a SD of 0.66 indicate that there is broad agreement on the achievement of reduced time and effort for administrative tasks, better process execution, and improved HRM service quality. This variable's standard deviation (0.66) and values for skewness (-0. 23) and kurtosis (-0. 32) also indicate that responses are normally distributed.

The mean for relational e-HRM outcomes, 4.16 with SD = 0.60, also points to agreement, indicating that because of e-HRM adoption, the organization benefits from improved HRM service delivery, optimized workflow, better communication and relationships among HRM, management, and employees. Furthermore, the skewness (-0.14) and kurtosis (-1.06) values indicate that responses are evenly distributed, as shown in Table 3.5. As a result, the variable has a homogenous distribution because the values are inside the acceptable range, as stated by earlier research.

Transformational e-HRM outcomes (XO) had a mean value of 3.83, indicating that 76.6% of respondents acknowledged the transformation of HR roles because e-HRM enables them to concentrate more on tasks and plans that are strategic and add value. Furthermore, the standard deviation for this variable (0.60) was less than one. This also indicates that the

respondents' responses are dispersed in terms of outcomes and clustered around a central value, indicating a stable deviation. The skewness (0.26) and kurtosis (-0.66) values confirm this, indicating that the responses are evenly distributed.

The mean for organizational resilience (3.11) shown in Table 3.5 also indicates that the organizations under review consider themselves to be strong, agile, and cohesive in terms of their capacity to efficiently absorb. create situation-specific reactions and profit from upsetting surprises. Furthermore, the standard deviation value, 0.71, shows stable deviations clustered around the mean. Table 3.5 demonstrates that the skewness (0.12) and kurtosis (-0.01) values behave normally and that the construct is homogeneously distributed because they are within the appropriate range recommended by the extended literature.

3.4.3 Reliability analysis for instrument

It is essential to ensure the reliability of the research questionnaire or instrument prior to analyzing the data. It refers to the stability, reproducibility, and consistency of the survey items or elements (Jack & Clarke, 1998; Jones & Rattray, 2010). The instrument is considered reliable when participants assign the same overall connotation to each element while evaluating the same concept, and the elements "hang together as a set" (Sekaran, 2003, p. 206). Simply put, it establishes if the elements or items of a construct exhibit internal consistency. The internal consistency increases with increased correlation between elements and items. Test-retest, internal consistency, and parallel procedures were found in prior research as reliable construct reliability measurement techniques. Cronbach's alpha is the most widely used technique to evaluate consistency or inter-item correlation across items (Sekaran, 2003).

According to earlier research, an instrument is considered to have satisfactory internal consistency or reliability when it reaches or is close to the Cronbach's alpha value of 1. More specifically, an acceptable and appropriate value of Cronbach's alpha is 0.70 or above

(Bernard & Bernard, 2012; Nunnally,1978; Sekaran, 2003; Saunders et al., 2012). A value ≥ 0.60, in accordance with Kerlinger and Lee (2000), denotes adequate construct reliability. According to Nunnally (1967), Cronbach's alpha values between 0.50 and 0.60 are adequate for exploratory research.

Table 3.6 displays the Cronbach's alpha coefficients for all variables and constructs.

Table 3.6

Reliability results – Pilot study

Variable/Construct	Number of items	Cronbach's alpha	N
Relative advantage	5	0.84	50
Compatibility	3	0.83	50
Complexity	4	0.81	50
Trialability	3	0.62	50
Visibility	3	0.65	50
e-HRM practices	11	0.87	50
Operational e-HRM outcomes	4	0.78	50
Relational e-HRM outcomes	4	0.67	50
Transformational e-HRM outcomes	8	0.84	50
Organizational resilience	9	0.88	50
Robustness	4	0.80	50
Agility	3	0.80	50
Integrity	2	0.93	50

Source: Data from pilot study

According to Table 3.6, Cronbach's alpha coefficients for all variables and constructs range from 0.59 to 0.93. The alpha values for relative advantage (RA = 0.84), compatibility (CP = 0.83), complexity (CX = 0.81), e-HRM practices (EP = 0.87), transformational e-HRM outcomes (XO = 0.84), and organizational resilience (ORes = 0.88) indicate that these variables in the scale have good internal consistency. Cronbach's alpha value for operational

e-HRM outcomes (OO = 0.78) as recommended by Bernard and Bernard (2012) and Saunders et al. (2012) shows satisfactory consistency among the items.

The initial Cronbach's alpha values for trialability (TR = 0.62), visibility (VS = 0.65), and operational HRM outcomes (OO = 0.67) are relatively low. However, it is anticipated that these values may improve as the number of responses increases in the main study.

3.4.4 Construct validity

Construct validity determines if items developed to measure a latent construct do so in reality (Sekaran, 2003; Saunders et al., 2012). Construct validity frequently includes content validity, convergent validity, and discriminant validity.

3.4.4.1 Content validity

Content validity verifies that the items or constructs are appropriate and address the subject satisfactorily. Content validity involves having experts in the field review the items to make sure they are relevant and measure what they claim to measure. It also involves analyzing the item content to ensure it covers the domain of the construct being measured. It helps to assure the validity and reliability of the results by making certain that the items or constructs measure what they are meant to measure. It does this by evaluating the content of the items or constructs and making sure they are representative of the subject. According to Cooper and Shindler (2006, p. 318), "Content validity of a measuring instrument is the extent to which it provides adequate coverage of the investigative questions guiding the study." The validity of the content is ensured because every scale has been pre-validated (Dunn, Seaker, & Matthew, 1994). As suggested by Cooper and Schindler (2006), academicians and industry experts can determine content validity procedurally using their expert judgment. To accomplish this goal, three university professors and three human resources experts from the airline, fertilizer, and refinery industries assessed the current research instrument. Following the appointment, these specialists were approached at their offices and interviewed to discuss the relevant items and determine whether they were appropriate. The items have been augmented by rewording them as necessary in response to the opinions and advice of academicians and experts.

3.4.4.2 Face validity

Face validity is the issue of whether items intended to measure a construct actually appear to do so (Saunders et al., 2012; Sekaran, 2003). It is a subjective evaluation and relies on the judgment of the experts. This concept is based on the idea that if the items in a test do not appear to be measuring the intended construct, then the validity of the test is questionable.

The face validity of the instrument for the current investigation was established in two stages. The questionnaire was initially distributed to academicians (with an MPhil or PhD degree or equivalent qualification) who were instructing courses in management science such as HRM, information systems, and others. Changes were incorporated according to comments from these professors. In the second stage, the survey instrument was reviewed and assessed by two HR managers and one Oracle ERP/HCM expert, and modifications were made according to the feedback and direction received. Following the discussions with human resource management and other managers, some of the items were reworded to better match the context. Eventually, the questionnaire was validated by the supervisor, who deemed it valid and appropriate for use in the upcoming research.

In the subsequent section described in Chapter 4, further validity tests were performed. Two specific examples of these tests include convergent validity and discriminant validity.

3.5 Data Collection

The survey employed a self-administered questionnaire to gather data. Managers and executives in the HR department of various organizations were provided with a comprehensive five-page questionnaire and a letter of introduction through personal connections. The survey employed a self-administered questionnaire to gather data. Managers and executives in the HR department of various organizations were provided with a comprehensive five-page questionnaire and a letter of introduction through personal connections. Within the covering statement, a comprehensive account of the study's

objectives is provided, accompanied by an unwavering commitment to upholding the confidentiality of all information, including the identities of respondents and the names of organizations. The same were also sent through the email system to HR managers and executives of the accessible population who were invited to complete the questionnaire. The data were gathered over the course of four months due to organizational-level data collection, which required each organization to complete at least two survey instruments. 1,000 surveys were distributed in total; 573 were returned, representing a 57% response rate. According to Baruch and Holtom (2008), a response rate of 35% is reasonable when it comes to organizational-level studies, particularly those that survey senior management. The credibility of the research results was aided by the high response rate. An intrinsic benefit of the current study was that it concentrated on a research area that had acquired popularity among HR professionals who are continuously looking for information to help them improve the efficiency of their departments. The survey participants were offered the opportunity to share their email addresses to receive the findings of the study as an extra incentive. In the electronic version of the questionnaire, this information was included in the introductory portion; in the paper-based version, it was included at the end. Positive feedback in this regard was received, which proved that HR professionals were interested in the research area.

Follow-up requests to participate in surveys are crucial to improving response rates. Soft reminders were issued to the respondents for this purpose, utilizing the available communication channels, including email, phone calls, and short text messaging, a month after the survey questionnaire's first distribution. Because of this follow-up, several more responses followed.

To further encourage participation, a second reminder was dispatched to those who had not yet responded through the available communication channels as part of the second follow-up. This concerted effort yielded the desired outcome of obtaining additional

responses. The analysis of the data is based on a total of 573 questionnaires that were accurately completed.

3.6 Data analysis

The survey's instrument had pre-coded questions on every item. The collected data is initially transferred to an Excel spreadsheet. For further analysis, it was imported from the Excel spreadsheet into the SPSS dataset.

The demographic statistics of the survey participants were determined using frequency distributions. To assess the reliability of the scales for the pilot study, Cronbach's alpha coefficients were estimated for each item. The strength and direction of the associations among the research variables were determined using correlation and regression analyses.

Linearity, multicollinearity, homoscedasticity, autocorrelation, and multivariate normality statistics and plots were checked to verify the assumptions of the standard linear regression model.

SEM (Structural Equation Modeling) was selected for confirmatory factor analysis (CFA) for a variety of reasons. It was chosen in preference to PLS for several reasons, the first of which is that PLS is more suited for exploratory investigations when the theory is still being developed. PLS is more complicated than SEM when it comes to computing fit indices (Shackman, 2013). Simply expressed, the ability of SEM to assess the validity of multi-item constructs and account for both direct and indirect effects is what drives its adoption (Lee, Petter, Fayard & Robinson, 2011). SEM is designed to deal with both latent constructs and observed variables, in contrast to regression, which demonstrates one-way causation and can only deal with observed variables. Bidirectional causality or influence, as well as dual causations, can be identified using SEM (Hair et al., 2017). Researchers have promoted the use of SEM techniques for evaluating mediation and empirically proven that they are superior

to regression techniques. Therefore, the data were also analyzed using SEM. CFA were performed to assess how well the model fit the data.

SPSS 21 (Statistical Package for Social Sciences) and SmartPLS 4.1 statistical software were used in this investigation. SPSS is useful for conducting data screening, generating descriptive statistics, creating plots, and more. SmartPLS, on the other hand, is a valuable tool for evaluating the validity (both convergent and discriminant) as well as the reliability of data. SPSS was used for the creation of the sample data sheet from the data collected from target population. With SPSS, basic descriptive analysis, correlation analysis, and regression analysis were carried out. The data sheet was then imported into SmartPLS and used for analysis of measurement model. For structural equation modelling, SmartPLS statistical software is commonly used. SmartPLS has always been more user-friendly than other SEM applications.

3.7 Extent of researcher interference

Following the positivism philosophy, employing a deductive approach, utilizing a survey strategy, and establishing a non-contrived study environment, correlational and causal studies are conducted in the natural context of organizations with minimal interference and disruption to the usual workflow by the researcher. Therefore, it was ensured that the level of interference from researchers was kept to a minimum.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

The data analysis, test results, and deduced conclusions are all included in this chapter. Section 4.1 describes the respondents' profile. Respondents' profiles present demographic information such as their gender, age, education level, work experience in years, and profession as individuals who participated in the study by answering the research questionnaires. Organization of employment, sector-wise classification of organization ownership, and e-HRM maturity over the years are also included in the respondents' profiles. The management of missing values, outliers, and extreme values is discussed in Section 4.2, while Section 4.3 focuses on the comprehensive analysis of variables and constructs, employing descriptive statistical methods. The reliability of the scale, as assessed by Cronbach's alphas, is the central focus of the discussion in Section 4.4. The validity of the scale is discussed in Section 4.5. The validity of the scale is evaluated in three ways. First, content validity is determined using expert judgment by academicians and industry experts. Second, standardized factor loadings, composite reliability, and average variance extracted (AVE) statistics then ensure convergent validity. Third, for discriminant validity, pairwise correlations were examined and found to be below the cut off value. The method recommended by Fornell and Larcker (1981) was also used to confirm discriminant validity. The results suggested that the fit was adequate. The section is concluded by discussing the model fit indices. The purpose of using multiple regression analysis for testing hypotheses and determining relationships between predictor and response variables is justified in Section 4.6. The testing of the fundamental assumptions of regression analysis, such as linearity, multicollinearity, homoscedasticity, independence of observation, and multivariate normality, is covered in Section 4.7. The results of Pearson correlation, tolerance, VIF, Levene's statistics, and Durbin-Watson statistics are analyzed and presented in tables. The results

demonstrate that all the assumptions needed to conduct the regression analysis were met. The results demonstrate that all the assumptions needed to conduct the regression analysis were met. The results of the regression analysis are discussed in Section 4.8. A detailed discussion of hypotheses and results can be found in this section. Section 4.9 contains a summary of the hypotheses' results. Figures as well as tables and commentaries provide a comprehensive overview of the data.

4.1 Profile of respondents

General information about the participants who responded are provided in the following tables i.e., Table 4.1 through Table 4.7.

4.1.1 Gender of the respondents

Table 4.1 indicates that 68.6% male and 31.4% female respondents participated in the pilot study. Male respondents outnumbered females by a large margin. Males are predominant in the Pakistani workforce. The same holds true for human resources departments in public and private sector organizations.

Table 4.1

Respondents' Gender

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Gender	Male	393	68.6	68.6
	Female	180	31.4	100.0
	Total	**573**	**100.0**	

4.1.2 Age of the respondents

The majority, or 57.5% of respondents, were aged between 31 and 45 years.12.2% of respondents belong to the 26-30 years age range, while 28.7% are in the 46-50 years and 51-plus years age brackets. The remaining 1.6% of the respondents are under 25 years old. In Table 4.2, the frequency distribution of responders by age groups is depicted.

Table 4.2

Respondents' Age

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Age	25 years or below	9	1.6	1.6
	26-30 years	70	12.2	13.8
	31-35 years	84	14.7	28.5
	36-40 years	173	30.2	58.7
	41-45 years	72	12.6	71.3
	46-50 years	50	8.7	80
	51 years and above	115	20.0	100.0
	Total	**573**	**100.0**	

4.1.3 Education

Education was also considered a demographic factor. The questionnaire asked respondents to categorize their level of education as having a bachelor's degree, a master's degree, or some other educational qualification. According to Table 4.3, 78.3% of respondents reported having completed their master's degree education, with 12.9% having completed their bachelor's degree education. MPhil, MS, and PhD make up 4.4%, 4.2%, and 0.5% of the total. According to statistics, the vast majority (87.1%) hold advanced degrees, indicating a strong area of specialization. This implies that the process of managing human resources generally includes education as a crucial component. The role of education in human resource management is now well established.

Table 4.3

Respondents' Education

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Education	Bachelor's degree	74	12.9	12.9
	Master's degree	447	78.0	90.9
	MPhil	25	4.4	95.3
	MS	24	4.2	99.5
	PhD	3	0.5	100
	Total	**240**	**100.0**	

4.1.4 Experience

According to the information presented in Table 4.4, the majority of participants (71.4%) had accumulated over ten years of professional experience, suggesting a significant level of senior or executive experience within the group.

Table 4.4

Respondents' Experience

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Experience	5 years or below	62	10.8	10.8
	6-10 years	102	17.8	28.6
	11-15 years	193	33.7	62.3
	16-20 years	85	14.8	77.1
	21-25 years	77	13.5	90.6
	26 years and above	54	9.4	100
	Total	**240**	**100.0**	

4.1.5 Profession

Table 4.5 shows the professional career profiles of the survey respondents. From the professions of the participants, it can be deduced that they worked as HRD, HRM, HRM/Admin, Oracle ERP/HCM or SAP ERP/HCM experts in the human resources department. This certainly indicates the value and importance of the information they can offer.

Table 4.5

Respondents' Profession

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Experience	HRD	20	3.5	3.5
	HRM	448	78.2	81.7
	HRM/Admin	42	7.3	89
	Oracle ERP/HCM	28	4.9	93.9
	SAP ERP/HCM	35	6.1	100
	Total	**573**	**100.0**	

4.1.6 Sector classification

The findings from Table 4.6 reveal that the study encompassed a sample wherein 80.3% of the participants were associated with the private sector, while the remaining 19.7% were affiliated with the public sector. This discrepancy can be attributed to the fact that public sector organizations tend to exhibit a lower inclination towards creative and innovative initiatives when compared to their counterparts in the private sector.

Table 4.6

Sector classification

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
Sector	Private	460	80.3	80.3
	Public	113	19.7	100.0
	Total	**573**	**100.0**	

4.1.7 e-HRM Maturity

Table 4.7 illustrates that a majority of 73% of respondents indicated that their respective organizations have implemented e-HRM for over five years. Additionally, 15.5% reported using e-HRM for a duration of four to five years, while 6.6% stated they have utilized e-HRM for one to three years, and 4.9% for less than a year. These findings suggest a growing maturity in the adoption of e-HRM within organizational settings.

Table 4.7

e-HRM Maturity

Characteristics	Description	Frequency	Percent (%)	Cumulative Percent (%)
e-HRM Maturity	Less than 1 year	28	4.9	4.9
	1-3 years	38	6.6	11.5
	4-5 years	89	15.5	27.0
	More than 5 years	418	73.0	100.0
	Total	**573**	**100.0**	

The target population of the study includes organizations that make full use of e-HRM to serve both internal and external stakeholders. The main objective of this study is to evaluate the impact of e-HRM practices on helping organizations become more resilient. Therefore, HR managers and executives from organizations operating in the private and public sectors that fully utilize e-HRM are taken into consideration as the unit of analysis. According to the professional career profiles of the respondents, these are HR managers and executives who work as HRM, HRM/Admin, HRD, or ERP/HCM specialists. They are all very well educated, and the majority (87.1%) have advanced degrees, indicating strong specialization. A significant number of survey participants had accumulated more than ten years of professional experience. These individuals serve as HR managers and executives in

their respective organizations, which include both the public and private sectors. Their extensive expertise in the field offered valuable perspectives on the survey outcomes.

The demographic characteristics of the participants in the sample closely resemble those of the target population.

4.2 Missing values, outliers, and extreme values management

During data collection, it is not unusual to encounter missing values, outliers, and extreme values. These missing values can lead to a reduction in the amount of data that is available for analysis, thus affecting the statistical strength of the study and ultimately casting doubt on the reliability of its outcomes. The presence of outliers poses another challenge, as they signify extreme values that deviate from the overall pattern observed in a distribution of variables.

A few instances of missing data were detected in the paper questionnaires. To address this issue, imputation analysis was conducted during the data entry phase in Excel spreadsheets. The missing values were substituted with statistical mean values to ensure a complete dataset without any missing values for subsequent analysis.

Dealing with outliers in a dataset can be achieved through three fundamental methods: trimming, Winsorization, and robust estimation method.

Trimming involves analyzing a dataset that has had outliers removed. However, since outliers are still valid data points, excluding them in this manner renders the approach unsuitable for handling outliers. (Kwak & Kim, 2017: Osborne, 2010).

Winsorization is a technique used to handle outliers by substituting them with a less extreme value. This replacement can be either the mean value or the most extreme value that is not considered an outlier. By replacing an outlier with the mean value, the impact of that data point is essentially nullified, as it becomes equivalent to the mean and does not affect the overall mean of the dataset. On the other hand, replacing the outlier with the most extreme

non-outlier value maintains the variance contributed by that data point but decreases the overall variance compared to keeping the outlier value intact. When opting to substitute an outlier value with a different value that is relatively extreme in relation to the mean, it is implied that the outlier was a legitimate measurement, albeit potentially containing some degree of noise (Kwak & Kim, 2017: Osborne, 2010).

Robust estimation methods are deemed suitable when the characteristics of the population distributions are known, as they yield estimators that are resilient to outliers and exhibit consistency. Nevertheless, the utilization of these methods is hindered by the complicated methodological aspects involved, leading to sluggish applications (Kwak & Kim, 2017: Osborne, 2010).

To handle outliers in this study, the Winsorization technique was employed due to its ease of use and the acceptance of outliers as legitimate measurements. Initially, the identification of outliers in the observed variables and constructs was carried out using SPSS through the creation of boxplots. Subsequently, a frequency table was utilized to establish a threshold for identifying extreme values that would not be classified as outliers. The outliers were then adjusted by substituting them with these extreme values. Finally, a new set of boxplots was generated to confirm whether outliers were still present in the dataset. The Winsorization procedure was reiterated until no outliers were detected in the dataset (refer to Appendix B). For instance, six instances (1.05%) of relative advantage (RA), i.e., case 54, 131, 221, 328, 405, and 495, with a value of 2, were detected as outliers. The most extreme non-outlier value of the relative advantage variable was 2.2. The six instances of 2 were substituted with a value of 2.2, and the outliers were eliminated. Similarly, a total of fourteen instances, representing 2.97% of the cases, were identified as trialability (TR) cases. These instances, specifically cases 247, 306, 318, 345, 358, 375, 379, 383, 399, 439, 443, 501, 542, and 547, had a value of 1. Additionally, cases 38 and 436 exhibited a value of 1.33, indicating

their status as outliers. Consequently, these fourteen instances were replaced with a value of 1.67, resulting in the elimination of the outliers.

4.3 Descriptive statistics analysis

The descriptive statistics analysis of each variable is shown in Table 4.8 and includes the means (an evaluation of central tendency), together with their standard deviations (an estimation of dispersion from the mean), and normality statistics (such as skewness and kurtosis). Additionally, visual representations of these variables were generated using histograms, normal Q-Q plots, normal P-P plots, and scatter diagrams to demonstrate and verify their normality, linearity, and other features. Each variable had a normal distribution since the measurements for skewness and kurtosis were well within the parameters of the criterion previously stated in Chapter 3. In addition, graphical methods such as the histogram, normal Q-Q plots, and boxplots were employed to validate the normality assumption. The graphical results are displayed in Appendix B. Normality curves in the histograms show that data is normally distributed along the bars. Normal Q-Q plots further demonstrate the normality of the data. The data points exhibit a linear distribution, as shown by the Q-Q plots.

Table 4.8 displays the statistical measures for the variables of interest. These variables include relative advantage (RA), compatibility (CP), complexity (CX), trialability (TR), visibility (VS), e-HRM practices (EP), operational e-HRM outcomes (OO), relational e-HRM outcomes (RO), transformational e-HRM outcomes (XO), and organizational resilience (ORes). The table presents the mean, standard deviation, skewness, and kurtosis values for each variable.

Table 4.8

Descriptive statistics of the variables

Variable/Construct	Mean	SD	Skewness	Kurtosis	N
Relative advantage	4.02	0.71	-0.54	-0.31	573
Compatibility	3.94	0.55	-0.02	-0.57	573
Complexity	3.41	0.90	-0.21	-0.58	573
Trialability	3.60	0.79	-0.50	-0.19	573
Visibility	3.66	0.85	-0.37	-0.21	573
e-HRM practices	3.93	0.63	-0.47	-0.49	573
Operational e-HRM outcomes	4.03	0.62	-0.11	-0.69	573
Relational e-HRM outcomes	4.15	0.62	-0.55	-0.08	573
Transformational e-HRM outcomes	3.86	.65	-0.13	-0.55	573
Organizational resilience	3.78	0.71	0.25	-0.83	573

Table 4.8 presents descriptive data for each variable, including means and standard deviations. Respondents expressed their level of agreement with each statement on a scale of 1 (Strongly disagree) to 5 (Strongly agree), with 5 representing the strongest agreement. It is also significant to note that the mean scores of the constructs and variables were also evaluated as percentages (%) to specify the status of the constructs and variables, i.e., unsatisfactory (less than 3, i.e., less than 60%), good (greater than 3, but less than 4, i.e., more than 60% but less than 80%), and excellent (greater than 4, i.e., more than 80%).

The mean of the variable relative advantage, RA, is 4.02, or 80.4%, which shows that the variable is in an excellent state. This demonstrates that HR managers and executives give

relative advantage the due value and that there is broad agreement regarding its importance in ensuring better adoption of e-HRM. The dispersion of the variable (SD = 0.71) also indicates that the participants' response to the relative advantage in supporting the adoption of e-HRM deviates from the mean and clusters close to it, indicating stable dispersion. Additionally, the skewness (-0.54) and kurtosis (-0.31) reaffirm that responses are evenly distributed.

The mean score for compatibility, CP, is 3.94 (78.8%), which is higher than the neutral point or beyond the threshold of 60%. This demonstrates that organizations agree on the relevance of e-HRM traits that are congruent with the values, requirements, and prior experiences when adopting e-HRM practices. The standard deviation (0.55) of this variable was lower than 1, showing that responses are bunched all around the mean value. Additionally, the equally distributed nature of the responses is supported by the skewness (-0.02) and kurtosis (-0.57) values. Furthermore, as shown in Table 4.8, there is general agreement regarding the significance of compatibility in ensuring e-HRM adoption at individual as well as organizational levels.

The mean value of complexity, CX, a variable that measures how difficult e-HRM is perceived to be, was 3.41, i.e., 64.2%, which points to the lowest agreement about the potential for complexity to play a supporting role when using innovations such as e-HRM. This implies that 36.2% of respondents disagreed with the possibility for complexity to play a supporting role when implementing innovations such as e-HRM. Moreover, the standard deviation (0.90) for this variable was less than 1. This also gives us information that the respondents' answers are spread out in terms of complexity and are clustered around a central value, which indicates a stable deviation. The skewness (-0.21) and kurtosis (-0.58) values confirm this, indicating that the responses are uniformly distributed.

The mean value of trialability, TR, is 3.60, which is also 72.0% with SD = 0.79, demonstrating that firms realize the necessity of hands-on training, trial-outs, and

experimenting prior to e-HRM adoption. The standard deviation for this variable was also less than 1, indicating that respondents' responses to the variable are distributed and found to be close to the mean value, resulting in stable variances. As indicated by the measurements of standard deviation (0.79), skewness (- 0.50), and kurtosis (-0.19), the variable has a normally spread distribution, and responses cluster around the mean.

The mean score for visibility, VS, is 3.66, or 73.2%, showing that respondents believe they witness others in their organization deriving benefits from the implementation of e-HRM practices and get motivated to adopt e-HRM practices. The standard deviation (0.85) for this variable was similarly less than 1, indicating that respondents' responses to the variable are distributed evenly and found to be close to the mean value, resulting in stable variances. The skewness is -0.37 and the kurtosis is -0.21, all of which show a stable deviation from the mean, and responses behave normally.

e-HRM practice, EP demonstrated an average value of 3.93, i.e., 78.6%, with a SD of 0.63. This suggests that organizations recognize the significance of implementing, adopting, and using e-HRM. Organizations make extensive use of information technology-based infrastructure and supporting technologies to execute their human resources practices, policies, and strategies. The standard deviation of the variable was below 1. This suggests that respondents' answers to e-HRM practices are dispersed, close to the mean, and exhibit stable deviation. Furthermore, the standard deviation (0.63), skewness (-0.47), and kurtosis (-0.49) values indicate that the variable observations are distributed normally and that the responses are clustered around the mean.

Operational e-HRM outcomes, OO, with a mean of 4.03, or 80.6%, and a standard deviation of 0.62, established that substantial agreement prevails on the achievement of a reduction in time and effort for administrative tasks, better process execution, and improved HRM service quality. The standard deviation of the variable was below 1. This suggests that

respondents' answers to operational e-HRM outcomes are dispersed, close to the mean, and exhibit stable deviation. The values for skewness (-0.11) and kurtosis (-0.69) for operational e-HRM outcomes also indicate that responses are normally distributed.

Relational e-HRM outcomes, RO had a mean of 4.15 with a standard deviation of 0.62, confirming agreement and demonstrating that the organization achieves enhanced HRM service delivery, optimal workflow, better communication, and relationships among HRM, management, and employees because of e-HRM practice adoption. Furthermore, the skewness (-0.55) and kurtosis (0.08) values, as shown in Table 4.8, indicate that responses are evenly distributed. Hence, the variable is distributed homogeneously since the values are within the acceptable parameters, as stated in earlier literature.

The findings reveal that the mean score for Transformational e-HRM outcomes was 3.86, with 77.2% of the respondents expressing their support for the transformation of the HR role. This shift enables HR to prioritize strategic and value-added tasks and initiatives. Additionally, the standard deviation of 0.66, being below 1, implies that the responses were tightly grouped around the mean, indicating a stable deviation. The skewness (-0.13) and kurtosis (-0.55) values reinforce the idea of a uniform distribution of responses.

Table 4.8 displays the results of the study on organizational resilience (ORes), revealing a mean score of 3.78, equivalent to 75.6%. This suggests that the organizations being examined perceive themselves as robust, agile, and cohesive in their capacity to effectively absorb challenges, devise context-specific responses, and capitalize on unexpected disruptions. Table 4.8 displays the results of the study on organizational resilience (ORes), revealing a mean score of 3.78, equivalent to 75.6%. This suggests that the organizations being examined perceive themselves as robust, agile, and cohesive in their capacity to effectively absorb challenges, devise context-specific responses, and capitalize on unexpected disruptions. The standard deviation of the construct is 0.71, which is below 1. The answers

provided by the respondents regarding organizational resilience tend to cluster around the mean, indicating a stable variance. Furthermore, the skewness and kurtosis values are 0.25 and -0.83, respectively.

4.4 Reliability analysis

Reliability of an instrument refers to the degree to which its results are consistent across time, i.e., scale estimates should be the same at different points in time. Cronbach's alpha, reliability coefficient statistic values range from 0 to 1, with a value of 1 implying perfect reliability and a value of 0 implying no reliability of a scale. A typical criterion for evaluating the reliability of scales is that if Cronbach's alpha score is less than 0.5, the scale is judged unreliable and must be discarded, whereas a score greater than or equal to 0.5 is acceptable (Nunnally, 1967). According to Kerlinger and Lee (2000), a value greater than or equal to 0.60 indicates that the reliability of the scale is adequate. Nunnally's (1978, p. 231) research, however, advocated for a lower cutoff of 0.7. In addition, George and Mallery (2003) suggest a tiered approach that features Cronbach's alpha statistic: "≥ .9 – Excellent, ≥ .8 – Good, ≥ .7 – Acceptable, ≥ .6 – Questionable, ≥ .5 – Poor, and ≤ .5 – Unacceptable.".

Scale reliability was tested for the following variables: relative advantage, compatibility, complexity, trialability, visibility, e-HRM practices, operational e-HRM outcomes, relational e-HRM outcomes, transformational e-HRM outcomes, and organizational resilience (Table 4.9).

Table 4.9

Reliability / Inter-Item Consistency

Variable/Construct	Number of items	Cronbach's alpha	N
Relative advantage	5	0.81	573
Compatibility	3	0.73	573
Complexity	4	0.82	573
Trialability	3	0.73	573
Visibility	3	0.72	573
e-HRM practices	11	0.90	573
Operational e-HRM outcomes	4	0.74	573
Relational e-HRM outcomes	4	0.73	573
Transformational e-HRM outcomes	8	0.86	573
Organizational resilience	9	0.87	573
Robustness	4	0.75	573
Agility	3	0.78	573
Integrity	2	0.85	573

The reliability coefficient of all constructs ranges from 0.72 to 0.90, as can be seen in Table 4.9 above. For example, Cronbach's alpha value for relative advantage (RA) value, calculated using 05 items or elements, was 0.81; for compatibility (CP) value, calculated using 03 items or elements, was 0.71; for complexity (CX) value, calculated using 04 items or elements, was 0.82; for trialability (TR) value, calculated using 03 items or elements, was 0.73; for visibility (VS) value, calculated using 03 items or elements, was 0.72; and for e-HRM practices (EP) value, calculated using 11 items or elements, was 0.90. In addition, the Cronbach's alpha coefficient for operational e-HRM outcomes was 0.74, while relational e-HRM outcomes had a Cronbach's alpha value of 0.73. Transformational e-HRM outcomes demonstrated a high level of reliability with a Cronbach's alpha coefficient of 0.86, and the organizational resilience construct showed a Cronbach's alpha value of 0.87. These reliability

coefficients are in line with previous research (George and Mallery, 2003; Nunnally, 1978), indicating the suitability of the scale for the final analysis.

The instrument has 54 items in total, and its reliability coefficient is 0.92. All the other variables and constructs have reliability coefficients (0.72 to 0.90) that are higher than the recommended 0.70 and fall within the acceptable range, which is a good sign. This implies that the instrument is consistent with additional statistical analyses and that there is no factor that must be excluded.

4.5 Construct validity

Construct validity, as previously explained, typically includes content validity, convergent validity, and discriminant validity.

4.5.1 Content validity

Academicians and industry professionals can use expert judgment to procedurally establish the content validity, as stated by Cooper and Schindler (2006). Three university professors and three human resources specialists from the airline, fertilizer, and refinery fields were involved in evaluating the research instrument to achieve the desired goal. After the appointment, these specialists were visited at their offices for interviews to deliberate on the relevant items and determine their suitability. The items were modified as required, following the opinions and advice of academicians and experts.

4.5.2 Convergent validity

The validity of a measuring instrument relates to the accuracy with which it measures the construct it is designed to measure, that is, the accuracy of the measuring instrument. While reliability alone does not provide much insight into the validity of the measurement scale, its validity shows that the measurement scale is also reliable. A scale that is valid is usually always reliable; a reliable scale might or might not be a valid scale (Blumberg,

Cooper, & Schindler, 2014). According to Hair et al. (2006), standardized factor loading, composite reliability (CR), and average variance extracted (AVE) should be used to ensure convergent validity. To confirm the convergent validity, standardized factor loadings > 0.50, CR scores > 0.50, and AVE scores > 0.50 are taken into consideration as thresholds (Hair et al., 2006).

Confirmatory factor analysis (CFA) was carried out using SmartPLS to examine convergence validity and model fitness statistics. The measurement model has been illustrated in Figure 4.1, while the results of the confirmatory factor analysis (CFA) have been organized in tabular form across Table 4.10 to Table 4.19.

Figure 4.1: Measurement Model

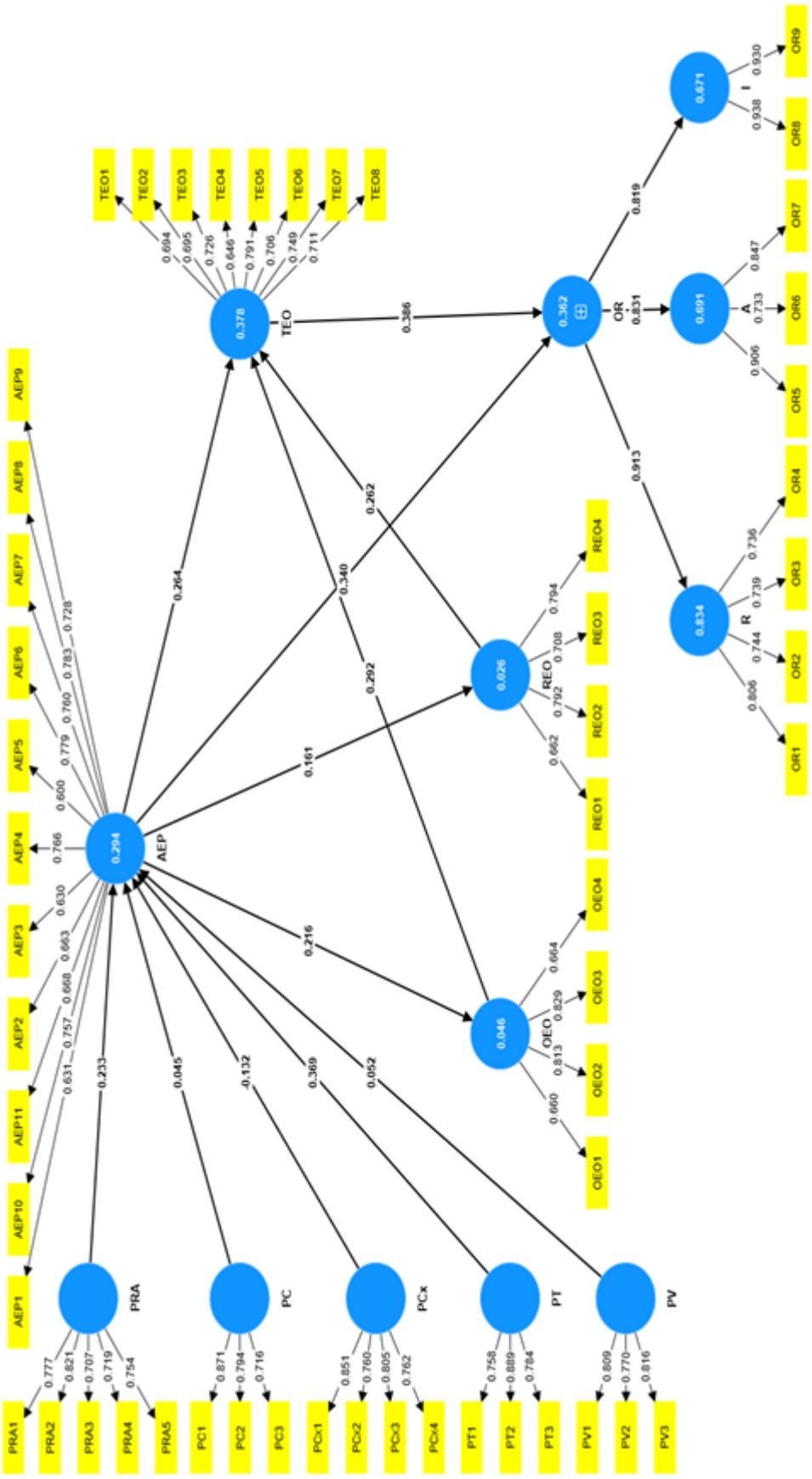


Table 4.10

Convergent reliability: Relative advantage

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Relative advantage (RA)			0.815	0.842	0.573
	RA1	0.777			
	RA2	0.821			
	RA3	0.707			
	RA4	0.719			
	RA5	0.754			

Table 4.11

Convergent reliability: Compatibility

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Compatibility (CP)			0.729	0.829	0.634
	CP1	0.871			
	CP2	0.794			
	CP3	0.716			

Table 4.12

Convergent reliability: Complexity

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Complexity (CX)			0.815	0.881	0.633
	CX1	0.851			
	CX2	0.760			
	CX3	0.805			
	CX4	0.762			

Table 4.13

Convergent reliability: Trialability

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Trialability (TR)			0.740	0.754	0.66
	TR1	0.758			
	TR2	0.889			
	TR3	0.784			

Table 4.14

Convergent reliability: Visibility

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Visibility (VS)			0.718	0.726	0.638
	VS1	0.809			
	VS2	0.770			
	VS3	0.816			

Table 4.15

Convergent reliability: e-HRM practices

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
e-HRM practices (EP)			0.900	0.907	0.502
	EP1	0.631			
	EP2	0.663			
	EP3	0.630			
	EP4	0.766			
	EP5	0.600			
	EP6	0.779			
	EP7	0.760			
	EP8	0.783			
	EP9	0.728			
	EP10	0.757			
	EP11	0.668			

Table 4.16

Convergent reliability: Operational e-HRM outcomes

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Operational e-HRM outcomes (OO)			0.735	0.763	0.556
	OO1	0.660			
	OO2	0.813			
	OO3	0.829			
	OO4	0.664			

Table 4.17

Convergent reliability: Relational e-HRM outcomes

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Relational e-HRM outcomes (RO)			0.731	0.748	0.55
	RO1	0.662			
	RO2	0.792			
	RO3	0.708			
	RO4	0.794			

Table 4.18

Convergent reliability: Transformational e-HRM outcomes

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Transformational e-HRM outcomes (XO)			0.864	0.869	0.513
	XO1	0.694			
	XO2	0.695			
	XO3	0.726			
	XO4	0.646			
	XO5	0.791			
	XO6	0.706			
	XO7	0.749			
	XO8	0.711			

Table 4.19

Convergent reliability: Organizational resilience

Variable/Construct	Items	Factor loading	Cronbach's alpha	Composite reliability (CR)	AVE score
Organizational resilience (ORes)					
Robustness			0.75	0.753	0.573
	ORR1	0.806			
	ORR2	0.744			
	ORR3	0.739			
	ORR4	0.736			
Agility			0.772	0.774	0.691
	ORA1	0.906			
	ORA2	0.733			
	ORA3	0.847			
Integrity			0.854	0.856	0.872
	ORI1	0.938			
	ORI2	0.930			

The findings indicated that all variables satisfied the proposed thresholds: factor loadings were greater than 0.50, CR scores exceeded 0.50, and AVE scores were above 0.50. For example, the relative advantage (RA) values for Cronbach's alpha (reliability), CR (composite reliability), and AVE (average variance extracted) equate to 0.815, 0.842, and 0.573, respectively. Similarly, the trialability (TR) scores for Cronbach's alpha, CR, and AVE amount to 0.74, 0.754, and 0.66, respectively. The reliability coefficient, CR, and AVE scores for relational e-HRM outcomes (RO) are 0.731, 0.748, and 0.755, respectively. Likewise, the results indicate that Cronbach's alpha, composite reliability, and average variance extracted

for transformational e -HRM outcomes (XO) were 0.864, 0.869, and 0.513, respectively. The analysis revealed that all variables satisfied the suggested standards. The results suggest that the amount of variance accounted for by the variables under study exceeds the variance attributed to measurement error.

4.5.3 Discriminant validity

The independent property of constructs is referred to as discriminant validity. According to Hair et al. (2010), each construct and its elements need to be sufficiently independent from other constructs. Discriminant validity can be demonstrated when two separate concepts are not related to one another (Sekaran, 2003, p. 416). The discriminant validity clearly differentiates each dimension or variable in the scale from the other dimensions. Furthermore, pairwise correlation is used to calculate how much each dimension contributes to the concept independently. It has been observed that correlations of 0.85 or higher between constructs (dimensions) suggest low discriminant validity (Harrington, 2009, p. 6). Pairwise correlations between constructs were analyzed for this purpose, and it was discovered that all correlations fell below Harrington's (2009) proposed cut off value of 0.85. The approach outlined by Fornell and Larcker (1981) was also used to establish discriminant validity. The square root of the AVE for each construct was discovered to be greater than its association with the other constructs.

Pair-wise correlation and the Fornell-Larcker criterion are presented in Table 4.20. Bold figures on the diagonal indicate the square roots of the average variance extracted (AVE) for each construct.

Table 4.20

Discriminant validity: Pair-wise correlation and Fornell-Larcker criterion

Construct	RA	CP	CX	TR	VS	EP	OO	RO	XO	ORes
RA	**0.757**									
CP	0.127	**0.796**								
CX	0.095	0.285	**0.795**							
TR	0.476	0.172	0.097	**0.813**						
VS	0.146	0.583	0.258	0.187	**0.799**					
EP	0.409	0.131	-0.048	0.485	0.147	**0.709**				
OO	0.262	0.018	0.094	0.314	0.099	0.216	**0.746**			
RO	0.263	0.018	0.054	0.267	0.094	0.161	0.646	**0.741**		
XO	0.347	0.142	0.098	0.352	0.249	0.369	0.518	0.493	**0.716**	
ORes	0.428	0.1	0.037	0.429	0.175	0.483	0.477	0.379	0.512	**0.707**

Note. RA = Relative advantage, CP = Compatibility, CX = Complexity, TR= Trialability, VS = Visibility, EP = e-HRM practices, OO = Operational e-HRM outputs, RO = Relational e-HRM outputs, XO = Transformational e-HRM outputs, ORes = Organizational resilience.

The outcomes displayed in Table 4.20 confirm the discriminative validity of the instrument. As an illustration, the square root of AVE for relational e-HRM outcomes (RO) and organizational resilience (ORes) is 0.741, while the squared correlation between these categories is 0.379x 0.379 = 0.144. The square root of the AVE for each construct is clearly much larger than the square root of its correlation. This indicates that each construct is distinct from the others and accounts for a larger proportion of the variance with its own components than with other variables.

4.5.4 Model fit

SmartPLS provides a range of fit measures including SRMR, d_ULS, d_G, Chi-square, and NFI. Standardized Root Mean Square Residual (SRMR) provides a means to

quantitatively assess the average extent of discrepancies between observed and expected correlations, serving as an absolute measure for evaluating the model fit. A value below 0.10, or, in a more conservative approach, 0.08 (Hu & Bentler, 1999), is widely regarded as indicative of an acceptable fit. The Normed Fit Index (NFI) provides a measure of fit ranging from 0 to 1. Generally, when the NFI approaches 1, it signifies a closer fit. NFI values exceeding 0.9 are typically indicative of an acceptable fit.

The fit measures produced by SmartPLS are presented in Table 4.21.

Table 4.21

Model fit

	Recommended Criteria	Saturated model	Estimated model
SRMR	≤ 0.08 or ≤ 0.10	0.053	0.069
d_ULS		12.082	17.479
d_G		3.413	3.658
Chi-square		7596.483	7974.756
NFI	≥ 0.90	0.877	0.856

The values for model fitness produced mixed results. The SRMR value of 0.069 is within the suggested acceptable range. The NFI value of 0.856 narrowly falls behind the acceptable range, below the threshold of 0.90. The mixed fit indices suggest reasonable support for the theoretical model.

4.6 Multiple linear regression

This research is both correlational and causal in nature. Multiple linear regression statistical analysis is carried out to put hypotheses to the test and to determine relationships between independent and dependent variables. Multiple linear regression allows researchers to quantify the strength of the relationship between the independent and dependent variables and determine the type of impact the independent variables have on the dependent variables.

Additionally, it can be used to make predictions about the dependent variable based on the independent variables.

To determine the influence of antecedent factors on e-HRM practices and to determine whether e-HRM practices influence e-HRM outcomes and contribute to organizational resilience in public and private organizations in Pakistan, a multiple linear regression technique was used. Multiple regression is the approach that is most frequently employed to test mediation. Evaluating mediated effects using this approach is also referred to as stepwise regression or progressive adjustment.

Regression analysis generally calls for a sample size of at least 10 cases for each independent variable under consideration. The ratio of 573 cases to 54 items of 10 independent and intervening/mediating variables in the research model indicates that the ratio for model analysis fulfils the criterion set and is sufficient to meet the sample size requirement.

4.7 Regression analysis: Testing of underlying assumptions

We must verify that the following five assumptions are satisfied before running multiple linear regressions:

Linearity: Each independent variable and dependent variable have a linear relationship to one another. This implies that a modest change in the independent variable will cause a corresponding proportionate change in the dependent variable. The dependent variable is a linear function of the independent variable. Linearity refers to how well changes in the response variable correspond to changes in the predictor variables. The best way to verify linear relationships is to create scatterplots and then visually check the scatterplots for linearity (Saunders et al., 2012).

Multicollinearity: There is no correlation between two or more independent variables. This implies that changing one independent variable does not cause a change in the other

independent variables. In other words, the two independent variables are not related, and their movements are completely unrelated. The data shouldn't exhibit multicollinearity, which happens when the independent variables are strongly related to one another. Because of multicollinearity, it is difficult to determine the precise contribution of each independent variable. The correlation coefficients can be used as the simplest diagnostic, with a correlation coefficient of 1 representing extreme collinearity. As a rule, the occurrence of high correlations, often 0.90 and above, is regarded as indicating the presence of substantial collinearity. The tolerance value and its inverse, the variance inflation factor (VIF), are two additional metrics that are widely employed to detect multicollinearity (Hair et al. 2006, as cited in Saunders et al., 2012).

Homoscedasticity: Homoscedasticity is referred to as the extent to which the variances of the dependent and independent variables are similar. The assumption behind multiple linear regression is that the residual error is roughly the same along the linear model. Levene's test for homogeneity of variances can be applied to evaluate whether the variances of two variables are equal. As an alternative, while analyzing the data, plot the normalized residuals against the expected values to determine whether the points are distributed uniformly across all values of the independent variables (Saunders et al., 2012).

Independence: The fundamental assumption of multiple linear regression is that the observations are independent of one another. This assumption is based on the idea that the outcome of one observation does not affect the outcome of another observation. This allows the regression to accurately predict the outcome with a reasonable level of confidence. To put it another way, the model presumes that the residual values are unrelated and independent. The Durbin-Watson statistic is applied to identify the serial correlation or autocorrelation in residuals. The test yields a statistic score between 0 and 4, with values ranging from 0 to 2

reflecting positive autocorrelation and from 2 to 4 reflecting negative autocorrelation. There is no autocorrelation when the value is 2 for the midpoint (Saunders et al., 2012).

Multivariate Normality: The data are normally distributed for both the independent variables and the dependent variable (Saunders et al., 2012). Multivariate normality is established when residuals follow a normal distribution. To verify this assumption, the distribution of the residuals' values is examined. Multivariate normality can also be checked using the histogram with an overlapping normal curve or with the Normal Probability-Probability Plot method.

4.7.1 Linearity

Linearity refers to how well changes in the criterion variable relate to changes in the predictor variables. The best way to verify linear relationships is to create scatterplots and then visually check the scatterplots for linearity (Saunders et al., 2012). Linearity of dependent, intervening/mediating, and independent, variables is established through normal Q-Q plots, as discussed earlier in Section 4.3 and Appendix B. To further investigate the linearity of dependent and independent variables, PAST 4.03 (PAleontological STatistics), a software package for education and data analysis, is used to plot each pair of the dependent and independent variables as normal P-P plots (see Figures B.31 through B.42 in Appendix B). The pattern of each pair follows approximately a straight line and confirms that the data follow a normal probability distribution. In general, the lines of the dependent and independent variables are parallel to each other.

The assumption of linearity may be violated by outliers, which are isolated cases having extreme values for a single or several variables. Like this, the linearity assumption may not hold true for some values for a single or several variables (Saunders et al., 2012). These outliers must be identified, and if necessary, the data values should be transformed or excluded from the regression analysis.

The study used the Winsorization technique to identify outliers in observed variables and constructs. Boxplots were created using SPSS, followed by a frequency table to set a threshold for identifying extreme values that would not be classified as outliers. Outliers were adjusted by substituting them with these extreme values. A new set of boxplots was generated to confirm the presence of outliers, and the Winsorization procedure was repeated until no outliers were detected (refer to Appendix B). With the elimination of outliers and extreme cases, the regression analysis remains undisturbed by their presence. As a result, the influence of outliers on the analysis is nullified, thereby ensuring the integrity of the regression results.

This establishes that both the dependent and independent variables are linear.

4.7.2 Multicollinearity

Multicollinearity and singularity can be identified by using a correlation matrix and measuring the tolerance (TOL) and variance inflation factor (VIF) statistics. If the correlation between explanatory variables is high (> 0.80), there is multicollinearity (Garson, 2012). The most severe type of multicollinearity, known as singularity, is described by a perfect linear relationship among explanatory variables, or where the correlation coefficient is either 1.0 or -1.0. A tolerance value below 0.20 and a VIF higher than 4 are indications of the presence of multicollinearity (Garson, 2012).

The multicollinearity assumption is established by determining the values of the correlation coefficients between the predictor and criterion variables and considering tolerance and VIF values. Table 4.22 demonstrates that there is no multicollinearity because all variables have a correlation of less than 0.80. The tolerance is > 0.20, and the variance inflation factor (VIF) is < 4, proving the absence of multicollinearity.

Table 4.22

Multicollinearity analysis: Correlation, Tolerance, and VIF

Predictor (IV)	Response (DV)	Pearson Correlation	Tolerance	VIF
RA	EP	0.369**	0.864	1.157
CP	EP	0.513**	0.737	1.357
CX	EP	-0.045	0.998	1.002
TR	EP	0.110*	0.988	1.012
VS	EP	0.139*	0.981	1.019
EP	OO	0.206*	0.957	1.045
EP	RO	0.144**	0.979	1.021
EP	XO	0.361**	0.870	1.149
EP	ORes	0.465**	0.784	1.276
OO	XO	0.472**	0.720	1.389
RO	XO	0.381**	0.759	1.318
XO	ORes*	0.523**	0.727	1.376

Note. RA = Relative advantage, CP = Compatibility, CX = Complexity, TR = Trialability, VS = Visibility, EP = e-HRM practices, OO = Operational e-HRM outputs, RO = Relational e-HRM outputs, XO = Transformational e-HRM outputs, ORes = Organizational resilience.
* Significant at 0.050 level, ** Significant at 0.010 level (2-tailed)

4.7.3 Homoscedasticity

To verify the assumption of homogeneity of variances (homoscedasticity), an independent sample t-test was performed for each variable and construct for two distinct organizational sectors: private and public. The Levene's test statistics are shown to be non-significant at 0.01, satisfying the homoscedasticity assumption for regression analysis (Table 4.23). This provided evidence of non-homogeneity of variance. An insignificant result here (greater than .05) indicates that the assumption of homoscedasticity of variance have met.

Table 4.23

Homoscedasticity / Homogeneity of Variances

Variable	Levene's Statistic	Levene's Sig.	df1	df2	Sig.
Relative advantage (RA)	0.125	0.723	2	571	0.644
Compatibility (CP)	0.045	0.832	2	571	0.590
Complexity (CX)	0.006	0.938	2	571	0.688
Trialability (TR)	0.019	0.889	2	571	0.453
Visibility (VS)	2.195	0.139	2	571	0.407
e-HRM practices (EP)	0.012	0.912	2	571	0.603
Operational e-HRM outcomes (OO)	1.291	0.256	2	571	0.609
Relational e-HRM outcomes (RO)	0.101	0.750	2	571	0.418
Transformational e-HRM outcomes (XO)	2.667	0.103	2	571	0.489
Organizational resilience	0.870	0.351	2	571	0.855

$P < 0.01$

4.7.4 Independence of observation

The underlying fundamental assumptions were tested prior to conducting the regression analysis. The data cases for the sample ought to be randomly chosen. By way of explanation, choosing one case for a sample should not influence the likelihood of picking other cases for the same sample. The Durbin-Watson statistic values are bound between 0 and 4. If the value is 2 or very close to 2, there is no first-order autocorrelation. Positive autocorrelation is shown by values that are close to 0. On the other hand, a value close to 4 denotes a negative autocorrelation (Saunders et al., 2012). The acceptable range is 1.50 to 2.50. To examine the independence of the model, Durbin-Watson test was run. The Durbin-Watson test yielded scores between 1.5 and 2.5, which is considered an acceptable range. In Table 4.24, the Durbin-Watson statistics are presented for each variable.

Table 4.24

Independence of observations / No autocorrelation

Predictor (IV)	Response (DV)	Durbin-Watson
RA	EP	1.400
CP	EP	1.390
CX	EP	1.336
TR	EP	1.305
VS	EP	1.319
EP	OO	1.381
EP	RO	1.448
EP	XO	1.392
EP	ORes	1.283
OO	XO	1.504
RO	XO	1.440
XO	ORes*	1.235

Note. RA = Relative advantage, CP = Compatibility, CX = Complexity, TR = Trialability, VS = Visibility, EP = e-HRM practices, OO = Operational e-HRM outputs, RO = Relational e-HRM outputs, XO = Transformational e-HRM outputs, ORes = Organizational resilience.

4.7.5 Multivariate normality

Multivariate normality is checked using the histogram with an overlapping normal curve or the Normal Probability Plot method. The normality of dependent, intervening/mediating, and independent variables is established through normality statistics as discussed earlier in Section 4.3 and normal Q-Q plots in Appendix B. Multivariate normality is also established when residuals follow a normal distribution. To test this assumption, residual values of the criterion and predictor variables were plotted on histograms. Examination of these histograms (see Figures C.1 through C.10 in Appendix C) reveals that residual values are normally distributed.

4.8 Regression analysis: Testing of Hypotheses

Fundamental assumptions of regression analysis, i.e., linearity, multicollinearity, homoscedasticity, independence of observation, and multivariate normality, are examined (Section 4.6). The findings demonstrate that all the assumptions set for performing regression analysis and testing hypotheses have been met.

4.8.1 Hypothesis H1: Perceived relative advantage as predictor of adoption of e-HRM practices

According to Hypothesis H1, there is a positive association between perceived relative advantage and the adoption and use of e-HRM practices. The dependent variable (e-HRM practices) was regressed on the predicting variable of relative advantage (RA) to test Hypothesis H1. R-Squared (R^2) equals 0.136. This implies that 13.6% of the variability of e-HRM practices (EP) is explained by relative advantage (RA). The correlation coefficient (R) stands at 0.369. The results of this study suggest that there is a weak direct relationship between relative advantage (RA) and e-HRM practices (EP). This indicates that the higher the perceived advantage of e-HRM practices, the more probable it is that organizations will adopt them. However, the effect is not very strong. The slope: $b_1 = 0.331$ CI [0.262, 0.399] suggests that increasing relative advantage (RA) by one improves the value of e-HRM practices (EP) by 0.331. The y-intercept: $b_0 = 2.600$ CI [2.321, 2.880] implies that when relative advantage (RA) equals 0, the prediction of e-HRM practices (EP)'s value is 2.600. The x-intercept equals -7.884.

Overall regression: right-tailed, F (1, 571) = 89.892, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed, T (571) = 9.481, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-

tailed, T (571) = 18.260, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.1 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.25.

These findings clearly demonstrate the positive impact of perceived relative advantage on the adoption and use of e-HRM. Organizations can reap the benefits of e-HRM practices adoption and use by implementing e-HRM innovation with a higher perceived relative advantage attribute. As a result, hypothesis H1 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 1

$EP = \beta_0 + \beta_1 RA + \varepsilon$

$EP = 2.600 + 0.331RA$

Table 4.25

Regression Analysis H1

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	2.600	0.142		18.260	.000***	2.321	2.880
RA	0.331	0.035	0.369	9.481	.000***	0.262	0.399

Note. $R^2 = 0.136$, F (1, 571) = 89.892 (ps < 0.001), Adjusted $R^2 = 0.135$

***P < 0.001

a. Dependent Variable: e-HRM practices (EP)

4.8.2 Hypothesis H2: Perceived compatibility as predictor of adoption of e-HRM practices

According to Hypothesis H2, perceived compatibility is positively related to the adoption and use of e-HRM practices. To test Hypothesis H2, the dependent variable (e-HRM practices) was regressed on the predicting variable of compatibility (CP). R-Squared (R^2) equals 0.263. This implies that 26.3% of the variability of e-HRM practices (EP) is explained by compatibility (CP). The correlation coefficient (R) stands at 0.513. The results of this study suggest that there is a moderately direct relationship between compatibility (CP) and e-HRM practices (EP). This indicates that the higher the perceived compatibility of e-HRM practices, the more probable it is that organizations will adopt them. However, the effect is moderate. The slope: $b_1 = 0.592$ CI [0.510, 0.673] suggests that increasing compatibility (CP) by one increases the value of e-HRM practices (EP) by 1.598. The y-intercept: $b_0 = 1.598$ CI [1.274, 1.922] implies that when compatibility (CP) equals 0, the prediction of e-HRM practices (EP)'s value is 1.598. The x-intercept equals -2.699.

Overall regression: right-tailed, F (1, 571) = 203.712, p-value = 0. We accept H_0 because the p-value is greater than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed, T (571) =14.273, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed, T (571) = 9.690, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.2 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.26.

These findings demonstrate a moderate direct impact of perceived compatibility on the adoption and use of e-HRM. Since p-value < α (0.05), the strength of evidence is sufficient to

reject the null hypothesis, H_0. Consequently, we reject it. If the null hypothesis is rejected, it is assumed that the sample contains sufficient evidence to conclude the existence of the effect. Hence, the hypothesis H2 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 2

$EP = \beta_0 + \beta_1 CP + \varepsilon$

$EP = 1.598 + 0.592CP$

Table 4.26

Regression Analysis H2

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	1.598	0.165		9.690	.000***	1.274	1.922
CP	0.592	0.041	0.513	14.273	.000***	0.510	0.673

Note. $R^2 = 0.263$, F (1, 571) = 203.712 (ps < 0.001), Adjusted $R^2 = 0.262$

***P < 0.001

a. Dependent Variable: e-HRM practices (EP)

4.8.3 Hypothesis H3: Perceived complexity as predictor of adoption of e-HRM practices

According to Hypothesis H3, perceived complexity has a negative association with the adoption and use of e-HRM practices. The dependent variable (e-HRM practices) was regressed on the predicting variable of perceived complexity (CX) to test Hypothesis H3. R-Squared (R^2) equals 0.002. This implies that 0.2% of the variability of e-HRM practices (EP) is explained by complexity (CX). The correlation coefficient (R) stands at -0.045. The results of this study suggest that there is a very weak inverse relationship between complexity (CX) and HRM practices (EP). This indicates that the lower the perceived complexity of e-HRM practices, the more probable it is that organizations will adopt them. However, the effect is not very strong. The slope: b_1 = -0.032 CI [-0.090, 0.026] suggests that increasing complexity (CX) by one reduces the value of e-HRM practices (EP) by 0.032. The y-intercept: b_0 = 4.039 CI [3.835, 4.243] implies that when complexity (CX) equals 0, the prediction of e-HRM practices (EP)'s value is 4.039. The x-intercept equals 126.094.

Overall regression: right-tailed, F (1, 571) = 1.174, p-value = 0.279. We accept H_0 because the p-value is greater than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, doesn't provide a better fit in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1): two-tailed, T (571) = -1.084, p-value = 0.279. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0): two-tailed, T (571) = 38.895, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.3 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.27.

These findings demonstrate a very weak inverse impact of perceived complexity on the adoption and use of e-HRM. Since p-value ≥ α (0.05), the strength of evidence is insufficient to reject the null hypothesis, H0. Consequently, we fail to reject it. If the null hypothesis is

not rejected, it is assumed that the sample contains insufficient evidence to conclude the existence of the effect. Hence, the hypothesis H3 is rejected.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 3

$EP = \beta_0 + \beta_1 CX + \varepsilon$

$EP = 4.039 - 0.032CX$

Table 4.27

Regression Analysis H3

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	4.039	0.104		38.895	.000***	3.835	4.243
CX	-0.032	0.029	-0.045	-1.084		-0.090	0.026

Note. $R^2 = 0.002$, F (1, 571) = 1.174 (ns > 0.050), Adjusted $R^2 = .0.000$

***P < 0.001

a. Dependent Variable: e-HRM practices (EP)

4.8.4 Hypothesis H4: Perceived trialability as predictor of adoption of e-HRM practices

According to Hypothesis H4, perceived trialability has a positive association with the adoption and use of e-HRM practices. To test hypothesis H4, the response variable (e-HRM practices) was regressed on was regressed on the predictor variable of perceived trialability (TR). R-Squared (R^2) equals 0.012. This implies that 1.2% of the variability of EP is explained by TR. The correlation coefficient (R) stands at 0.110. The results of this study suggest that there is a weak direct relationship between TR and EP. This indicates that the higher the perceived trialability of e-HRM practices, the more probable it is that organizations will adopt them. However, the effect is not very strong. The slope: $b_1 = 0.089$ CI [0.023, 0.154] suggests that increasing trialability (TR) by one improves the value of e-HRM practices (EP) by 0.089. The y-intercept: $b_0 = 3.612$ CI [3.369, 3.854] implies that when TR equals 0, the prediction of EP's value is 3.612. The x-intercept equals -40.745.

Overall regression: right-tailed, F (1, 571) = 6.988, p-value = 0.008. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed, T (571) = 2.643, p-value = 0.008. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed, T (571) = 29.284, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.4 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.28.

These findings clearly demonstrate the positive impact of perceived trialability on the adoption and use of e-HRM. Organizations can realize the benefits of e-HRM practices adoption and use by implementing e-HRM innovation with a higher perceived trialability attribute. Henceforth, hypothesis H4 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 4

$EP = \beta_0 + \beta_1 TR + \varepsilon$

$EP = 3.612 + 0.089TR$

Table 4.28

Regression Analysis H4

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	3.612	0.123		29.284	.000***	3.369	3.854
TR	0.089	0.034	0.110	2.643	.000***	0.023	0.154

Note. $R^2 = 0.012$, F (1, 571) = 6.988 (ps < 0.001), Adjusted $R^2 = 0.010$

***P < 0.001

a. Dependent Variable: e-HRM practices (EP)

4.8.5 Hypothesis H5: Perceived visibility as predictor of adoption of e-HRM practices

According to Hypothesis H5, perceived visibility is positively associated with the adoption and use of e-HRM practices. The response variable (e-HRM practices) was regressed on predictor variable of perceived visibility (VS) to test Hypothesis H5. R-Squared (R^2) equals 0.019. This implies that 1.90% of the variability of e-HRM practices (EP) is explained by visibility (VS). The correlation coefficient (R) stands at 0.139. The results of this study suggest that there is a very weak direct relationship between visibility (VS) and e-HRM practices (EP). This indicates that the higher the perceived visibility of e-HRM practices, the more probable it is that organizations will adopt them. However, the effect is not very strong. The slope: b_1 = 0.104CI [0.043, 0.165] suggests that increasing visibility (VS) by one improves the value of e-HRM practices (EP) by 0.104. The y-intercept: b_0 = 3.549 CI [3.320, 3.777] implies that when visibility (VS) equals 0, the prediction of e-HRM practices (EP)'s value is 3.777. The x-intercept equals -34.019.

Overall regression: right-tailed, F (1, 571) = 11.320, p-value = 0.001. We accept H_0 because the p-value is greater than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed: T (571) = 3.365, p-value = 0.001. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed; T (571) = 30.500, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.5 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.29.

These findings demonstrate a very weak direct impact of perceived visibility on the adoption and use of e-HRM. Since p-value < α (0.05), the strength of evidence is sufficient to reject the null hypothesis, H_0. Consequently, we reject it. If the null hypothesis is rejected, it

is assumed that the sample contains sufficient evidence to conclude the existence of the effect. Hence, the hypothesis H5 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 5

$EP = \beta_0 + \beta_1 VS + \varepsilon$

$EP = 3.549 + 0.104VS$

Table 4.29

Regression Analysis H5

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	3.549	0.116		30.500	.000***	3.320	3.777
VS	0.104	0.031	0.139	3.365	.001***	0.043	0.165

Note. $R^2 = 0.019$, F (1, 571) = 11.320 (ps < 0.001), Adjusted $R^2 = 0.018$

***P < 0.001

a. Dependent Variable: e-HRM practices (EP)

4.8.6 Hypothesis H6: Adoption of e-HRM practices as predictor of operational e-HRM outcomes

The sixth hypothesis proposes that the adoption of e-HRM practices has a significant positive impact on operational e-HRM outcomes; therefore, the higher the adoption of e-HRM practices, the higher the operational e-HRM outcomes. The response variable (operational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) to test the hypothesis H6. R-Squared (R^2) equals 0.043. This implies that 4.3% of the variability of operational e-HRM outcomes (OO) is explained by the adoption of e-HRM practices (EP). The correlation coefficient (R) stands at 0.206. The results of this study suggest that there is a weak direct relationship between adoption of e-HRM practices (EP) and operational e-HRM outcomes (OO). This means that although higher adoption of e-HRM practices can lead to higher operational outcomes, the magnitude of that effect is not so strong. The slope: $b_1 = 0.201$ CI [0.123, 0.279] suggests that increasing e-HRM practices (EP) by one improves the value of operational e-HRM outcomes (OO) by 0.201. The y-intercept: $b_0 = 3.244$ CI [2.933, 3.556] implies that when adoption of e-HRM practices (EP) equals 0, the prediction of operational e-HRM outcomes (OO)'s value is 3.244. The x-intercept equals -16.160.

Overall regression: right-tailed, F (1, 571) = 25.369, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed: T (571) = 5.037, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed, T (571) = 20.440, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.6 in

Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.30.

These findings clearly demonstrate the positive impact of the adoption and use of e-HRM practices. Organizations can realize the benefits of operational e-HRM outcomes by achieving a high level of adoption and use of e-HRM practices. As a result, hypothesis H6 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 6

$OO = \beta_0 + \beta_1 EP + \varepsilon$

$OO = 3.244 + 0.201 EP$

Table 4.30

Regression Analysis H6

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	3.244	0.159		20.440	.000***	2.933	3.556
e-HRM practices	0.201	0.040	.206	5.037	.000***	0.123	0.279

Note. $R^2 = 0.043$, $F(1, 571) = 25.369$ ($ps < 0.001$), Adjusted $R^2 = 0.041$

***P < 0.001

a. Dependent Variable: Operational e-HRM outcomes (OO)

4.8.7 Hypothesis H7: Adoption of e-HRM practices as predictor of relational e-HRM outcomes

The seventh hypothesis proposes that the adoption of e-HRM practices has a significant positive impact on relational e-HRM outcomes; therefore, the higher the adoption of e-HRM practices, the higher the relational e-HRM outcomes. The response variable (relational e-HRM outcomes) was regressed on the predictor variable of perceived e-HRM practices (EP) to test the hypothesis H7. R-Squared (R^2) equals 0.021. This implies that 2.1% of the variability of relational e-HRM outcomes (RO) is explained by the adoption of e-HRM practices (EP). The correlation coefficient (R) stands at 0.144. The results of this study suggest that there is a very weak direct relationship between adoption of e-HRM practices (EP) and relational e-HRM outcomes (RO). This means that although higher adoption of e-HRM practices can lead to higher operational outcomes, the magnitude of that effect is not so strong. The slope: $b_1 = 0.140$ CI [0.061, 0.220] suggests that increasing e-HRM practices (EP) by one improves the value of relational e-HRM outcomes (RO) by 0.140. The y-intercept: $b_0 = 3.596$ CI [3.280, 3.913] implies that when adoption of e-HRM practices (EP) equals 0, the prediction of relational e-HRM outcomes (RO)'s value is 3.596. The x-intercept equals -25.741.

Overall regression: right-tailed, F (1, 571) = 12.041, p-value = 0.001. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1): two-tailed, T (571) = 3.470, p-value = 0.001 The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0): two-tailed, T (571) = 22.340, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see

Figure C.7 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.31.

These findings clearly demonstrate the positive impact of adoption and use of e-HRM practices. Organizations can realize the benefits of relational e-HRM outcomes by achieving a high level of adoption and use of e-HRM practices. As a result, hypothesis H7 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 7

$RO = \beta_0 + \beta_1 EP + \varepsilon$

$RO = 3.596 + 0.140EP$

Table 4.31

Regression Analysis H7

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	3.596	0.161		22.340	.000***	3.280	3.913
e-HRM practices	0.140	0.040	0.144	3.470	.001***	0.061	0.220

Note. $R^2 = 0.021$, F (1, 571) = 12.041 (ps < 0.001), Adjusted R^2 =0 .019

***P < 0.001

a. Dependent Variable: Relational e-HRM outcomes (RO)

4.8.8 Hypothesis H8: Adoption of e-HRM practices as predictor of transformational e-HRM outcomes

The eighth hypothesis proposes that the adoption of e-HRM practices has a significant positive impact on transformational e-HRM outcomes; therefore, the higher the adoption of e-HRM practices, the higher the transformational e-HRM outcomes. The response variable (Transformational e-HRM outcomes) was regressed on predictor variable of adoption of e-HRM practices (EP) to test the hypothesis H8. R-Squared (R^2) equals 0.130. This implies that 13.0% of the variability of transformational e-HRM outcomes (XO) is explained by adoption of e-HRM practices (EP). Correlation coefficient (R) stands at 0.361. The results of this study suggest that there is a weak direct relationship between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO). This means that although higher adoption of e-HRM practices can lead to higher transformational outcomes, the magnitude of that effect is weak. The slope: $b_1 = 0.370$ CI [0.291, 0.449] suggests that increasing e-HRM practices (EP) by one improves the value of transformational e-HRM outcomes (XO) by 0.370. The y-intercept: $b_0 = 2.406$ CI [2.093, 2.719] implies that when adoption of e-HRM practices (EP) equals 0, the prediction of transformational e-HRM outcomes (XO)'s value is 2.406. The x-intercept equals -6.5208.

Overall regression: right-tailed, F (1, 571) = 85.534, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1): two-tailed, T (571) = 15.109, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0): two-tailed, T (571) = 9.248, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.8 in

Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.32.

These findings clearly demonstrate the positive impact of adoption and use of e-HRM practices. Organizations can realize the benefits of transformational e-HRM outcomes by achieving a high level of adoption and use of e-HRM practices. As a result, hypothesis H8 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 8

$XO = \beta_0 + \beta_1 EP + \varepsilon$

$XO = 2.406 + 0.370EP$

Table 4.32

Regression Analysis H8

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	2.406	0.159		15.109	.000***	2.093	2.719
e-HRM practices	0.370	0.040	0.361	9.248	.000***	0.291	0.449

Note. $R^2 = 0.130$, F (1, 571) = 85.534 (ps < 0.001), Adjusted $R^2 = 0.129$

***P < 0.001

a. Dependent Variable: Transformational e-HRM outcomes (XO)

4.8.9 Hypothesis H9: Operational e-HRM outcomes as mediator of e-HRM practices and transformational e-HRM outcomes relationship

The Baron and Kenny (1986) technique is a methodology for analyzing and testing mediation hypotheses. There are two possible paths that can lead to the dependent variable when using this mediation technique. There must be a simultaneous prediction of the dependent variable as well as a prediction of the mediator by the independent variable. Three regressions are used to test mediation:

1. The independent variable predicts the dependent variable.
2. The independent variable predicts the mediator.
3. The independent variable and mediator predict the dependent variable.

To support mediation, the outcomes must match the following criteria:

1. In the first regression equation, it is established that the independent variable has a significant effect on the dependent variable.
2. In the second regression equation, it is established that the independent variable has a significant effect on the mediator.
3. The independent variable and the mediator are both included in the third multiple regression analysis to predict the dependent variable. In the third regression equation, it is established that the independent variable and the mediator jointly have a significant effect on the dependent variable.

Full or complete mediation occurs when all the above requirements are satisfied, and the independent variable no longer affects the dependent variable while the mediator has been controlled. Alternately, partial mediation takes place when the impact of the independent variable on the dependent variable is reduced while the mediator has been controlled. Partial mediations can be divided into two categories: complementary partial mediation and competitive partial mediation.

Complementary Partial Mediation: A complimentary partial mediation takes place when both the direct and indirect effects are pointing in the same (positive or negative) direction. (Baron & Kenny, 1986). Both indirect and direct effects are often observed to be significant and positive. The implication here is that a portion of the influence of the independent variable on the dependent variable is mediated through the mediator, but the independent variable remains able to influence a part of the dependent variable without being affected by the mediator at all. Complementary partial mediation is frequently used to be described as a "positive confounding" or a "consistent" model (Zhao, Lynch, & Chen, 2010).

Competitive Partial Mediation: A competitive partial mediation occurs when the direct and indirect effects point in different (positive or negative) directions.

The direct and indirect effects in a competitive partial mediation point toward opposite directions (one is positive while the other is negative). As mentioned earlier, this suggests that a part of the independent variable's influence on the dependent variable is mediated by the mediator, the independent variable still contributes to explaining some portion of the dependent variable even without the mediator (Zhao, Lynch, & Chen, 2010).

STEP 1: The response variable (transformational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H8, as presented in Section 4.8.8. Regression Line Equation 8 and the results are reproduced here:

$XO = \beta_0 + \beta_1 EP + \varepsilon$

$XO = 2.406 + 0.370EP$

EP predicted XO, $R^2 = 0.130$, $F(1, 571) = 85.534$, $p < .001$.

$\beta_1 = 0.370$, $p < .001$, $\alpha = 2.406$, $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the dependent variable, transformational e-HRM outcomes (XO). Hence, the first condition is fulfilled by the results supporting mediation.

STEP 2: Similarly, the response variable (operational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H6, as presented in Section 4.8.6. Regression Line Equation 6 and its results are reproduced here:

$OO = \beta_0 + \beta_2 EP + \varepsilon$

$OO = 3.244 + 0.201EP$

EP predicted OO, $R^2 = 0.043$, $F(1, 571) = 25.369$, $p < .001$.

$\beta_2 = 0.201$, $p < .001$, $\alpha = 3.244$, $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the mediator variable, operational e-HRM outcomes (OO). Hence, the second condition is met in the results to support mediation.

STEP 3: To carry out mediation analysis further, in the third regression, the dependent variable (transformational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) and the mediator (operational e-HRM outcomes). Regression Line Equation 9, and the results are produced below.

Regression equation presents a simple regression model with two predictors and a single response.

Regression Equation 9

$XO = \beta_0 + \beta_4 EP + \beta_3 OO + \varepsilon$

$XO = 0.785 + 0.270EP + 0.500OO$

Results of the multiple linear regression indicated that there was a strong collectively significant impact between the EP, OO, and XO ($F(2, 570) = 150.715$, $p < .001$, $R^2 = 0.346$, $R^2adj = 0.344$). Further analysis of the various predictors revealed that the dependent variable XO in the model could be predicted statistically significantly by the predictor EP ($t = 7.599$, $p < .001$) and the mediator OO ($t = 13.708$, $p < .001$).

R-Squared (R^2) equals 0.346. This implies that the predictor, adoption of e-HRM practices (EP), and the mediator, operational e-HRM outcomes (OO), collectively explain 34.6% of the variance of transformational e-HRM outcomes (XO). The adjusted R square is equal to 0.344. The correlation coefficient (R) stands at 0.588. This indicates a strong correlation between the transformational e-HRM outcomes (XO) estimated from the data and the observed transformational e-HRM outcomes (XO).

Overall regression: right-tailed, F (2, 570) = 150.715, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X_1 + ... + b_pX_p + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The regression coefficients of the independent variables (X_i) are statistically significant. The Y-intercept (b) is two-tailed, T = 4.318, p-value = 0. Therefore, b is significantly different from zero. The findings are summarized in Table 4.33.

Table 4.33

Regression Analysis H9

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	0.785	0.182		4.318	.000***	0.428	1.145
e-HRM practices	0.270	0.035	0.263	7.599	.000***	0.199	0.339
OO	0.500	0.036	0.475	13.708	.000***	0.428	0.572

Note. $R^2 = 0.346$, F (2, 570) = 150.715 (ps < 0.001), Adjusted $R^2 = 0.344$

***P < 0.001

a. Dependent Variable: Transformational e-HRM outcomes (XO)

Additionally, the indirect effect of mediation analysis must be significant. The Sobel (1982) test is performed to establish if a mediator variable induces the impact of an independent variable on the dependent variable. A significant Sobel test statistic z provides

evidence that an independent variable influences the dependent variable indirectly (i.e., through another variable in whole or in part). If the Sobel test statistic, z-score, is greater than 1.96, the effect is concluded to be greater than expected by chance, and the effect is considered significant.

The results of the Sobel test are shown in Table 4.34.

Table 4.34

Mediation Model: EP → OO → XO

Path	Estimate	SE	Sobel Statistic (z)	Sig.	Remarks
EP → OO	0.201	0.040	4.766	0.023*	Partial mediation
OO → XO	0.557	0.037			

EP = e-HRM practices, OO = Operational e-HRM outputs, XO = Transformational e-HRM outputs

***p ≤ 0.001, **p ≤ 0.050, *p ≤ 0.050

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), and the mediator variable, operational e-HRM outcomes (OO), taken together, had a significant impact on the dependent variable, transformational e-HRM outcomes (XO). Hence, the third condition is also met to support mediation.

Consequently, the regression coefficient of adoption of e-HRM practices (EP), β_4 = 0.270 in Equation 9, is statistically significant but smaller than the regression coefficient of adoption of e-HRM practices (EP), β_1 = 0.370 in Equation 8. The effect of adoption of e-HRM practices (EP) on transformational e-HRM outcomes (XO) still exists, but to a smaller magnitude. Operational e-HRM outcomes (OO) partially mediate between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO). Furthermore, the Sobel test for the indirect effect is z = 4.766, p ≤ 0.050, concluding that there was a partial mediation between adoption of e-HRM practices (EP) and transformational e-HRM outcomes

(XO) via operational e-HRM outcomes (OO). Since the direct and indirect effects point in the same positive direction, complementary partial mediation has occurred. As a result, hypothesis H9 is supported.

Mediation analysis using SPSS PROCESS Macro

To examine the potential mediating effect of operational e-HRM outcomes (OO) on the relationship between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO), a simple mediation analysis was conducted utilizing the PROCESS (version 4.02) macro for SPSS. The outcome variable for analysis was transformational e-HRM outcomes (XO). The predictor variable for the analysis was e-HRM practices (EP). The mediator variable evaluated for the analysis was operational e-HRM outcomes (OO). Model number 4, confidence intervals of 95%, and a bootstrap sample size of 5000 were selected to proceed with the analysis. The findings of the mediation are displayed in Tables 4.35 and 4.36.

Table 4.35

Mediation Analysis: EP → OO → XO

Model	Coeff.	SE	t	p	LLCI	ULCI	Remarks
Model: EP → OO							
EP	0.2008	0.0399	5.0367	0.0000	0.1225	0.2792	H6
Model: EP, OO → XO							
EP	0.2697	0.0355	7.5989	0.0000	0.2000	0.3393	
OO	0.4995	0.0364	13.7076	0.0000	0.4280	0.5711	
Model: EP → XO							
EP	0.3700	0.0400	9.2485	0.0000	0.2914	0.4485	H8

Table 4.36

Mediation Analysis Summary: EP → OO → OX

Relationship	Total effect	Direct effect	Indirect effect	Boot SE	Confidence interval		Remarks
					LLCI	ULCI	
EP > OO > XO	0.3700 (0.000)	0.2697 (0.000)	0.1003	0.0236	0.0573	0.1517	Partial Mediation

The results revealed a significant indirect effect of the impact of operational e-HRM outcomes (OO) on transformational e-HRM outcomes (b = 0.1003), supporting H9. Furthermore, the direct effect of e-HRM practices (EP) on transformational e-HRM outcomes (XO) in the presence of the mediator operational e-HRM outcomes (OO) was also found to be significant (b = 0.2697, p < 0.001). In addition, the boot CI of 95% was 0.0573 to 0.1417, which excluded zero. Hence, operational e-HRM outcomes (OO) partially mediated the relationship between e-HRM practices (EP) and transformational e-HRM outcomes (XO). As a result, hypothesis H9 is supported.

4.8.10 Hypothesis H10: Relational e-HRM outcomes as mediator of e-HRM practices and transformational e-HRM outcomes relationship

STEP 1: The response variable (transformational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H8, as presented in Section 4.8.8. Regression Line Equation 8 and the results are reproduced here:

$XO = \beta_0 + \beta_1 EP + \varepsilon$

$XO = 2.406 + 0.370EP$

EP predicted XO, $R^2 = 0.130$, $F(1, 571) = 85.534$, $p < .001$.

$\beta_1 = 0.370$, $p < .001$, $\alpha = 2.406$, $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the dependent variable, transformational e-HRM outcomes (XO). Hence, the first condition is fulfilled by the results supporting mediation.

STEP 2: Similarly, the response variable (relational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H7, as presented in Section 4.8.7. Regression Line Equation 7 and its results are reproduced here:

$RO = \beta_0 + \beta_2 EP + \varepsilon$

$RO = 3.596 + 0.140EP$

EP predicted RO, $R^2 = 0.021$, $F(1, 571) = 12.041$, $p < .001$.

$\beta_2 = 0.140$, $p < .001$, $\alpha = 3.596$, $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the mediator variable, relational e-HRM outcomes (RO). Hence, the second condition is met in the results to support mediation.

STEP 3: To carry out mediation analysis further, in the third regression, the dependent variable (transformational e-HRM outcomes) was regressed on the predictor variable of

adoption of e-HRM practices (EP) and the mediator (relational e-HRM outcomes). Regression Line Equation 10, and results are produced below.

Regression equation presents a simple regression model with two predictors and a single response.

Regression Equation 10

$XO = \beta_0 + \beta_4 EP + \beta_3 RO + \varepsilon$

$XO = 0.713 + 0.304 EP + 0.471 RO$

Results of the multiple linear regression indicated that there was a strong collectively significant impact between the EP, RO, and XO ($F(2, 570) = 138.691$, $p < .001$, $R^2 = 0.327$, $R^2adj = 0.325$). Further analysis of the various predictors revealed that the dependent variable XO in the model could be predicted statistically significantly by the predictor EP ($t = 8.541$, $p < .001$) and the mediator RO ($t = 12.922$, $p < .001$).

R-Squared (R^2) equals 0.327. This implies that the predictor adoption of e-HRM practices (EP) and mediator relational e-HRM outcomes (RO) collectively explain 32.7% of the variance of transformational e-HRM outcomes (XO). The adjusted R square is equal to 0.325. The correlation coefficient (R) stands at 0.572. This indicates a strong correlation between the transformational e-HRM outcomes (XO) estimated from the data and the observed transformational e-HRM outcomes (XO).

Overall regression: right-tailed, $F(2, 570) = 138.691$, p-value = 0. Since the p-value < α (0.05), we reject the H_0. The linear regression model, $Y = b_0 + b_1X_1 + ... + b_pX_p + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. All the independent variables (X_i) are significant. The Y-intercept (b) is two-tailed, $T = 0.713$, p-value = 0. Therefore, b is significantly different from zero. The findings are summarized in Table 4.37.

Table 4.37

Regression Analysis H10

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	0.713	0.192		3.714	.000***	0.336	1.090
e-HRM practices	0.304	0.036	0.296	8.541	.000***	0.234	0.374
RO	0.471	0.036	0.449	12.922	.000***	0.399	0.542

Note. $R^2 = 0.327$, F (2, 570) = 138.691 (ps < 0.001), Adjusted $R^2 = 0.325$

***P < 0.001

a. Dependent Variable: Transformational e-HRM outcomes (XO)

The results of the Sobel test are shown in Table 4.38.

Table 4.38

Mediation Model: EP → RO → XO

Path	Estimate	SE	Sobel Statistic (z)	Sig.	Remarks
EP → OO	0.201	0.040	4.713	0.022*	Partial mediation
RO → XO	0.516	0.038			

EP = e-HRM practices, RO = Relational e-HRM outputs, XO = Transformational e-HRM outputs

***p ≤ 0.001, **p ≤ 0.050, *p ≤ 0.050

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), and the mediator variable, relational e-HRM outcomes (RO), taken together, had a significant impact on the dependent variable, transformational e-HRM outcomes (XO). Hence, the third condition is also met to support mediation.

Consequently, the regression coefficient of adoption of e-HRM practices (EP), $\beta_4 = 0.304$ in Equation 10, is statistically significant but smaller than the regression coefficient of adoption of e-HRM practices (EP), $\beta_1 = 0.370$ in Equation 8. The effect of adoption of e-HRM practices (EP) on transformational e-HRM outcomes (XO) still exists, but to a

smaller magnitude. Relational e-HRM outcomes (RO) partially mediate between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO). Furthermore, the Sobel test for the indirect effect is $z = 4.713$, $p \leq 0.050$, concluding that there was a partial mediation between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO) via relational e-HRM outcomes (RO). Since the direct and indirect effects point in the same positive direction, complementary partial mediation has occurred. As a result, hypothesis H10 is supported.

Mediation analysis using SPSS PROCESS Macro

To examine the potential mediating effect of relational e-HRM outcomes (RO) on the relationship between adoption of e-HRM practices (EP) and transformational e-HRM outcomes (XO), a simple mediation analysis was conducted utilizing the PROCESS macro for SPSS. The outcome variable for analysis was transformational e-HRM outcomes (XO). The predictor variable for the analysis was e-HRM practices (EP). The mediator variable evaluated for the analysis was relational e-HRM outcomes (RO). Model number 4, confidence intervals of 95%, and a bootstrap sample size of 5000 were selected to proceed with the analysis. The findings of the mediation are displayed in Tables 4.39 and 4.40.

Table 4.39

Mediation analysis: EP → RO → XO

Model	Coeff.	SE	t	p	LLCI	ULCI	Remarks
Model: EP → RO							
EP	0.1403	0.0404	3.4701	0.0006	0.0609	0.2198	H7
Model: EP, RO → XO							
EP	0.3039	0.0356	8.5409	0.0000	0.2340	0.3738	
RO	0.4708	0.0364	12.9222	0.0000	0.3993	0.5424	
Model: EP → XO							
EP	0.3700	0.0400	9.2485	0.0000	0.2914	0.4485	H8

Table 4.40

Mediation analysis summary: EP →RO → OX

Relationship	Total effect	Direct effect	Indirect effect	Boot SE	Confidence interval		Remarks
					LLCI	ULCI	
EP > RO > XO	0.3700 (0.000)	0.3039 (0.000)	0.0661	0.0230	0.0236	0.1135	Partial Mediation

The results revealed a significant indirect effect of the impact of relational e-HRM outcomes (RO) on transformational e-HRM outcomes (b = 0.0661), supporting H10. Furthermore, the direct effect of e-HRM practices (EP) on transformational e-HRM outcomes (XO) in the presence of the mediator relational e-HRM outcomes (RO) was also found to be significant (b = 0.3039, p < 0.001). In addition, the boot CI of 95% was 0.0236 to 0.1135, which excluded zero. Hence, relational e-HRM outcomes (RO) partially mediated the relationship between e-HRM practices (EP) and transformational e-HRM outcomes (XO). As such, hypothesis H10 is supported.

4.8.11 Hypothesis H11: Adoption of e-HRM practices as predictor of organizational resilience

Hypothesis H11 proposed that there is a positive relationship between the adoption of e-HRM practices and organizational resilience; therefore, the higher the adoption of e-HRM practices, the higher the organizational resilience achieved. The response variable (organizational resilience) was regressed on the predictor variable of adoption of e-HRM practices (EP) to test hypothesis H11. R-Squared (R^2) equals 0.216. This implies that 21.6% of the variability of organizational resilience (ORes) is explained by the adoption of e-HRM practices (EP). The correlation coefficient (R) stands at 0.465. The results of this study suggest that there is a moderately direct relationship between the adoption of e-HRM practices (EP) and organizational resilience (ORes). This means that although higher adoption of e-HRM practices can lead to higher organizational resilience, the magnitude of that effect is not so strong. The slope: $b_1 = 0.520$ CI [0.438, 0.601] suggests that increasing e-HRM practices (EP) by one improves the value of organizational resilience (ORes) by 0.520. The y-intercept: $b_0 = 1.755$ CI [1,431 2.078] implies that when EP equals 0, the prediction of organizational resilience's value is 1.755. The x-intercept equals -3.3763.

Overall regression: right-tailed, F (1, 571) = 157.605, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed, T (571) = 12.554, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed, T (571) = 10.650, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see Figure C.9 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.41.

These findings clearly demonstrate the positive impact of the adoption and use of e-HRM practices. Organizations can benefit from the realization of organizational resilience by achieving a high level of adoption and use of e-HRM practices. As a result, hypothesis H11 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 11

$ORes = \beta_0 + \beta_1 EP + \varepsilon$

$ORes = 1.755 + 0.520EP$

Table 4.41

Regression Analysis H11

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	1.755	0.165		10.650	.000***	1.431	2.078
e-HRM practices	0.520	0.041	0.465	12.554	.000***	0.438	0.601

Note. $R^2 = 0.216$, $F(1, 571) = 157.605$ (ps < 0.001), Adjusted $R^2 = 0.215$

***P < 0.001

a. Dependent Variable: Organizational resilience (ORes)

4.8.12 Hypothesis H12: Transformational e-HRM outcomes as predictor of organizational resilience

Hypothesis H12 proposes that there is a positive relationship between transformational e-HRM outcomes and organizational resilience; therefore, the higher the transformational e-HRM outcomes, the higher the organizational resilience achieved. The response variable (organizational resilience) was regressed on the predictor variable of transformational e-HRM outcomes (XO) to test hypothesis H12. R-Squared (R^2) equals 0.273. This implies that 27.3% of the variability of organizational resilience (ORes) is explained by transformational e-HRM outcomes (XO). The correlation coefficient (R) stands at 0.523. The results of this study suggest that there is a moderately direct relationship between transformational e-HRM outcomes (XO) and organizational resilience (ORes). This means that although higher transformational outcomes can lead to higher organizational resilience, the magnitude of that effect is moderately strong. The slope: b_1=0.570 CI [0.493, 0.646] suggests that increasing transformational e-HRM outcomes (XO) by one improves the value of organizational resilience (ORes) by 0.4311. The y-intercept: b_0=1.598 CI [1.299, 1.897] implies that when XO equals 0, the prediction of organizational resilience's value is 1.598. The x-intercept equals -2.798.

Overall regression: right-tailed, F (1, 571) = 214.563, p-value = 0. We reject H_0 because the p-value is less than α (0.05). The linear regression model, $Y = b_0 + b_1X + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b_0 + \varepsilon$. The slope (b_1) is two-tailed, T (571) = 14.648, p-value = 0. The p-value of a single predictor has the same value as the p-value of the entire model. The y-intercept (b_0) is two-tailed, T (571) = 10.498, p-value = 0. As a result, b_0 differs significantly from zero. The histogram and normal P-P plot of the regression standardized residual (see

Figure C.10 in Appendix C) reveal that residual values are normally distributed. The findings are summarized in Table 4.42.

These findings clearly demonstrate the positive impact of transformational e-HRM outcomes. Organizations can benefit from the realization of organizational resilience by achieving a higher level of transformational e-HRM outcomes. As a result, hypothesis H12 is supported.

Regression equation presents a simple regression model with a single predictor and a single response.

Regression Equation 12

$ORes = \beta_0 + \beta_1 XO + \varepsilon$

ORes = 1.598 +0.570XO

Table 4.42

Regression Analysis H12

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	1.598	0.152		10.498	.000***	1.299	1.897
XO	0.570	0.039	0.523	14.648	.000***	0.493	0.646

Note. $R^2 = 0.273$, F (1, 571) = 214.563 (ps < 0.001), Adjusted $R^2 = .272$

***P < 0.001

a. Dependent Variable: Organizational resilience (ORes)

4.8.13 Hypothesis H13: Transformational e-HRM outcomes as mediator of e-HRM practices and organization resilience relationship

STEP 1: The dependent variable (organization resilience) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H11, as presented in Section 4.8.12. Regression Line Equation 11 and results are reproduced here:

$ORes = \beta_0 + \beta_1 EP + \varepsilon$

$ORes = 1.755 + 0.520EP$

EP predicted ORes, $R^2 = 0.216$, $F(1, 571) = 157.605$, $p < .001$.

$\beta = 0.520$, $p < .001$, $\alpha = 1.755$ $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the dependent variable, organization resilience (ORes). Hence, the first condition is fulfilled by the results supporting mediation.

STEP 2: Similarly, the response variable (transformational e-HRM outcomes) was regressed on the predictor variable of adoption of e-HRM practices (EP) when testing hypothesis H8, as presented in Section 4.8.8. Regression Line Equation 8 and the results are reproduced here:

$XO = \beta_0 + \beta_2 EP + \varepsilon$

$XO = 2.406 + 0.370EP$

EP predicted XO, $R^2 = 0.130$, $F(1, 571) = 85.534$, $p < .001$.

$\beta_1 = 0.370$, $p < .001$, $\alpha = 2.406$, $p < .001$.

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), has a significant impact on the mediator variable, transformational e-HRM outcomes (XO). Hence, the second condition is met in the results to support mediation.

STEP 3: To carry out mediation analysis further, in the third regression, the dependent variable (organization resilience) was regressed on the predictor variable of adoption of

e-HRM practices (EP) and the mediator (transformational e-HRM outcomes). Regression Line Equation 13 and the results are produced below.

Regression equation presents a simple regression model with two predictors and a single response.

Regression Equation 13

$ORes = \beta_0 + \beta_4 EP + \beta_3 XO + \varepsilon$

ORes = 0.685+ 0.355EP + 0.445XO

Results of the multiple linear regression indicated that there was a strong collective significant impact between the adoption of e-HRM practices (EP), transformational e-HRM outcomes (XO), and organization resilience (ORes) ($F (2, 570) = 161.015$, $p < .001$, $R^2 = 0.361$, $R^2adj = 0.359$). Further analysis of the various predictors revealed that the dependent variable ORes in the model could be predicted statistically significantly by the predictor EP ($t = 8.854$, $p < .001$) and the mediator XO ($t = 11.361$, $p < .001$).

R-Squared (R^2) equals 0.361. This implies that the predictor adoption of e-HRM practices (EP) and mediator transformational e-HRM outcomes (RO) collectively explain 36.1% of the variance of organization resilience (ORes). The adjusted R square is equal to 0.359. The coefficient of multiple correlation (R) is equal to 0.601. The results of this study suggest that there is a strong direct relationship between the organization resilience (ORes) estimated from the data and the observed organization resilience (ORes).

Overall regression: right-tailed, $F (2, 570) = 161.015$, p-value = 0. Since p-value < α (0.05), we reject the H_0. The linear regression model, $Y = b0+ b1X1 +...+ bpXp + \varepsilon$, offers a better approximation in comparison to the model with no independent variable emerging as $Y = b0 + \varepsilon$. The regression coefficients of the independent variables (X_i) are statistically significant. The Y-intercept (b) is two-tailed, $T = 3.888$, p-value = 0. Therefore, b is significantly different from zero. The findings are summarized in Table 4.43.

Table 4.43

Regression Analysis H13

(a)	B	SE	Beta	t	Sig,	CI.LB	CI.UB
Constant	0.685	0.176		3.888	.000***	0.339	1.031
e-HRM practices	0.355	0.040	0.318	8.854	.000***	0.276	0.434
XO	0.445	0.039	0.408	11.361	.000***	0.368	0.521

Note. $R^2 = 0.361$, F (2, 570) = 161.015 (ps < 0.001), Adjusted $R^2 = 0.359$

***P < 0.001

a. Dependent Variable: Transformational e-HRM outcomes (XO)

The results of the Sobel test are shown in Table 4.44.

Table 4.44

Mediation Model: EP → XO → ORes

Path	Estimate	SE	Sobel Statistic (z)	Sig.	Remarks
EP → XO	0.370	0.040	7.816	0.027*	Full mediation
XO → ORes	0.570	0.039			

EP = e-HRM practices, XO = Transformational e-HRM outputs, ORes = Organizational resilience

***p ≤ 0.001, **p ≤ 0.050, *p ≤ 0.050

The results demonstrated that the independent variable, adoption of e-HRM practices (EP), and the mediator variable, transformational e-HRM outcomes (XO), taken together, had a significant impact on the dependent variable, organization resilience (ORes). Therefore, the third condition is also met to support mediation.

Consequently, the regression coefficient of adoption of e-HRM practices (EP), β_4 = 0.355 in Equation 13, is statistically significant but smaller than the regression coefficient of adoption of e-HRM practices (EP), β_1 = 0.520 in Equation 11. The effect of adoption of e-HRM practices (EP) on organizational resilience (ORes) still exists, but to a smaller magnitude. Transformational e-HRM outcomes (XO) partially mediate between adoption of e-HRM practices (EP) and organizational resilience (ORes). Furthermore, the Sobel test for the indirect effect is z = 7.816, $p \leq 0.050$, concluding that there was a partial mediation between adoption of e-HRM practices (EP) and organizational resilience (ORes) via transformational e-HRM outcomes (RO). Since the direct and indirect effects point in the same positive direction, complementary partial mediation has occurred. As a result, hypothesis H13 is supported.

Mediation analysis using SPSS PROCESS Macro

To investigate whether the transformational e-HRM outcomes have any mediation influence on the relationship between adoption of e-HRM practices and organizational resilience, a simple mediation analysis was performed using the PROCESS macro for SPSS. The outcome variable for analysis was organizational resilience (ORes). The predictor variable for the analysis was e-HRM practices (EP). The mediator variable evaluated for the analysis was transformational e-HRM outcomes (XO). Model number 4, confidence intervals of 95%, and a bootstrap sample size of 5000 were selected to proceed with the analysis. The findings of the mediation are displayed in Tables 4.45 and 4.46.

Table 4.45

Mediation Analysis: EP → XO → ORes

Model	Coeff.	SE	t	p	LLCI	ULCI	Remarks
Model: EP → XO							
EP	0.3700	0.0400	9.2485	0.0000	0.2914	0.4485	H8
Model: EP, XO → ORes							
EP	0.3552	0.0401	8.8537	0.0000	0.2764	0.4340	
XO	0.4446	0.0391	11.3611	0.0000	0.3678	0.5215	
Model: EP → ORes							
EP	0.5197	0.0414	12.5541	0.0000	0.4384	0.6010	H11

Table 4.46

Mediation Analysis Summary: EP → XO → ORes

Relationship	Total effect	Direct effect	Indirect effect	Boot SE	Confidence interval		Remarks
					LLCI	ULCI	
EP > XO > ORes	0.5197 (0.000)	0.3552 (0.000)	0.1645	0.0250	0.1195	0.2176	Partial Mediation

The results revealed a significant indirect effect of the impact of transformational e-HRM outcomes (XO) on organizational resilience (b = 0.1645), supporting H13. Furthermore, the direct effect of e-HRM practices (EP) on organizational resilience (ORes) in the presence of the mediator transformational e-HRM outcomes (XO) was also found to be significant (b = 0.3552, p < 0.001). In addition, the boot CI 95% was 0.1195 to 0.2176 which excluded zero. Hence, transformational e-HRM outcomes (XO) partially mediated the relationship between e-HRM practices (EP) and organizational performance (ORes). As a result, hypothesis H13 is supported.

4.8.14 Hypothesis H14: Operational and transformational e-HRM outcomes as mediator of e-HRM practices and organization resilience relationship

Hypothesis 14 posits that there exists a sequential mediation impact e-HRM practices on organizational resilience, mediated by operational e-HRM outcomes and transformational e-HRM outcomes. The study aimed to explore the potential mediating effects of operational e-HRM outcomes and transformational e-HRM outcomes on the association between the adoption of e-HRM practices and organizational resilience. To achieve this, a serial mediation analysis was conducted using the PROCESS macro for SPSS. Model 6 was utilized for the analysis, with confidence intervals at 95% and 5000 bootstrap samples selected. The outcome variable for the analysis was organizational resilience. The predictor variable for the analysis was e-HRM practices. The mediator variables evaluated for the analysis were operational e-HRM outcomes and transformational e-HRM outcomes.

The results of the multiple serial mediation analysis are presented in Tables 4.47 and 4.48.

Table 4.47

Mediation Analysis: EP → OO → XO → ORes

Model	Coeff.	SE	t	p	LLCI	ULCI	Remarks
Model: EP → OO							
EP	0.2008	0.0399	5.0367	0.0000	0.1225	0.2792	H6
Model: EP, OO → XO							
EP	0.2697	0.0355	7.5989	0.0000	0.2000	0.3393	
OO	0.4995	0.0364	13.7076	0.0000	0.4280	0.5711	
Model: EP, OO, XO → ORes							
EP	0.3499	0.0385	9.0792	0.0000	0.2742	0.4256	
OO	0.3034	0.0435	6.9770	0.0000	0.2180	0.3889	
XO	0.2940	0.0434	6.7825	0.0000	0.2089	0.3792	

Table 4.48

Mediation Path Model: EP → OO → XO → ORes

Path	Coeff.	Boot SE	Boot LLCI	Boot ULCI	Mediated %
Total effect: EP → ORes	0.5197	0.0414	0.4384	0.6010	100
Direct effect: EP → ORes	0.3499	0.0385	0.2742	0.4256	67.33
Total indirect effect: EP → ORes	0.1697	0.0280	0.1181	0.2276	32.65
EP → OO → ORes	0.0609	0.0158	0.0339	0.0965	11.72
EP → XO → ORes	0.0793	0.0178	0.0493	0.1202	15.26
EP → OO → XO → ORes	0.0295	0.0088	0.0149	0.0497	6.68

The findings presented in Table 4.48 outline the overall, direct, and indirect effects observed. The estimation procedure for the 95% confidence interval, derived from bootstrapping with 5000 samples, revealed that none of the outcomes had a CI that included zero. This outcome suggests a significant indirect impact of e-HRM practices on organizational resilience, mediated by operational e-HRM outcomes and transformational e-HRM outcomes. Organizational resilience was found to be indirectly influenced by the adoption of e-HRM practices. This influence was observed through significant mediation pathways, specifically operational e-HRM outcomes, transformational e-HRM outcomes, and the combined effect of operational and transformational e-HRM outcomes. The coefficient values for these pathways were 0.061, 0.097, and 0.030, respectively. The boot standard errors for these coefficients were 0.016, 0.018, and 0.009, respectively. The 95% confidence intervals for these coefficients were 0.034 to 0.097, 0.049 to 0.120, and 0.015 to 0.050, respectively. These mediation pathways accounted for 11.72%, 15.26%, and 6.68% of the total effect on organizational resilience. The total mediating effect was, therefore, 32.65%.

The analyses revealed that the model's path coefficients were significant. Thus, the paths from e-HRM practices to operational e-HRM outcomes ($\beta = 0.2008$, $p < 0.001$),

transformational e-HRM outcomes ($\beta = 0.3697$, $p < 0.001$) and organizational resilience ($\beta = 0.3499$, $p < 0.001$) were significant. Operational e-HRM outcomes is positively associated with both transformational e-HRM outcomes ($\beta = 0.4995$, $p < 0.001$) and organizational resilience ($\beta = 0.3034$, $p < 0.001$). Transformational e-HRM outcomes was positively associated with organizational resilience ($\beta = 0.2940$, $p < 0.001$). The direct path from e-HRM practices to organizational resilience remained significant after adding the potential mediators indicating that operational e-HRM outcomes and transformational e-HRM outcomes partially mediated the e-HRM practices-organizational resilience link. Hence, H14 is supported.

4.8.15 Hypothesis H15: Relational and transformational e-HRM outcomes as mediator of e-HRM practices and organization resilience relationship

Hypothesis 15 postulates that there is a sequential mediation effect of e-HRM practices on organizational resilience, with relational e-HRM outcomes and transformational e-HRM outcomes acting as mediators. The study aimed to investigate the potential mediating influences of relational e-HRM outcomes and transformational e-HRM outcomes on the relationship between the implementation of e-HRM practices and organizational resilience. To attain this goal, a serial mediation analysis was performed using the PROCESS macro for SPSS. The analysis utilized Model 6, with confidence intervals set at 95% and 5000 bootstrap samples chosen. The outcome variable for the analysis was organizational resilience. The predictor variable for the analysis was e-HRM practices. The mediator variables evaluated for the analysis were relational e-HRM outcomes and transformational e-HRM outcomes.

The findings of the multiple serial mediation analysis are displayed in Tables 4.49 and 4.50.

Table 4.49

Mediation Analysis: EP → RO → XO → ORes

Model	Coeff.	SE	t	p	LLCI	ULCI	Remarks
Model: EP → RO							
EP	0.1403	0.0404	3.4701	0.0006	0.0609	0.2198	H7
Model: EP, RO → XO							
EP	0.3039	0.0356	8.5409	0.0000	0.2340	0.3738	
RO	0.4708	0.0364	12.9222	0.0000	0.3993	0.5424	
Model: EP, RO, XO → ORes							
EP	0.3628	0.0394	9.2035	0.0000	0.2854	0.4403	
RO	0.2035	0.0432	4.7087	0.0000	0.1186	0.2884	
XO	0.3467	0.0437	7.9340	0.0000	0.2609	0.3425	

Table 4.50

Mediation Path Model: EP → RO → XO → ORes

Path	Coeff.	Boot SE	Boot LLCI	Boot ULCI	Mediated %
Total effect: EP → ORes	0.5197	0.0414	04384.	0.6010	100
Direct effect: EP → ORes	0.3528	0.0394	0.2854	0.4403	67.89
Total indirect effect: EP → ORes	0.1568	0.0268	0.1063	0.2123	30.19
EP → RO → ORes	0.0286	0.0111	0.0104	0.0556	5.50
EP → XO → ORes	0.1054	0.0198	0.0701	0.1485	20.28
EP → RO → XO → ORes	0.0229	0.0089	0.0080	0.0427	4.41

Table 4.50 illustrates the comprehensive impact of direct and indirect effects. The bootstrap-derived 95% CI estimation procedure with 5000 bootstrap samples did not include zero for any outcomes, suggesting a significant indirect effect of e-HRM practices via relational e-HRM outcomes and transformational e-HRM outcomes on organizational resilience. Hence, it can be inferred that there exists a noteworthy indirect effect of e-HRM practices on organizational resilience, mediated through relational e-HRM outcomes and transformational e-HRM outcomes. Organizational resilience was found to be indirectly affected by e-HRM practices through significant mediation pathways, including relational e-HRM outcomes (Coeff. = 0.029, Boot SE=0.011, 95% CI=0.010, 0.056) accounting for 5.50% of the total effect, transformational e-HRM outcomes (Coeff. = 0.105, Boot SE=0.020, 95% CI=0.070, 0.015) accounting for 20.28% of the total effect, and relational e-HRM outcomes and transformational e-HRM outcomes (Coeff. = 0.023, Boot SE=0.009, 95% CI=0.008, 0.043), which accounted for 4.41% of the total effect. As a result, the cumulative mediating impact amounted to 30.19%.

The analyses revealed that the model's path coefficients were significant. Thus, the paths from e-HRM practices to organizational resilience ($\beta = 0.1403$, $p < 0.001$), relational

e-HRM outcomes ($\beta = 0.3039$, $p < 0.001$) and transformational e-HRM outcomes ($\beta = 0.3628$, $p < 0.001$) were significant. Relational e-HRM outcomes is positively associated with both transformational e-HRM outcomes ($\beta = 0.4708$, $p < 0.001$) and organizational resilience ($\beta = 0.2035$, $p < 0.001$). Transformational e-HRM outcomes was positively associated with organizational resilience ($\beta = 0.3467$, $p < 0.001$). The direct path from e-HRM practices to organizational resilience remained significant after adding the potential mediators indicating that relational e-HRM outcomes and transformational e-HRM outcomes partially mediated the e-HRM practices-organizational resilience link. Thereby, H15 is supported.

4.9 Summary of Hypotheses' Results

Table 4.51

Summary of Hypotheses' Results

Research question	Hypothesis	Result
1. Do the perceived attributes of innovations serve as determinants of e-HRM adoption within organizational contexts?	**H1**: Perceived relative advantage is positively related to adoption of e-HRM practices.	**Accepted**
	H2: Perceived compatibility is positively related to adoption of e-HRM practices.	**Accepted**
	H3: Perceived complexity is negatively related to adoption of e-HRM practices.	Rejected
	H4: Perceived trialability is positively related to adoption of e-HRM practices.	**Accepted**
	H5: Perceived visibility is positively related to adoption of e-HRM practices.	**Accepted**
2. Does the adoption of e-HRM practices have an impact on operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes?	**H6**: Higher adoption of e-HRM practices is significantly related to better operational e-HRM outcomes.	**Accepted**
	H7: Higher adoption of e-HRM practices is significantly related to better relational e-HRM outcomes.	**Accepted**
	H8: Higher adoption of e-HRM practices is significantly related to better transformational e-HRM outcomes.	**Accepted**
3. Do operational e-HRM outcomes and relational e-HRM outcomes play a simple mediation role in the relationship between the adoption of e-HRM practices and the achievement of	**H9**: The positive relationship between e-HRM practices and transformational e-HRM outcomes is mediated by operational e-HRM outcomes.	**Accepted**
	H10: The positive relationship between e-HRM practices and transformational e-HRM outcomes is mediated by relational e-HRM outcomes.	**Accepted**

Summary of Hypotheses' Results: (Continued)

Research question	Hypothesis	Result
transformational e-HRM outcomes?		
4. Does the adoption of e-HRM practices and the consequent transformational e-HRM outcomes have any influence on organizational resilience?	**H11**: There is a positive relationship between transformational e-HRM outcomes and organizational resilience.	**Accepted**
	H12: There is a positive relationship between e-HRM practices and organizational resilience.	**Accepted**
5. Does the mediating role of transformational e-HRM outcomes influence the connection between the adoption of e-HRM practices and organizational resilience, encompassing both simple and serial mediation pathways?	**H13**: The positive relationship between e-HRM practices and organizational resilience is mediated by transformational e-HRM outcomes.	**Accepted**
	H14: There is a serial mediation effect of e-HRM practices on organizational resilience through operational e-HRM outcomes and transformational e-HRM outcomes.	**Accepted**
	H15: There is a serial mediation effect of e-HRM practices on organizational resilience through relational e-HRM outcomes and transformational e-HRM outcomes.	**Accepted**

CHAPTER 5

DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

5.1 Discussion

Implementing e-HRM solutions has helped HR departments in developed countries function better over time in both private and public enterprises. There is a knowledge gap in the context of developing nations about the effective application and impact of e-HRM systems. The primary goals of this quantitative study are: first, to offer a good theoretical overview of contemporary knowledge about the nature and significance of e-HRM; second, to highlight the key emerging issues in e-HRM research; and third, to determine if e-HRM practices are effective in making organizations more resilient in highly turbulent, surprising, and continuously evolving environments. Research objectives are precise outcomes that researchers strive to accomplish through their investigation. These objectives play a pivotal role in defining the scope and depth of a research project. In the present research, five objectives (as outlined in Section 1.7) were identified and defined to direct and facilitate the achievement of the overall goals.

The first objective of the study was to ascertain how antecedent factors such as relative advantage, compatibility, complexity, trialability, and visibility influence the adoption of e-HRM practices. The perceived attributes of innovations have been proven to impact the adoption of e-HRM practices. These attributes affect how e-HRM is adopted by HR managers and executives and what outcomes result from it. The most important factor by weight is compatibility, followed by relative advantage and visibility. Complexity has been shown to be statistically insignificant factors in adopting e-HRM practices, apparently in contrast to previous findings.

The second objective, which was defined to examine the impact of adoption of e-HRM practices on operational e-HRM outcomes, relational e-HRM outcomes, and transformational

e-HRM outcomes, was also achieved by testing the proposed hypotheses. Data on e-HRM adoption was collected from HR managers and executives using structured, closed-ended questionnaires that highlighted participants' responses to key e-HRM practices. According to descriptive statistics and frequency distribution analysis, e-personal profile, e-application tracking, and e-communication were the most frequently used e-HRM practices. Regression analysis reveals that adoption of e-HRM practices explains 20.6% of the variability of operational e-HRM outcomes, 14.4% of the variability of relational e-HRM outcomes, and 36.1% of the variability of transformational e-HRM outcomes. These results unambiguously demonstrate that the implementation and use of e-HRM practices have a favourable effect on proximal outcomes. These results were found to substantiate or corroborate those from the earlier research.

The third objective was to establish if operational e-HRM outcomes and relational e-HRM outcomes may facilitate the effect of adoption of e-HRM practices on transformational e-HRM outcomes through simple mediation. This query was the crux of this investigation, and the novelty of it lay in the research question itself. Because, despite their theoretical justification, these mediations have probably never been the subject of an empirical investigation. The results conclude that operational e-HRM outcomes partially mediate between adoption of e-HRM practices and transformational e-HRM outcomes. Similarly, relational e-HRM outcomes also partially mediate between adoption of e-HRM practices and transformational e-HRM outcomes. These two mediations are positive confounding and complementary partial mediations. The findings are consistent with the concept of e-HRM outcomes as hierarchy or levels of outcomes rather than types of outcomes.

The fourth objective was to determine whether adoption of e-HRM practices and the resulting transformational e-HRM outcomes influence organizational resilience. Regression

analysis found that e-HRM practices account for only 46.5% of the variation in organizational resilience, while transformational e-HRM outcomes account for 52.23%. These two relationships are both statistically significant and positively directed towards organizational resilience. As a result, organizations that have adopted e-HRM practices and achieved greater transformational e-HRM outcomes would be better able to accept uncertainties and difficulties as opportunities, stay engaged, foster innovation, and sustain employees' physical and mental well-being.

The fifth and last objective was to establish whether influence of adopting e-HRM practices on organizational resilience is mediated by operational e-HRM outcomes, relational e-HRM outcomes and transformational e-HRM outcomes. This was another unique aspect of this study. This mediation proposition was an effort to explain the complex mechanisms between e-HRM practices inside and outside the HR function, as well as the resulting distal effects at the organizational level. It was concluded from the simple mediation analysis that the direct relationship involving the adoption of e-HRM practices and organizational resilience is partially mediated by transformational e-HRM outcomes. The serial mediation analysis indicates that operational e-HRM outcomes and transformational e-HRM outcomes partially mediated the association of e-HRM practices and organizational resilience. Similarly, the study provides empirical evidence that the relationship of e-HRM practices with organizational resilience is respectively and serially explained by relational e-HRM outcomes and transformational e-HRM outcomes. The results of this study provide evidence to support the claims that e-HRM helps HR enhance its worth by playing a more strategic role, and that strategic human resource management practices have a positive and significant influence on organizational resilience.

The research model of this study emerged from the literature on diffusion of innovations theory, information technology frameworks, resource-based view theory,

e-HRM, and organizational resilience. The relationships among perceived attributes of e-HRM, adoption of e-HRM practices, operational e-HRM outcomes, relational e-HRM outcomes, transformational e-HRM outcomes, and organizational resilience are studied in the context of Pakistan's private and public sector organizations. To better understand how these relationships interact, the following research questions were developed:

1. Do the perceived attributes of innovations serve as determinants of e-HRM adoption within organizational contexts?
2. Does the adoption of e-HRM practices have an impact on operational e-HRM outcomes, relational e-HRM outcomes, and transformational e-HRM outcomes?
3. Do operational e-HRM outcomes and relational e-HRM outcomes play a simple mediation role in the relationship between the adoption of e-HRM practices and the achievement of transformational e-HRM outcomes?
4. Does the adoption of e-HRM practices and the consequent transformational e-HRM outcomes have any influence on organizational resilience?
5. Does the mediating role of transformational e-HRM outcomes influence the relationship between the adoption of e-HRM practices and organizational resilience, encompassing both simple and serial mediation pathways?

To respond to these questions and to accomplish the objectives of the study, thirteen hypotheses were put forward after a thorough examination of the literature. Hypotheses 1 through 5 address Research Question 1. Research Question 2 was explored by Hypotheses 6 through 8. Whereas Research Question 3 was explained with Hypotheses 9 and 10. Hypotheses 11 and 12 unfold answers to Research Question 4. Finally, Research Question 5 was explained with Hypotheses 13 through 15. Each question was explained using statistical inference to provide appropriate interpretations of the respondents' attitudes toward e-HRM

adoption and organizational resilience. The following discussion focuses on the results of the hypotheses and the underlying explanations for the research questions.

5.1.1 Hypothesis H1

H1: *Perceived relative advantage is positively related to adoption of e-HRM practices* (Accepted).

According to Hypothesis H1, perceived relative advantage and adoption and use of e-HRM are positively related. Relative advantage quantifies how e-HRM as an innovation is considered superior to the preceding generation of information systems or better than a competitive alternative. Improvements can be in one or many of these areas: saving of money, time, space, or storage; increased customizability, longevity, and productivity; better service; reduced user effort; and empowerment of users. The findings of this investigation are discovered to be in agreement with earlier findings (Bondarouk, Schilling & Ruël, 2016; Cooper & Zmud, 1990; Galhena, 2015; Galhena, 2022; Jebeile & Reeve, 2003; Karahanna, Straub and Chervany (1999); Ndayizigamiye & McArthur, 2014; Ojha, Sahu & Gupta, 2009; Plouffe, Vandenbosch & Hulland, 2001; Premkumar & Roberts, 1999; Quaosar, Hoque & Bao, 2018; Schaupp, Carter & McBride, 2010; Teo, Lim & Fedric, 2007). Correlation analysis indicates a significant and positive correlation between perceived relative advantage and adoption of e-HRM practices ($R = 0.369$, $p = 0.010$). The relative advantage accounts for 13.6% of the variability in e-HRM practices. This indicates that the extent to which organizations perceive e-HRM practices as advantageous contributes significantly to explaining the variations observed in the adoption and implementation of such practices. A significant regression coefficient ($\beta = 0.331$, $p < 0.001$) between the two also demonstrates that when e-HRM users perceive more relative advantage, it is more likely that e-HRM practices will be adopted. The mean value of the predictor, relative advantage ($M = 4.02$, $SD = 0.71$) was similarly observed to be favouring agreement, highlighting the significance of

this factor that HR managers and managers duly value, and there is strong consensus on the contribution of relative advantage to ensuring better adoption of e-HRM practices. To increase the likelihood of adoption of an innovation, many businesses decide to focus on enhancing its relative advantage (Plouffe, Vandenbosch & Hulland, 2001). According to Quaosar, Hoque, and Bao (2018), relative advantage is an essential factor for achieving the goals of HRIS adoption. It has been discovered that adoption of electronic commerce and relative advantage are significantly correlated (Ndayizigamiye & McArthur, 2014). Organizations will have to deal with relative advantages in a variety of ways. If relative advantage is not ingrained in e-HRM, it is not an innovation and may not even be a business endeavour worth pursuing. Organizations should sharpen and improve any relative advantage they have over the e-HRM of potential competitors.

5.1.2 Hypothesis H2

H2: *Perceived compatibility is positively related to adoption of e-HRM practices* (Rejected).

It has been suggested that perceived compatibility is positively related to the adoption and use of e-HRM practices in Hypothesis H2. Compatibility refers to how well an invention fits with the current values, earlier experiences, and requirements of intended users. An e-HRM is more likely to fail if it requires a significant change in working habits or if the user must purchase additional software to make the e-HRM work. Successful adoption of e-HRM depends on how well it fits into users' lives. Organizations understand that the success of e-HRM depends on ensuring that it is compatible with the attitudes, values, and behaviours of potential users. According to correlation analysis, there is a significant and very strong direct relationship ($R = 0.513$, $p = 0.010$) between perceived compatibility and the adoption of e-HRM practices. The findings of this research suggest that compatibility accounts for 26.3% of the variance in e-HRM practices. Congruous to the diffusion of innovation theory (Rogers,

1995), the regression slope between the two variables ($\beta = 0.592$, $p < 0.001$) is also significant. The average score of compatibility ($M = 3.94$, $SD = 0.55$) was found to be trending towards agreement, indicating the importance of perceived compatibility for the adoption of e-HRM. Additionally, research reports that the compatibility of information technology innovations is positively linked with the intention to use information technology solutions (Bondarouk, Schilling & Ruël, 2016; Cooper & Zmud, 1990; Galhena, 2015; Galhena, 2022; Jebeile & Reeve, 2003; Karahanna, Straub & Chervany, 1999; Ndayizigamiye & McArthur, 2014; Ojha, Sahu & Gupta, 2009; Premkumar & Roberts, 1999; Plouffe, Vandenbosch & Hulland, 2001; Quaosar, Hoque & Bao, 2018; Teo, Lim & Fedric, 2007; Venkatesh, Morris, Davis & Davis, 2003).

Compatibility is found to be the most important factor among the five factors influencing the persuasion phase of innovation adoption. This emphasizes the importance of compatibility at pre and early stages of e-HRM adoption and use. Organizations must have a thorough knowledge of the conditions that will apply to the adoption of e-HRM once it has been implemented. Organizations should render answers to questions like these when considering e-HRM's compatibility: How does e-HRM fit into users' lives? What behavioural changes are required for e-HRM to be adopted? What existing systems and procedures does e-HRM replace?

5.1.3 Hypothesis H3

H3: *Perceived complexity is negatively related to adoption of e-HRM practices* (Accepted).

According to Hypothesis H3, perceived complexity has a negative relation with the adoption and use of e-HRM. The difficulty or ease with which users can learn how to use an e-HRM is referred to as its complexity or simplicity. Complexity slows down the pace of progress. Potential adopters will find it more challenging to integrate increasingly complex

e-HRM into their daily work lives. Typically, prospective users do not put much effort into understanding how to use e-HRM. e-HRM that is more intuitive and simpler to understand is more likely to be adopted. The conclusions of this investigation are contrary to those of earlier studies (Cooper & Zmud, 1990; Galhena, 2015; Jebeile & Reeve, 2003; Karahanna, Straub and Chervany, 1999; Kassim, Ramayah & Kurnia, 2012; Mndzebele, 2013; Ojha, Sahu & Gupta, 2009; Quaosar, Hoque & Bao, 2018). The adoption of e-HRM practices and perceived complexity have a negative but statistically not significant correlation, according to correlation analysis ($R = -0.045$, $p > 0.050$). An inverse relationship involving complexity and the adoption of e-HRM practices is also suggested by the non-significant regression coefficient ($\beta = -0.032$, $p > 0.050$) between the two variables. Findings from this study are among the exceptions, but not unexpected. The sample does not include sufficient evidence to determine whether the effect exists. The mean of predictor, complexity ($M = 3.41$, $SD = 0.90$) was found to favour an agreement over the possibility that complexity could play a supportive role in adopting and using an e-HRM. However, organizations should keep simplicity in mind when designing their e-HRM. Organizations should carefully examine every detail to make sure that their e-HRM is serving its intended purpose with ease of use. Before selecting and implementing their e-HRM, usability testing must be done by organizations as a standard procedure.

5.1.4 Hypothesis H4

H4: *Perceived trialability is positively related to adoption of e-HRM practices* (Accepted).

It has been suggested that perceived trialability is positively related to the adoption and use of e-HRM practices in Hypothesis H4. Trialability describes how easily a potential user can explore an e-HRM. The ability to test e-HRM, an innovation, is critical to its adoption. Before committing to adoption, potential customers want to test out e-HRM and see what it is

capable of. Potential users can experiment with and get a first-hand look at what work life might be like after adopting an e-HRM. The findings of this investigation have been discovered to agree with earlier findings (Galhena, 2015), Premkumar & Roberts, 1999; Jebeile & Reeve, 2003; Karahanna, Straub and Chervany, 1999; Kassim, Ramayah & Kurnia, 2012; Plouffe, Vandenbosch & Hulland, 2001; Teo, Lim & Fedric, 2007). The adoption of e-HRM practices and perceived trialability have a positive and statistically significant correlation, according to correlation analysis ($R = 0.110$, $p = 0.010$). The adoption of e-HRM practices is influenced by the presence of trialability, which accounts for approximately 1.2% of the observed variability in this context. As the trialability factor increases, so does the use of e-HRM techniques, as indicated by the significant regression coefficient between the two variables ($\beta = 0.089$, $p < 0.001$). Trialability, as a predictor with a mean value of 3.60 and a standard deviation of 0.79, was similarly found to be highly in favour of agreement. HR managers and executives place a high value on trialability, and there is broad agreement that trialability helps to promote better adoption of electronic HRM practices. There are numerous examples of how trialability can be achieved in digital products, like e-HRM. Organizations can choose a limited-duration trial period in the hope that during this time, users will come to understand that it is worthwhile to pay the entire licensing cost to continue receiving the benefits of e-HRM technologies. Organizations can try out a free version of e-HRM with limited functionality before upgrading to gain access to additional features. Training is useful for getting a head start on new technologies and becoming comfortable with them. Clearly, organizations seek e-HRM training to ensure that their team knows the correct way to do things, to save time from trial and error, to ensure a return on investment, to reduce ramp-up time dramatically, and to increase employee productivity.

5.1.5 Hypothesis H5

H5: *Perceived visibility is positively related to adoption of e-HRM practices* (Rejected).

Hypothesis H5 proposes a positive link between perceived visibility and the adoption and use of e-HRM practices. Visibility, or observability, is the level to which potential consumers may observe the impacts or advantages of implementing an innovation. Since not everyone immediately adopts an innovation, the same is true with e-HRM. The adopters following the early adopters rely on this group to use e-HRM. Potential adopters of all categories should clearly want to see the benefits of adopting and using e-HRM. Correlation analysis indicates a very weak direct and significant correlation between perceived visibility and adoption of e-HRM practices ($R = 0.139$, $p \geq 0.050$). The visibility factor accounts for 1.90% of the variance in e-HRM practices. The regression coefficient between the two variables ($\beta = 0.104$, $p < 0.001$) is also significant, confirming the diffusion of innovation theory (Rogers, 1995). It was found that the mean visibility score ($M = 3.66$, $SD = 0.85$) tended to favour agreement, underscoring the importance of this predictor for e-HRM adoption. However, the literature offers mixed results regarding the linkage between visibility and the adoption of electronic information systems. Research shows that visibility/and observability of innovation are positively correlated with the intent to use information systems (Bondarouk, Schilling & Ruël, 2016; Karahanna, Straub & Chervany, 1999; Plouffe, Vandenbosch & Hulland, 2001; Quaosar, Hoque & Bao, 2018; Venkatesh, Morris, Davis & Davis, 2003). On the contrary, Jebeile and Reeve (2003) recorded a direct but not significant relationship between visibility and the diffusion of E-Learning innovations. Similarly, Plouffe, Vandenbosch, and Hulland (2001) reported that the direct relationship between visibility and adoption intentions of new electronic payment systems for consumers and merchants' groups is very weak but not significant. To increase the likelihood of e-HRM adoption, organizations should allow potential adopters to observe the benefits of e-HRM

over others for a side-by-side comparison. Similarly, organizations must demonstrate to potential adopters how e-HRM will improve their work lives. What an adopter's work life will be like once they begin using e-HRM will have a significant impact. Organizations should arrange related testimonials. People really like to hear what other people they think are like themselves have experienced with e-HRM.

5.1.6 Hypothesis H6

H6: *Higher adoption of e-HRM practices is significantly related to better operational e-HRM outcomes* (Accepted).

The results of Hypothesis H6 indicate that there is a positive effect associated with the adoption of e-HRM practices on operational e-HRM outcomes. The proposition of a direct and statistically significant association between the adoption of e-HRM practices and operational e-HRM outcomes is supported by a significant regression coefficient ($\beta = 0.201$, $p < 0.001$), favouring hypothesis H6. The adoption of e-HRM practices accounts for 4.3% of the variance in operational e-HRM outcomes. This indicates that organizations can benefit significantly from the adoption of e-HRM practices. The findings of the current investigation were found to substantiate or corroborate those of the earlier research (Al-Ameri, 2017; Bondarouk, Harms & Lepak, 2017; De Alwis et al., 2022; Fındıklı & Bayarçelik, 2015; Micu, Capatina, Micu & Schin, 2017; Obeidat, 2016; Omran & Anan, 2018; Panos & Bellou, 2016; Ruël, Bondarouk & Looise, 2004; Strohmeier, 2007). These findings support the notion that adopting e-HRM practices paves the way for achieving operational e-HRM outcomes. Organizations must effectively carry out e-HRM practices to achieve appropriate as well as result-oriented operational e-HRM outcomes. Thus, organizations that have better adopted e-HRM practices, i.e., e-Records and Administration, e-Access Control, e-Time and Attendance, e-Leave, and e-Payroll, will ultimately benefit from a reduction in time and effort for administrative tasks, less resource investment, simplification, and better execution

of processes, and improved HRM service quality in terms of outcome, interaction, and environment.

5.1.7 Hypothesis H7

H7: *Higher adoption of e-HRM practices is significantly related to better relational e-HRM outcomes* (Accepted).

The adoption of e-HRM practices will directly impact relational e-HRM outcomes, as predicted under Hypothesis H7. The results revealed a significant regression coefficient ($\beta = 0.140$, $p < 0.001$) suggesting that the adoption of e-HRM practices has a positive effect on relational e-HRM outcomes. 2.1% of the variation in relational e-HRM outcomes can be attributed to the adoption of e-HRM practices. Adoption of e-HRM practices and relational e-HRM outcomes have a direct, positive, and statistically significant association, which supports H7. The findings of this study are consistent with and endorse the conclusions of prior researchers (Bondarouk, Harms & Lepak, 2017; Bondarouk, Parry & Furtmueller, 2017; Lepak & Snell, 1998; Marler, 2009; Obeidat, 2016; Omran & Anan, 2018; Ruël, Bondarouk & Looise, 2004; Panos & Bellou, 2016; Strohmeier, 2013). The results also support the notion that adopting higher e-HRM practices is a prerequisite to better outcomes associated with relational e-HRM in the workplace. To achieve consistent and results-driven relational e-HRM outcomes, organizations must adopt e-HRM practices efficaciously. Therefore, organizations with better adoption of e-HRM practices, i.e., e-Employee Self Service (ESS), e-Manager Self Service (MSS), e-Communication, and idea and creativity exchange systems, will eventually benefit from improved communication and service delivery and optimized workflow, better relationships between HRM, management and employees, and improved communication, collaboration, and relationships.

5.1.8 Hypothesis H8

H8: *Higher adoption of e-HRM practices is significantly related to better transformational e-HRM outcomes* (Accepted).

The findings for Hypothesis H8 indicate that adoption of e-HRM practices has a favourable impact on transformational e-HRM outcomes, with a significant regression coefficient ($\beta = 0.37$, $p < 0.001$). The findings of this study demonstrate that 13.0% of the variation in transformational e-HRM outcomes can be attributed to the adoption of e-HRM practices. Therefore, the evidence supports H8 and reinforces the argument that there is a positive and significant direct association between the adoption of e-HRM practices and transformative e-HRM outcomes.

The results of the current investigation were found to substantiate or verify those of the earlier research (Almashyakhi, 2022; Bissola & Imperatori, 2014; Gardner, Lepak & Bartol, 2003; Kassim, Ramayah & Kurnia, 2012; Marler & Parry, 2016, Martini, Cavenago & Marafiot, 2020; Panos & Bellou, 2016; Quaosar, Hoque & Bao, 2018; Ruël, Bondarouk & Van der Velde, 2007). These findings also lend support to the Remenyi, Money, and Twite (1991) and Zuboff (1988) frameworks of IT impact. Furthermore, the assertion made by Zuboff (1988) that IT may be transformative because it has the unique ability to both automate and informate, is also substantiated. To achieve consistent and goal-oriented transformational e-HRM outcomes, organizations must adopt e-HRM practices as ‘power users’ that adopt full use of e-HRM practices. Therefore, organizations with full adoption of e-HRM practices, including e-Recruitment, e-Selection, e-Application tracking, e-Performance appraisal, e-Compensation and Benefits, e-Training and Development, and e-Grievance tracking and handling, will lead to HR strategic involvement, improved strategic orientation, facilitated strategic role, and enhanced strategic effectiveness of HR.

5.1.9 Hypothesis H9

H9: *Operational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes* (Accepted).

The mediation analysis was carried out to test Hypothesis H9. The Baron and Kenny (1986) method, the Sobel test, and the PROCESS macro were applied in this case. The findings validate that the indirect effect of adoption of e-HRM practices on transformational e-HRM outcomes is significant ($\beta = 0.27$, $p < 0.001$) but smaller than the direct effect of adoption of e-HRM practices toward transformational e-HRM outcomes ($\beta = 0.37$, $p < 0.001$). Secondly, partial mediation has occurred, as confirmed by Sobel test statistics with $z = 4.766$, $p \leq 0.001$, i.e., a smaller portion of transformational e-HRM outcomes is attributable to adoption of e-HRM practices through an indirect path rather than a direct path. Thirdly, PROCESS macro results revealed a statistically significant indirect effect ($b = 0.1003$, 27.1%) of adoption of e-HRM practices on transformational e-HRM outcomes through operational e-HRM outcomes. Hence, it is established that operational e-HRM outcomes partially mediate the positive link between adoption of e-HRM practices and transformational e-HRM outcomes. Because direct and indirect effects are both positive, complementary, or positive confounding partial mediation has occurred. It is undeniably necessary to ensure that e-HRM practices are adopted up to an optimal level to maximize transformational e-HRM outcomes. But such efforts must also be linked with operational e-HRM outcomes to enhance transformational e-HRM outcomes. According to the results of the investigation, the adoption of e-HRM practices is significantly and positively linked to operational e-HRM outcomes, just as operational e-HRM outcomes are linked to transformational e-HRM outcomes. This indicates that e-HRM practices have the potential to lead to both operational and transformational outcomes, which could benefit the organization holistically. Operational e-HRM outcomes have also been found to be a partially mediating factor in the link between

the adoption of e-HRM practices and the enhancement of transformational e-HRM outcomes. The findings of this study support Ruël, Bondarouk and Looise's (2004) earlier argument that transformational e-HRM outcomes are primarily grounded in the belief that the utilization of IT facilitates operational e-HRM outcomes, i.e., a reduction in the time and effort required for administrative activities.

5.1.10 Hypothesis H10

H10: *Relational e-HRM outcomes mediate the positive relationship between e-HRM practices and transformational e-HRM outcomes* (Accepted).

The mediation analysis was carried out to test Hypothesis H10. The Baron and Kenny (1986) method, the Sobel test, and the PROCESS macro were applied in this case. The findings validate that the indirect effect of adoption of e-HRM practices on transformational e-HRM outcomes is significant ($\beta = 0.304$, $p < 0.001$) but smaller than the direct effect of adoption of e-HRM practices toward transformational e-HRM outcomes ($\beta = 0.370$, $p < 0.001$). Secondly, partial mediation has occurred, as confirmed by Sobel test statistics with $z = 4.713$, $p \leq 0.001$, i.e., a smaller portion of transformational e-HRM outcomes is attributable to adoption of e-HRM practices through an indirect path rather than a direct path. Thirdly, PROCESS macro results revealed a statistically significant indirect effect (b = 0. 0661, 17.9%) of e-HRM practices on transformational e-HRM outcomes through relational e-HRM outcomes. Hence, it can be established that relational e-HRM outcomes partially mediate the positive link between adoption of e-HRM practices and transformational e-HRM outcomes. Because the direct and indirect effects are both positive, complementary, or positive confounding partial mediation has occurred. It is undeniably necessary to ensure that e-HRM practices are adopted up to an optimal level to maximize transformational e-HRM outcomes. But such efforts must also be linked with relational e-HRM outcomes to enhance transformational e-HRM outcomes. As per the findings of the study, adoption of e-HRM

practices is significantly and favourably linked to relational e-HRM outcomes, just as relational e-HRM outcomes are to transformational e-HRM outcomes. Relational e-HRM outcomes also serve as a partial mediating factor in the linkage between adoption of e-HRM practices and transformational e-HRM outcomes. The findings of this study support Panos and Bellou's (2016) earlier argument that the utilization of IT facilitates relational e-HRM outcomes, such as enhanced service delivery and communication and optimized workflow between the HR department, management, and staff members, which are the primary foundation for transformational e-HRM outcomes.

5.1.11 Hypothesis H11

H11: *There is a positive relationship between e-HRM practices and organizational resilience* (Accepted).

According to Hypothesis 11, there is a positive association between adopting e-HRM practices and organizational resilience. The findings demonstrate a significant regression coefficient ($\beta = 0.520$, $p < 0.001$) that illustrates the positive impact of adoption of e-HRM practices, supporting the hypothesis that adoption of e-HRM practices and organizational resilience are directly correlated, and this relationship is both positive and significant. The findings of the study appeared to substantiate or corroborate the results of previous researchers (Barney 1991; Lengnick-Hall, Beck & Lengnick-Hall, 2011; Liang & You, 2009; Marler & Parry, 2016; Rahman & Hosain, 2021). These results lend credence to Barney's (1991) resource-based view (RBV), which contends that technology, as a resource, can provide strategic value when applied in a unique and organization-specific manner to foster competitive advantage. These results also corroborate Marler and Parry's (2016) claim that, according to contingency theory, organizations that can successfully adapt to or integrate with the capabilities of information technology (adoption of e-HRM practices in this context) are more likely to succeed. The results also authenticate the point of view that adoption of

e-HRM practices can add strategic value by generating a long-term, environmentally friendly, and competitive advantage through the participation of employees (Rahman & Hosain, 2021). Thus, organizations that have fully adopted e-HRM practices, such as e-recruitment, e-selection, e-training, e-performance appraisal, e-compensation, e-personal profile, e-advertising, e-application tracking, e-communication, e-grievance tracking and handling system, and e-leave, will be better able to endure and recover from adverse conditions, act quickly, and sustain cohesion among employees within the organization when confronted with unfavourable circumstances.

5.1.12 Hypothesis H12

H12: *There is a positive relationship between transformational e-HRM outcomes and organizational resilience* (Accepted).

According to Hypothesis 12, transformational e-HRM outcomes and organizational resilience are positively correlated. The findings demonstrate a significant regression coefficient ($\beta = 0.57$, $p < 0.001$) that shows the positive impact of transformational e-HRM outcomes, approving the hypothesis that transformational e-HRM outcomes and organizational resilience are directly correlated, and this relationship is both positive and significant. The study's findings appeared to provide evidence or support for the conclusions drawn by earlier researchers (Al-Ayed, 2019; Bissola & Imperatori, 2014; Lengnick-Hall, Beck & Lengnick-Hall, 2011). These findings support Marler and Parry's (2016) contention that, according to contingency theory, organizations will succeed more if they can adapt or fit best to the competencies of information technology when it comes to the management of their administrative processes. These findings also support Barney's (1991) resource-based view (RBV) argument that technology as a resource (e-HRM in this case) can provide strategic value when leveraged in an organization-specific and innovative way to help create competitive advantage. The results further support the premise that strategic value can be

created through transformational e-HRM outcomes by enriching the strategic capability of HR functions, which eventually enables HR to achieve organizational resilience preserve competitive advantage in the long run. The transformational outcomes of e-HRM aim to strengthen the strategic orientation of HRM through the transformation of HR functions. Al-Ayed (2019) reported that strategic HRM practices have a favourable and substantial influence on organizational resilience. The transformational outcomes of e-HRM offers companies the opportunity to make their HR processes more agile and efficient. It allows them to focus on strategic goals rather than day-to-day administrative tasks. This helps create a more competitive environment and enables organizations to be more resilient and successful in the long term.

Therefore, organizations that have achieved more transformational e-HRM outcomes, such as HR strategic involvement, improved strategic orientation, facilitated strategic role, and enhanced strategic effectiveness, will be in a better position to accept changes and uncertainties as opportunities, stay engaged and encourage innovation, and maintain physical and mental well-being.

5.1.13 Hypothesis H13

H13: *Transformational e-HRM outcomes mediate the positive relationship between e-HRM practices and organizational resilience* (Accepted).

To examine hypothesis H13, a mediation analysis was conducted using multiple techniques. The study utilized the Baron and Kenny (1986) method, the Sobel test, and the PROCESS macro to analyze the data and examine the proposed relationship. The findings validate that the indirect effect of adoption of e-HRM practices on organizational resilience is significant ($\beta = 0.355$, $p < 0.001$) but smaller than the direct effect of adoption of e-HRM practices toward organizational resilience ($\beta = 0.520$, $p < 0.001$). Secondly, partial mediation has occurred, as confirmed by Sobel test statistics with $z = 7.816$, $p \leq 0.001$, i.e., a smaller

portion of organizational resilience is attributable to the adoption of e-HRM practices through an indirect rather than a direct path. Thirdly, PROCESS macro results revealed a statistically significant indirect effect (b = 0.1645, 31.7%) of adoption of e-HRM practices on organizational resilience through transformational e-HRM outcomes. The findings validate that the indirect path from adoption of e-HRM practices to organizational resilience is significant ($\beta = 0.355$, $p < 0.001$) but smaller than the direct significant path from adoption of e-HRM practices toward organizational resilience ($\beta = 0.520$, $p < 0.001$). Secondly, partial mediation has occurred, as confirmed by Sobel test statistics with $z = 7.816$, $p \leq 0.001$, i.e., a significant portion of organizational resilience is attributable to the adoption of e-HRM practices through an indirect rather than direct path. Thirdly, PROCESS macro results revealed a significant indirect effect (b = 0.1645) of transformational e-HRM outcomes on organizational resilience. Hence, it can be established that transformational e-HRM outcomes partially mediate the positive link between adoption of e-HRM practices and organizational resilience. Because the direct and indirect effects are both positive, complementary, or positive confounding partial mediation has occurred.

Hence, it can be inferred that the relationship between the adoption of e-HRM practices and the resilience of an organization is partially mediated by the transformational outcomes of e-HRM. It is widely acknowledged that, to enhance organizational resilience, it is imperative to achieve optimal transformational e-HRM outcomes. The findings show that adoption of e-HRM practices has a positive and significant linkage with organizational resilience, as transformational e-HRM outcomes are related to organizational resilience. Furthermore, the findings demonstrate that the adoption of e-HRM practices and organizational resilience are partially mediated by transformational e-HRM outcomes. The results of this study lend credence to Parry's (2011) assertion that e-HRM could help make HR more strategically oriented, increasing its value, as well as to Al-Ayed's (2019) research

showing that strategic HRM practices have a positive and significant influence on organizational resilience.

5.1.14 Hypothesis H14

H14: *There is a serial mediation effect of e-HRM practices on organizational resilience through operational e-HRM outcomes and transformational e-HRM outcomes* (Accepted).

A serial mediation model was developed to explore the serial mediating effects of operational e-HRM outcomes and transformational e-HRM outcomes on the relationship between e-HRM practices and organizational resilience. To investigate hypothesis H14, a mediation analysis was carried out using the PROCESS macro for SPSS to evaluate the proposed mediations. Organizational resilience was found to be indirectly influenced by the adoption of e-HRM practices. This influence was observed through significant mediation pathways, specifically operational e-HRM outcomes, transformational e-HRM outcomes, and the combined effect of operational and transformational e-HRM outcomes. These mediation pathways accounted for 11.72%, 15.26%, and 6.68%, respectively, of the total effect on organizational resilience.

This observation is a logical corollary of Hypothesis H9 and Hypothesis H13. Enhanced utilization of e-HRM practices by HR functions can yield superior operational e-HRM outcomes, leading to the enhancement of transformational e-HRM outcomes. Enhanced utilization of e-HRM practices can greatly impact HR functions by improving efficiency, streamlining processes, and increasing access to HR information and services. This, in turn, can lead to superior operational e-HRM outcomes, such as reduced administrative tasks, improved data accuracy, and increased employee satisfaction. Relational e-HRM can lead to improved employee satisfaction and engagement, as well as stronger relationships between employees and HR professionals. It allows for personalized and timely communication, which can enhance trust, collaboration, and problem-solving within the

organization. By functioning as a strategic partner, HR can align its goals and initiatives with the overall strategic objectives of the organization. This enables HR to have a seat at the table during important decision-making processes, ensuring that people-related factors are taken into consideration and ultimately enhancing the organization's ability to adapt and thrive in a rapidly changing business environment.

This observation fortified the findings of Hypothesis H9 and Hypothesis H13 that better adoption of e-HRM practices is more like to lead to higher organizational resilience via the influence of operational e-HRM outcomes. Better achievement of operational e-HRM is more like to lead to higher transformational e-HRM outcomes. Therefore, organizations that have achieved more transformational e-HRM outcomes, such as HR strategic involvement, improved strategic orientation, facilitated strategic role, and enhanced strategic effectiveness, will be in a better position to accept changes and uncertainties as opportunities, stay engaged and encourage innovation, and maintain physical and mental well-being of human resource.

Ruhl, Bondarouk and Looise (2002) argue that IT plays a crucial role in achieving operational e-HRM outcomes, which in turn lead to strategic transformation of HR function. The results support the arguments of Lengnick-Hall et al. (2011) and Al-Ayed (2019) regarding the significant impact of strategic HRM practices on organizational resilience. The current findings also present an integrated view of the framework for IT impact and resource-based view of the firms. Moreover, the present findings provide a holistic viewpoint on the framework for IT impact and the resource-based view of the firms.

5.1.15 Hypothesis H15

H15: *There is a serial mediation effect of e-HRM practices on organizational resilience through relational e-HRM outcomes and transformational e-HRM outcomes* (Accepted).

To explore the chain relationship between e-HRM practices and organizational resilience, a serial mediation model was developed. This model investigated the mediating

effects of relational e-HRM outcomes and transformational e-HRM outcomes. To test hypothesis H15, a mediation analysis was conducted using the PROCESS macro for SPSS to assess the proposed mediations. Organizational resilience was found to be indirectly influenced by the adoption of e-HRM practices. The adoption of e-HRM practices was identified as having an indirect influence on organizational resilience. This influence was observed through significant mediation pathways, specifically relational e-HRM outcomes, transformational e-HRM outcomes, and the combined impact of relational and transformational e-HRM outcomes. These mediation pathways were responsible for 5.50%, 20.28%, and 4.41%, respectively, of the total effect on organizational resilience.

The deduction made is a direct result of Hypothesis H10 and Hypothesis H13. e-HRM practices that lead to relational e-HRM outcomes are more likely to enhance organizational resilience. In relational e-HRM, HR information is integrated across various units and subsidiaries, thus offering potential for organizational transformation. Relational e-HRM results in higher transformational e-HRM outcomes. HR can contribute to organizational resilience by implementing robust talent management strategies, such as succession planning and leadership development programs, to ensure a pipeline of skilled employees. Additionally, HR can play a crucial role in fostering a positive and inclusive work culture, promoting employee well-being, and implementing effective change management processes to navigate challenges and disruptions.

5.2 Contribution of the study

For the past three decades, researchers have studied how new innovations are adopted. Rogers describes one of the most frequently used adoption models in his book "Diffusion of Innovations". The goal of this study was to determine whether different perceived attributes of innovations influence adoption of e-HRM practices and whether these practices influence proximal and distal e-HRM outcomes. The foundation of the research framework of this

study is Rogers' diffusion of innovations theory, information technology frameworks, and a resource-based view of the firm. Relative advantage, compatibility, complexity, trialability, and visibility are five attributes that Rogers (1983) claims have an influence on innovation adoption. In accordance with Remenyi et al. (1991) and Zuboff (1988), the influence of IT can be viewed as a three-stage process: automation, information, and transformation. The premise of this study is that extensive use of e-HRM enhances the strategic orientation of HRM, supports the strategic function of HRM, and thus leads to organizational resilience. This increased organizational resilience can be attributed to the fact that e-HRM enables the HRM to align itself more closely with the organization's strategic objectives.

This study has made a substantial contribution to the existing knowledge base by advancing the disciplines of e-HRM and organizational resilience theory. Research conducted so far has been inconclusive regarding e-HRM and organizational resilience relationships and strongly calls for identifying appropriate mechanisms for establishing and enhancing such relationships. While earlier research had established that e-HRM was necessary to build HR strategic involvement, there hasn't been much study on how to achieve long-term organizational competitive advantage. Furthermore, previous research extensively debated the strategic value of e-HRM and investigated the relationship and relevance of e-HRM with organizational performance. Some recent research has revealed what antecedents or steps are needed to increase the adoption of e-HRM within the organization and its distal outcomes. However, e-HRM value creation proposition remains a gap, as some recent studies have highlighted (Iqbal, Ahmad, Razik & Borini, 2019). Moreover, the most of previous investigations on e-HRM have been conducted in developed countries. To gain insight into how these dynamics play out, it is important to conduct further research in different cultural settings in developing countries.

Taking into consideration all the aforementioned factors, this study has made a significant contribution to the advancement of e-HRM in the workplace. Firstly, there is a resemblance between the factors that contribute to the adoption rates reported by Rogers (1983) and Davis (1989) and the factors that affect user acceptance and organizational readiness for the adoption of e-HRM. This study provides novel insight that the perceived attributes of innovations (PAI), i.e., relative advantage, compatibility, complexity, trialability, and visibility, may behave differently across the emerging, growth, maturity, and saturation stages of the e-HRM technology lifecycle. This is indicated by the findings, which show that while perceived complexity has a negative impact on the adoption of e-HRM practices, but its impact is not statistically significant. It could be due to a small sample size, measurement errors in assessing perceived complexity, or the presence of other confounding variables.

Secondly, this study provides the first-ever empirical evidence that operational and relational e-HRM outcomes play a positive mediating role in linking the adoption of e-HRM practices and transformational e-HRM outcomes. According to Ruël, Bondarouk, and Looise (2004), the essential premise underlying transformational e-HRM outcomes is that IT usage facilitates operational e-HRM outcomes, i.e., a decrease in time and effort required for administrative tasks. Similarly, higher levels of transformational e-HRM outcomes realized are a result of relational e-HRM outcomes, such as better service delivery, improved communication, and optimized workflow between HR departments, management, and staff members (Panos & Bellou, 2016). However, neither of these propositions has ever been empirically tested in previous research. The significant mediating roles of operational e-HRM outcomes and relational e-HRM outcomes between e-HRM practices and transformational e-HRM outcomes were investigated, which added further to the theory that both operational and relational e-HRM outcomes partially mediate the identified relationships.

Thirdly, research on e-HRM and its proximal outcomes such as employee productivity, employee performance, employee engagement, job security, job satisfaction, and turnover intention is abundant in extent research, as are studies on information responsiveness, information autonomy, transformation activities, workforce agility, HRM service quality, HRM effectiveness, trust in HRM, HR strategic involvement, and e-HRM outcomes, among others. The strategic advantages of e-HRM have been extensively argued in the literature, but there is little empirical evidence to support the claim that e-HRM adds value. Some of the distal outcomes of e-HRM that have been documented in the literature include organizational performance, organizational excellence, organizational sustainability, and competitive advantage. Given that little is known about the contribution of e-HRM to organizational resilience, the researcher believes that neither theoretical nor empirical evidence is available to support this proposition. The study complements the literature by highlighting the impact of e-HRM adoption and the transformational e-HRM outcomes on organizational resilience that can be generated by a transformed and strategically oriented HR function. As this is one of the key contributions of the present study in attempting to fill this gap, it may be considered one of the most significant contributions.

Fourthly, an important contribution of the present study is to explore the mediation impact of operational, relational, and transformational e-HRM outcomes on the adoption of e-HRM practices and organizational resilience relationships. The main goal of mediation analysis is to comprehend the mechanism, causal chain of events, or underlying process that explains how or why a predictor variable is related to a criterion variable. The findings show that adoption of e-HRM practices and organizational resilience have a positive relationship that is partially mediated by the three e-HRM outcomes. The results emphasize how crucial transformational e-HRM outcomes are for organizational level advantages. Organizations must understand that utilizing technology for HR operations must go beyond simply

automating administrative HR tasks, saving money and time, or enhancing HR function efficiency. The goal of e-HRM, argued by Ruël, Bondarouk, and Van der Velde (2007), is to help HR function become more strategic, and this strategic alignment is integral to the overall e-HRM adoption process. Ruël, Bondarouk and Van der Velde (2007) suggest that strategic orientation of HR function is the primary objective of e-HRM. Therefore, HR must be transformed from an administrative role to one that supports the strategic processes of an organization to fulfil its role as a strategic partner (Marler & Parry, 2016). These are transformational e-HRM outcomes at HR functions that are positively related to strategic planning and development, strategic organizational change, strategic goals of the organizations, competitive advantage, organizational performance, organizational excellence, organizational sustainability, and organizational resilience.

Finally, the implementation of e-HRM in Pakistan is still at an early stage. The literature also shows that in the case of Pakistan, the adoption of e-HRM practices at the organizational level is being observed. e-HRM is a relatively new concept, and due to the rapidly changing nature of technology, it is important to understand how it affects the workplace and employees in countries with different economic and social structures. Understanding the factors that influence its adoption and implementation in developing countries like Pakistan can help inform future policies and initiatives. The level of e-HRM adoption in a local setting is not well documented in the literature, and there is relatively little research in the field. Another significant factor that cannot be overlooked is the difference between developed and developing countries. This mere difference may lead to conflicting beliefs and attitudes among people. Adding the local context to the core of the knowledge is therefore another important contribution made by this study.

5.3 Managerial implications and recommendations

Organizations need to build resilience to respond appropriately to unforeseen events and to take advantage of circumstances that could jeopardize a company's existence. Several researchers and practitioners believe that e-HRM revolutionizes the way HRM is practiced in organizations, making it less administrative and more strategic for the organization. The purpose of this study is to explore how e-HRM practices can help organizations be resilient in today's ever-changing business environment. The results of the study offer critical organizational insights and recommend the following strategies for promoting adoption of e-HRM practices, reaching the highest level of e-HRM outcomes, and ultimately reaping the rewards of organizational resilience.

First, organizations adopt technology only when they deem it necessary to fill a perceived performance gap or to take advantage of a business opportunity. The current study adopted perceived attributes of innovations (PAI): relative advantage, compatibility, complexity, trialability, and visibility (Rogers, 1983) as the most relevant antecedents for measuring the intention and readiness of organizations to adopt e-HRM. It was discovered that the three key factors impacting the adoption of e-HRM are perceived compatibility, relative advantage, and visibility. Among the five factors that determine the persuasion stage of innovation adoption, compatibility is the most significant factor in influencing. Compatibility, the extent to which an innovation appears to be compatible with the demands of prospective adopters, has been suggested to be a positive predictor of intent to adopt e-HRM practices. Organizations should consider what existing systems and processes e-HRM replaces to implement and use it successfully. What behavioural adjustments are necessary for e-HRM adoption? Also, how does e-HRM fit into the user's life? Relative advantage is the second most significant factor in influencing innovation adoption. Organizations must realize that if relative advantage is not incorporated into e-HRM, it is not

an innovation and may not even be a viable business endeavour. Organizations should sharpen and enhance any comparative advantage they now have over their own legacy system or over potential competitors' e-HRM. Visibility, or observability has been mentioned as a positive force driving e-HRM adoption. However, the findings indicated that there was a very weak and direct link between visibility and the adoption of e-HRM practices. Considering the mixed results found in the literature, organizations should encourage potential adopters to consider the advantages of e-HRM adoption as a way forward to boost their likelihood of adopting it in the future. The rationale behind this recommendation is that users who have personally utilized e-HRM in the past are inclined to have a more positive opinion of it than those who have never used it. The fourth most significant factor in predicting e-HRM adoption is trialability. It is generally acknowledged that trialability encourages better adoption of e-HRM practices. Training can help organizations get a head start on new technologies and become more comfortable with them. Organizations can choose a limited-time trial period. We hope that during this time, users will find it worthwhile to benefit from e-HRM technology. Organizations can try a free, limited-feature version of e-HRM before upgrading to access additional features. Organizations must invest in e-HRM training to avoid wasting time on trial and error, to guarantee a return on investment, to drastically shorten ramp-up times, and to boost staff productivity. Complexity refers to the user's perception of the level of difficulty in using the e-HRM. The results indicate that there is disagreement over the potential role of complexity in the use of e-HRM. Organizations should keep simplicity in mind when designing their e-HRM. Organizations need to carefully consider every detail to make sure that their e-HRM is simple to use and serves its purpose with ease. The findings show that allowing prospective users to try out e-HRM software over a trial period boosts the level of e-HRM adoption. Organizations must conduct usability testing as a standard procedure before selecting and implementing their e-HRM. Furthermore,

training seminars on these technologies would be extremely beneficial in promoting their adoption.

Second, primary data on adoption of e-HRM practices were collected from HR managers and executives using structured, closed-ended questionnaires highlighting participants' responses to key e-HRM practices. Analysis of the collected data revealed that the most used e-HRM practices are e-personal profile, e-application tracking, and e-communication. Moderate adoption is shown for e-leave, e-advertising, e-recruitment, e-performance appraisal, and e-selection. Whereas the least frequently used practices are e-compensation, e-training, and e-grievance tracking and handling systems. As such, organizations must make efforts to encourage the adoption of the least commonly used e-HRM practices while simultaneously continuing the most and moderately adopted e-HRM practices. Organizations should use e-compensation tools to model wages, cash, and non-cash plans that strategically use compensation and boost organizational performance. Thereby, a manager's ability to provide total compensation information will be a key retention tool for both the organization and the employees. The practice of conducting training or learning through an organization’s website is known as e-training. When distant participants are physically unable to participate in training and learning programmes, e-training enables them to do so. e-training ensures that videos of physical training, online field training, or online lectures are all distributed via the internet. Organizations should reinforce the adoption of e-training to strengthen the skills of existing employees across the organization and continue this practice more frequently to achieve lasting employee benefits.

Third, there are many goals when organizations decide to adopt technology in their HR function. e-HRM outcomes can take a variety of forms, depending on the goals they are designed to achieve. The organizations investing in e-HRM have the goals of reducing costs by rationalizing the operations associated with HRM (Marler, 2009); improving HRM service

delivery for growing effectiveness (Ruël, Bondarouk, and Looise, 2004); and transforming the HRM function into an organization's strategic partner (Lepak & Snell, 1998). The goal of this research study is to clarify the intricate links between e-HRM adoption and the transformation of the HR function into one that contributes to an organization's strategic excellence by turning it into a strategic partner. It has been discovered that operational e-HRM outcomes significantly mediate the association between e-HRM adoption and transformational e-HRM outcomes, whereas relational e-HRM outcomes also mediate the association between e-HRM adoption and transformational e-HRM outcomes. supporting previous arguments in the literature. Building a strong foundation for e-HRM at the operational level appears to be an indispensable precondition for achieving relational and transformational e-HRM outcomes (Foster, 2010; Panos & Bellou, 2016; Quaosar, Hoque & Bao, 2018). According to the cited research and empirical findings from this study, organizations striving for strategic excellence should configure e-HRM to take full advantage of its potential for operational, relational, and transformational e-HRM outcomes. Strohmeier and Kabst (2014) distinguish that non-users, operational users, and power users are the three categories in terms of e-HRM configurations. A power user configuration that combines relational, operational, and transformational e-HRM denotes the full electronization of HRM. In terms of contribution to organizational performance, the power user configuration performs better than the others (Strohmeier & Kabst, 2014). The importance of leveraging e-HRM to its fullest potential for operational, relational, and transformative e-HRM outcomes is underlined for businesses aiming for strategic excellence in organizational resilience.

Fourth, the HR department has a critical role in determining the outcomes of an organization. The roles of HR professionals have evolved from primarily being an administrative function to being one of relational and strategic relevance in the organization

(Bondarouk, Parry & Furtmueller, 2017). Kassim, Ramayah, and Kurnia (2012) point out that increased use of technology will free up HR practitioners to devote more time to bigger and more transformative challenges. Introducing e-HRM is not enough if HR managers want to achieve their strategic goals. Instead, a holistic approach should be taken to increase the efficiency of e-HRM systems, with a focus on the standard of services provided. Therefore, it is recommended that organizations make sure that their HR function has taken on the role of change strategist before e-HRM adoption. This role of HRM allows it to achieve optimal transformational outcomes. It will be expected of HR professionals to devote more time to organizational-wide challenges, issues related to strategy formulation, and organizational change initiatives. HR professionals should make data-driven decisions and encourage others to do the same with the empowering support of e-HRM. As change strategists, HR managers must accelerate organizational change to meet business imperatives. They need to be more solution-oriented and perform as a strategic partner to drive the organization forward alongside their fellow executives.

5.4 Limitations and future research recommendations

Although this study produced useful insights and findings for practitioners and academia, the researcher recognizes some limitations and offers some suggested paths for further research:

1. First, the findings of this study cannot be generalized to all other organizations since the participants in the survey were limited to human resource managers and executives from public and private sector organizations based in Pakistan. The reach of e-HRM goes beyond HR, impacting the entire organization and external stakeholders. It would be helpful for future studies to replicate the research in other departments, industries, and organizations with larger samples to evaluate the generalizability and robustness of the conclusions of this study.

2. This study addressed organizational resilience from the perspectives of robustness, agility, and integrity capacities. Future research could focus on broadening the conceptualization and operationalization of organizational resilience. Other organization-level long-term outcomes need to be regarded as response variables. Future research may also investigate additional distal outcomes of e-HRM, e.g., organizational effectiveness, organizational competitiveness, organizational growth, sustainable competitive advantage, etc.
3. The achievement of e-HRM outcomes in an organization can largely be attributed to internal factors within the organization itself. A nurturing climate and culture within the enterprise serve as key drivers, facilitating the successful implementation of e-HRM practices within the enterprise. Future research could investigate the influence of various contingency factors, such as an innovative climate, a supportive work environment, a sustainable leadership style of managers, and leadership support, on the adoption of e-HRM. Moreover, these investigations could extend their analysis to encompass both immediate and long-term outcomes associated with e-HRM adoption.
4. This study focused on the influence of adoption of e-HRM on operational, relational, and transformational e-HRM outcomes as well as on organizational resilience relationships. Other contingency factors, such as business strategy, leadership style, resilience thinking mindset, social interaction, and open communication, could affect e-HRM adoption and organizational resilience. Future studies may investigate their direct, intervening, or moderating effects on organizational resilience.
5. Measurement error could potentially exist in this study, as it is susceptible to common method variance bias or response bias due to its reliance on self-administered survey data. Respondents who expressed high satisfaction with e-HRM

may have overstated their responses. Future research efforts might consider employing objective measurements that are independently verifiable, offering a more reliable perspective.

5.5 Conclusions

The concept of electronic human resource management (e-HRM) refers to the use of information technology tools in the management of human resources. By leveraging modern technology, e-HRM has revolutionized how HRM is conducted, making it more efficient, effective, and strategic in nature. e-HRM is primarily an innovation in the field of HRM. Information technology and e-HRM contribute significantly to cost-effectiveness, increased capability and competence, increased engagement, professional development, increased consensus and cohesion, and institutional change and innovation. Research shows that despite the growing use of e-HRM to align the HR function with a strategic direction, many organizations have yet to attain the value of managing and contributing strategically. Using correlation and causal relationship analysis, the study examined how e-HRM contributes to organizational resilience. Research findings indicate that implementing e-HRM to enhance the strategic direction of HRM can positively impact organizational resilience.

This study significantly contributes to the existing knowledge on e-HRM practices and their impact on organizational resilience. Through this study, some novel insights have been gained regarding how e-HRM practices and organizational resilience are interlinked in the workplace. The study's findings provide compelling evidence to underscore the importance of e-HRM in improving HRM effectiveness. The study has effectively met its objectives by performing a thorough gap analysis, synthesizing existing literature, employing a suitable methodology, collecting and analyzing data, and ultimately drawing well-founded conclusions and recommendations.

References

Aityassine, F. L. Y. (2022). The effects of operational, relational, and transformational e-HRM practices on HR service effectiveness: The mediating role of user training. *International Journal of Data and Network Science, 6*, 1107-1114.

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhland & J. Bechman (Eds.), *Action-control: From cognitions to behavior* (pp. 11-39). Heidelburg. Springer.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Al-Ameri, B. (2017). *The implication of implementing electronic human resources management in Abu Dhabi, Department* (PhD thesis). Liverpool John Moores University, Liverpool, United Kingdom.

Al-Ayed, S. I. (2019). The impact of strategic human resource management on organizational resilience: an empirical study on hospitals. *Business: Theory and Practice, 20*, 179-1186.

Almashyakhi, A. M. (2022). An Evidence-Based Review of e-HRM and Its Impact on Strategic Human Resource Management. *Journal of Human Resource and Sustainability Studies, 10*, 542-556. https://doi.org/10.4236/jhrss.2022.103033

Amini, M., & Bakri, A. (2015). Cloud computing adoption by SMEs in the Malaysia: A multi-perspective framework based on DOI theory and TOE framework. *Journal of Information Technology & Information Systems Research, 9*(2), 121-135.

Angeles, R. (2013). Using the technology-organization-environment framework and Zuboff's concepts for understanding environmental sustainability and RFID: Two case studies. *International Journal of Economics and Management Engineering, 7*(11), 2878-2887.

Annarelli, A., & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega, The International Journal of Management. Science, 62*, 1-18.

Arif, M. (2018). ICTs and development in Pakistan: A review. *Journal of Innovations and Sustainability*, *4*(3), 7-25.

Armstrong, M. (2009). *Armstrong's handbook of human resource management practice* (11th ed.). Philadelphia PA: Kogan Page.

Baker, J. (2011). The Technology–Organization–Environment Framework. In Y. K. Dwivedi, M. Wade & S. L. Schneberger (Eds.), *Information Systems Theory: Explaining and Predicting Our Digital Society (1)*. Hamburg, Germany: University of Hamburg.

Bakry, S. H., & Bakry, F. H. (2001). A strategic view for the development of e-business. *International Journal of Network Management*, *11*(2), 103–112.

Ball, K.S. (2001) The use of Human Resource Information Systems: A survey. *Personnel Review, 30*(6), 677-693.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182.

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations, 61*(8), 1139–1160. https://doi.org/10.1177/0018726708094863

Bell, B. S., Lee, S. -W., & Yeung, S. K. (2006). The impact of e-HRM on professional competence in HRM: implications for the development of HR professionals. *Human Resource Management, 45 (3)*, 295-308.

Bentler, P. M., & Chou, C. P. (1987). *Practical issues in structural modeling*. Sociological Methods & Research, 16(1), 78–117. https://doi.org/10.1177/0049124187016001004

Bernard, H. R. & Bernard. R. (2012). *Social research methods: Qualitative and Quantitative approaches*. Thousand Oaks, California: Sage Publications.

Besson, P., & Rowe, F. (2012). Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *The Journal of Strategic Information Systems*, *21*(2), 103-124.

Bhattacharyya, D. K. (2011). *Performance management systems and strategies*. New Dehli, India: Pearson India.

Bissola, R., & Imperatori, B. (2013). Facing e-HRM: The consequences on employee attitude towards the organisation and the HR department in Italian SMEs. *European Journal of International Management, 7*(4), 450-468.

Blumberg, B., Cooper, D. R., & Schindler, P. S. (2014). *Business Research Methods*. New York, NY: McGraw-Hill Publishing.

Bondarouk, T., Harms, R., & Lepak, D. (2017). Does e-HRM lead to better HRM service? *The International Journal of Human Resource Management*, *28*(9), 1332-1362.

Bondarouk, T., Parry, E., & Furtmueller, E. (2017). Electronic HRM: Four decades of research on adoption and consequences. *The International Journal of Human Resource Management*, *28*(1), 98-131.

Bondarouk, T., Schilling, D., & Ruël, H. J. M. (2016). e-HRM adoption in emerging economies: The case of subsidiaries of multinational corporations in Indonesia. *Canadian Journal of Administrative Sciences*, *33*(2), 124-137.

Bondarouk, T., & Ruël, H. J. M. (2006, November 4-5). *Does e-HRM contribute to HRM Effectiveness? Results from a quantitative study in a Dutch Ministry*. Paper presented at the 4th International Conference of the Dutch HRM Network, Enschede, The

Netherlands. Retrieved from https://ris.utwente.nl/ws/portalfiles/portal/25271128/HRM_Network_2005.pdf

Bondarouk, T. V., & Ruël, H. J. M. (2009). Electronic Human Resource Management: Challenges in the digital era. *The International Journal of Human Resource Management, 20*(3), 505-514.

Broderick, R. F. & Boudreau, J.W. (1998). Human resource management, information technology, and the competitive advantage. *Academy of Management Perspectives, 6*(2), 7-17.

Bryman, A. (2012). *Social research methods* (5th ed.). Oxford: Oxford University Press.

Cai, R. (2023). *e-HRM as strategic capability to achieve transformational outcomes* (DBA thesis). Faculty of Humanities, University of Manchester, Manchester, United Kingdom. https://pure.manchester.ac.uk/ws/portalfiles/portal/272870169/FULL_TEXT.PDF

Capriotti, P. (2009). E-Communication in the information society and the impact of new technologies on employee communication. In T. Torres-Coronas & M. Arias-Oliva (Eds.), *Encyclopedia of Human Resources Information Systems: Challenges in e-HRM, I* (pp. 248-255). Hershey, PA: Information Science Reference.

Choochote, K., & Chochiang, K. (2015). Electronic human resource management (e-HRM) of hotel business in Phuket. *International Journal of Advanced Computer Science and Applications, 6*(4), 73-78.

Cooper, D. R., & Schindler, P.S. (2003). *Business Research Methods* (8th ed.). Irwin, Boston: McGraw-Hill.

Cooper, D. R., & Schindler, P. S. (2006). *Business Research Methods* (9th ed.). New Delhi, India: McGraw-Hill.

Cooper, R. B., & Zmud, R. W. (1990). Information technology implementation research: A technological diffusion approach. *Management Science*, *36*(2), 123-139.

Creswell, J. W. (1994). *Research design: qualitative & quantitative approaches*. Thousand Oaks, California: Sage Publications.

Dalston, T. (2009). *Evaluating E-Training for public library staff: A quasi-experimental investigation* (Doctoral dissertation). University of North Texas, Denton, United States.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-339.

De Alwis, A. C., Andrlić, B., & Šostar, M. (2022). The Influence of e-HRM on modernizing the role of HRM context. *Economies*, *10*(8), 181, 1-13.

De Vaus, D. A. (2001). *Research Design in Social Research*. London: London: Sage Publications.

Doe, P. J. (1994). Creating a resilient organization. *Canadian Business Review*, *21*(2), 22-25.

Dory, K., Hall, R., Wailes, N., & Wiblen, S. (2013). Lost in translation? An actor-network approach to HRIS implementation. *The Journal of Strategic Information Systems*, *22*(3), 225-237.

Doe, P. J. (1994). Creating a resilient organization. *Canadian Business Review*, *21*(2), 22-25.

Douglas, S. (2021). Building Organizational Resilience through Human Capital Management Strategy. *Development and Learning in Organizations*, (). https://doi.org/10.1108/DLO-08-2020-0180

Duchek, S. (2019). Organizational resilience: A capability-based conceptualization. *Business Research*. http://doi:10.1007/s40685-019-0085-7

Dulebohn, J. H. & Marler, J. (2005). E-compensation: The potential to transform practice. In H. G. Gueutal, & D. L. Stone and (Eds.), *The Brave New World of eHR* (pp. 166-189). San Francisco, CA: Jossey-Bass.

Dunn, S. C., Seaker, F. R., & Matthew, A. W. (1994). Latent variables in business logistics research: Scale development and validation. *Journal of Business Logistics, 15*(2),145-172.

Elsawy, M. M., & Ali, A. A. E. (2021). Assessing the impact of E-HRM on organisational performance: An empirical study. *Indian Journal of Economics and Business, 20*(3), 1491-1504.

Esch, E.v., Wei, L., & Chiang, F. (2018). High-performance human resource practices and firm performance: the mediating role of employees' competencies and the moderating role of climate for creativity. *International Journal of Human Resource Management, 29*(10), 1683-1708. https://doi.org/10.1080/09585192.2016.1206031

Fındıklı, M. A. & Bayarçelik, E. B. (2015). Exploring the outcomes of electronic human resource management (E-HRM)? *Procedia - Social and Behavioral Sciences 207,* 424-431.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research 18*(1), 39-50.

Foster, S. (2010). *Making sense of e-HRM: Technological frames, value creation and competitive advantage* (Doctoral dissertation). University of Hertfordshire, Hatfield, United Kingdom.

Frennert, S. A., Forsberg, A., & Östlund, B. (2013). Elderly people's perceptions of a telehealthcare system: Relative advantage, compatibility, complexity and observability. *Journal of Technology in Human Services, 3*, 218-237. http://dx.doi.org/10.1080/15228835.2013.814557

Galhena, B. L. (2015). *Behavior of e-HRM adoption: Empirical evidence form organizations in developing context*. Proceedings of the 2nd International Symposium on Partial Least Squares Path Modeling - The Conference for PLS Users. University of Twente.

Galhena, B. L. (2022). Determinants of operational e-HRM adoption behavior of the firms in Sri Lanka: An integrated model. *Kelaniya Journal of Human Resource Management, 17*(01), 24-59. http://doi.org/10.4038/kjhrm.v17i1.75

Gardner, S. D., Lepak, D. P., & Bartol, K. M. (2003). Virtual HR: Impact of Information Technology on the Human Resource Professional. *Journal of Vocational Behavior, 63*(2), 159-179.

Garson, G. D. (2012). *Testing statistical assumption* (12th ed.). Asheboro, NC: Statistical Publishing Associates.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.

Guba, E. G. (1990). The alternative paradigm dialog. In E. G. Guba (Ed.), *The paradigm dialog*. Newbury Park, CA: Sage.

Hair, J. F., Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2006). Multivariate Data Analysis (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2010). Multivariate Data Analysis (7th Ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Jr., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis, 1*(2), 107-123. https://doi.org/10.1504/ijmda.2017.10008574

Hanif, M., & Imran, M. (2017). Prevalent problems of HR practices in organizations and their solution: Pakistani context. *Science International, 29(*2), 481-488.

Harrington, D. (2009). *Confirmatory Factor Analysis: Pocket Guides to Social Work Research Methods.* New York: Oxford University Press.

Hillmann, J. & Guenther, E. (2021), Organizational Resilience: A valuable construct for management research? *International Journal of Management Reviews, 23*, 7-44. https://doi.org/10.1111/ijmr.12239

Horne, J. F. (1997). The coming age of organizational resilience. *Business Forum, 22*, 24-28.

Horne, J. F., & Orr, J. E. (1998). Assessing behaviors that create resilient organizations. *Employment Relations Today, 24,* 29-39.

Hosain, M. S. (2017). The impact of e-HRM on organizational performance: Evidence from selective service sectors of Bangladesh. *International Journal of Human Resources Management, 6*(3), 1-14.

Hu, L.-t., & Bentler, P. M. (1998). Fit indices in sovariance structure modeling: Sensitivity to underparameterized model misspecification, *Psychological Methods, 3*(4): 424-453.

Iqbal, N., Ahmad, M., Razik, M. M., & Borini, F. M. (2019). Linking e-HRM practices and organizational outcomes: empirical analysis of line manager's perception. *Review of Business Management, 21*(1), .48-69.

Ishrat, K., Khan, M. K., Nadeem, S. & Aziz, A. (2020). The impact of e-HRM practices on employee productivity in hospitals of Karachi. *International Journal of Innovation, Creativity and Change, 14*(7), 462-482.

Jack, B., & Clark, A. (1998). The purpose and use of questionnaire in research. *Professional Nurse, 14*,176-179.

Jebeile, S., & Reeve, R. (2003). The diffusion of E-Learning innovations in an Australian secondary college: Strategies and tactics for educational leaders. *The Innovation Journal, 8*(4), 1-21.

Johnson, R. D. & Gueutal, H. G. (2011). *Transforming HR Through Technology: The use of E-HR and HRIS in organizations.* Alexandria, VA: SHRM Foundation.

Jones, M., & Rattray, J. (2010). *Questionnaire design* (6th ed.). Oxford: Wiley-Blackwell.

Julie. (2021, January 29). Benefits of Manager Self Service Software. *HR Professionals Magazine for Human Resource Professionals.* Alexandria, VA: Society for Human Resource Management. https://hrprofessionalsmagazine.com/2021/01/29/benefits-of-manager-self-service-software/

Kantur, D., & Iseri-Say, A. (2015). Measuring organizational resilience: a scale development. *Journal of Business, Economics & Finance, 4*(3), 456-472.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Quarterly, 23*(2), 1999, 183-213.

Kassim, N. M., Ramayah, T., & Kurnia, S. (2012). Antecedents and outcomes of human resource information system (HRIS) use. *International Journal of Productivity and Performance Management, 61*(6).

Keegan, A., & Francis, H. (2008). HRM, technology and strategic roles: considering the social implications. In G. Martin, M. Reddington, & H. Alexander (Eds.), *Technology, Outsourcing and Transforming HR* (pp. 421-447). Amsterdam, Germany: Elsevier.

Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of Behavioral Research* (4th ed.). Orlando, FL: Harcourt College Publishers.

Khashman, A. M. & Al-Ryalat, H. A. (2015). The impact of electronic human resource management (E-HRM) practices on business performance in Jordanian telecommunications sector: The employees perspective. *Journal of Management Research, 7*(3), 115-129.

Kumar, R. (2011). *Research methodology – A step-by-step guide for beginners* (3rd ed.). London: Sage Publications.

Kwak, S. K., & Kim, J. H. (2017). Statistical data preparation: management of missing values and outliers. *Korean Journal of Anesthesiology, 70*(4), 407-411. https://doi.org/10.4097/kjae.2017.70.4.407

Lawler, E. E., & Mohrman, S. A. (2003). HR as a strategic partner: What does it take to make it happen? *Human Resource Planning, 26*(3), 15-29.

Liang, T., & You, J. J. (2009). Resource-based view in information systems research: A meta-analysis. *PACIS 2009 Proceedings.*

Liang, X. (2009). Transforming compensation management practices through Web-based enterprise technologies. In T. Torres-Coronas & M. Arias-Oliva (Eds.), *Encyclopedia of Human Resources Information Systems: Challenges in e-HRM, II* (pp. 877-882). Hershey, PA: Information Science Reference.

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology, 22*(140), 1-55.

Lee, L., Petter, S., Fayard, D., & Robinson, S. (2011). On the use of partial least squares path modeling in accounting research. *International Journal of Accounting Information Systems, 12*(4), 305-328.

Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review, 21*(3), 243-255.

Lengnick-Hall, M. L., & Moritz, S. (2003). The impact of e-HR on the human resource management function. *Journal of Labor Research, 24*(3), 365-379.

Lepak, D. P., & Snell, S. A. (1998). Virtual HR: Strategic human resource management in the 21st century. *Human Resource Management Review, 8*, 215-234.

Lepak, D. P., Bartol, K. M. & Erhardt, N. L. (2005). A contingency Framework for the delivery of HR practices. *Human Resource Management Review, 15,* 139-159.

Linnenluecke, M. K. (2017). Resilience in business and management research: A review of influential publications and a research agenda. *International Journal of Management Reviews, 19,* 4-30.

Liu, Y., Chen, R., Zhou, F., Zhang, S., & Wang, J. (2021). Analysis of the influencing factors of organizational resilience in the ISM framework: An exploratory study based on multiple cases. *Sustainability*, *13*(23), Article 13492. https://doi.org/10.3390/su132313492

Mallak, L. A. (1998). Measuring resilience in health care provider organizations. *Health Manpower Management 24*(4), 148-152.

Manzoor, A., & Sohaib, M. (2021). Exploring the critical functions of electronic human resource management in banking sector of Pakistan. *Journal of Social Sciences, 12*(1), 17-24.

Marler, J. H., & Fisher, S. L. (2010). An evidence-based review of e-HRM and strategic human resource management. In S. Strohmeier (Ed.), *Evidence-Based e-HRM? On the way to rigorous and relevant research.* Proceedings of the Third Academic Workshop on electronic Human Resource Management (pp. 33-51). Saarland University, Bamberg, Germany.

Marler, J. H., & Fisher, S. L. (2013). An evidence-based review of e-HRM and strategic human resource management. *Human Resource Management Review, 23*(1), 18-36.

Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement and e-HRM technology. *The International Journal of Human Resource Management, 27*(19), 2233-2253.

Marler, J. H., Fisher, S. L., & Ke, W. (2009). Employee self-service technology acceptance: A comparison of pre-implementation and post-implementation relationships. *Personnel Psychology, 62*, 327-358.

Martin, G. & Reddington, M. (2010) Theorising the link between e-HR and Strategic HRM: A model, case illustration and reflections, *The International Journal of Human Resources Management, 21*(10), 1553-1574.

Martini, M., Cavenago, D. & Marafiot, E. (2020). Exploring types, drivers and outcomes of social e-HRM. *Employee Relations: The International Journal, 43*(3), 788-806.

Masood, T. (2010). *Impact of Human resource management (HRM) practices on organizational performance: A mediating role of employee performance* (Doctoral dissertation). Muhammad Ali Jinnah University, Department of Management Sciences, Islamabad, Pakistan.

Micu, A., Capatina, A., Micu, A. E., & Schin, G. (2017). Exploring e-HCM systems' benefits in organizations from private sector and public administration. *Journal of Promotion Management. 23*(3), 407-418.

Milon, M., Alam, Md. A., & Pias, M. H. (2022). Exploring the key practices of E-HRM in place of traditional HRM: A study on private industry of Bangladesh. *Journal of Human Resource and Sustainability Studies, 10*, 403-417.

Mndzebele., N. (2013). The effects of relative advantage, compatibility and complexity in the adoption of EC in the hotel industry. *International Journal of Computer and Communication Engineering, 2*(4), 473-476.

Montoya, A. K. (2024). Combining Statistical and Causal Mediation Analysis. PsyArXiv. https://doi.org/10.31234/osf.io/f8paj

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions adopting an information technology adoption. *Information Systems Research, 2*, 192-222.

Nenwani, P. J., & Raj, M. D. (2013). E-HRM prospective in present scenario. *International Journal of Advance Research in Computer Science and Management Studies, 1*(7), 222-228.

Ndayizigamiye, P., & McArthur, B. (2014). Determinants of e-commerce adoption amongst SMMEs in Durban, South Africa. *Mediterranean Journal of Social Sciences, 5*(25), 250-256.

Njoku, E. (2016). *An analysis of the contribution of e-HRM to sustaining business performance* (PhD thesis). Business School, Faculty of Business and Society, University of South Wales, Newport, United Kingdom.

Nunnally, J. C. (1967). *Psychometric theory.* New York: McGraw-Hill.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Nunnally, J. C. (1994). *Psychometric theory* (3rd ed.). Tata McGraw-Hill Education.

Obeidat, S. M. (2016). The link between e-HRM use and HRM effectiveness: An empirical study. *Personnel Review, 45(*6), 1281-1301.

Ojha, A., Sahu, G., & Gupta, M. (2009). Antecedents of paperless income tax filing by young professionals in India: An exploratory study. *Transforming Government: People, Process and Policy, 3*(1), 65-90.

Oliveira, T., & Martins, M, F. (2011). Literature review of information technology adoption models at firm level. *The Electronic Journal Information Systems Evaluation, 14*(1), 110-121.

Omran, K., & Anan, N. (2018). Studying the impact of using E-HRM on the effectiveness of HRM practices: An exploratory study for the internet service providers (ISP) in Egypt.

International Journal of Academic Research in Business and Social Sciences, 8(4), 458-492.

Osborne, J. W. (2010). Data cleaning basics: Best practices in dealing with extreme scores. *Newborn and Infant Nursing Reviews, 10*(1), 37-43. https://doi.org/10.1053/j.nainr.2009.12.009

Panos, S., & Bellou, V. (2016). Maximizing e-HRM outcomes: a moderated mediation path. *Management Decision, 54*(5), 1088-1109.

Parry, E. (2011). An examination of e-HRM as a means to increase the value of the HR function. *The International Journal of Human Resource Management, 22*(05), 1146-1162.

Parry, E., & Tyson, S. (2011). Desired goals and actual outcomes of e-HRM. *Human Resource Management Journal, 21*(3), 335-354.

Payne, S. C., Mendoza, A. M., & Horner, M. T. (2018). Electronic performance management: Does altering the process improve the outcome? In D. L. Stone & J. H. Dulebohn (Eds.), *The Brave New World of eHRM 2.0* (pp. 189-215). Charlotte, NC: Information Age.

Plouffe, C. R., Vandenbosch, M., & Hulland, J. (2001). Intermediating technologies and multi-group adoption: A comparison of consumer and merchant adoption intentions toward a new electronic payment system. *The Journal of Product Innovation Management, 18*, 65–81.

Poisat, P., & Mey, M. R. (2017). Electronic human resource management: Enhancing or entrancing? *SA Journal of Human Resource Management, 15*, 1683-7584.

Premkumar, G., & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega, The International Journal of Management. Science, 27*, 467-484.

Prodan, M., Prodan, A., & Purcarea, A. A. (2015). Three new dimensions to people, process, technology improvement model. In A. Rocha, A. Correia, S. Costanzo & l. Reis (Eds.), *New Contributions in Information Systems and Technologies. Advances in Intelligent Systems and Computing, 353* (pp. 481-490). Switzerland: Springer.

Quaosar, G. M. A. A., Hoque, M. R., & Bao, Y. (2018). Investigation on the precursors to and effects of human resource information system use: The case of a developing country. *Cogent Business & Management, 5*(1), 1-15.

Rahman, M., Mordi, C., & Nwagbara, U. (2018). Factors influencing E-HRM implementation in government organisations: Case studies from Bangladesh. *Journal of Enterprise Information Management, 31*(2), 247-275.

Rahman, M. S., & Hosain, M. S. (2021). E-HRM Practices for Organizational Sustainability: Evidence from Selected Textile Firms in Bangladesh. *Asian Journal of Economics, Business and Accounting, 21*(1), 1-16.

Rathee, R., & Bhuntel, R. (2022). Innovative e-HRM practices in IT organizations. *YMER, 21*(1), 605-621.

Rao, R. V., & Alshar, M. M. (2021). The impact of e-HRM practices on employees experience and their satisfaction in Jordanian banks. *International Research Journal of Modernization in Engineering Technology and Science, 3*(8), 994-999.

Remenyi, D., Money, A., & Twite, A. (1993). *A guide to measuring and managing IT benefits.* Oxford: NCC Blackwell Ltd.

Robb, D. (2010, November 1). Making the move to manager self-service. *HR Magazine.* Alexandria, VA: Society for Human Resource Management. https://www.shrm.org/hr-today/news/hr-magazine/pages/1110tech.aspx

Rogers, E. M. & Wright, P. M. (1998). 'Measuring organisational performance in Strategic human resource management: problems, perspectives and performance information markets. *Human Resource Management Review, 8*(3), 311-331.

Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press of Glencoe.

Rogers, E. M. (1995). *Diffusion of Innovations* (4th ed.). New York, NY: The Free Press.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: The Free Press.

Ruël, H., Bondarouk, T., & Looise, J. K. (2004). E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM. *Management Review, 15*(3), 364-380.

Ruël, H. J. M., Bondarouk, T. V., & Van der Velde, M. (2007). The contribution of e-HRM to HRM effectiveness: Results from a quantitative study in a Dutch Ministry. *Employee Relations, 29*(3), 280-291.

Ruël, H. J. M., Magalhaes, R. & Chiemeke, C. C. (2011) Human Resource Information Systems: An Integrated research agenda, In T. V. Bondarouk, H. J. M. Ruel & J. C. Looise (eds.), *Electronic HRM in theory and Practice, Advanced series in Management*. Emerald Group Publishing Limited.

Ruta, C. D. (2009). HR portal: A tool for contingent and individualized HRM. In T. Bondarouk, H. Ruel, K. Guiderdoni-Jourdain & E. Oiry (Eds.), *Handbook of research on E-transformation and human resources management technologies: Organizational Outcomes and Challenges* (pp. 20-33). Hershey, PA: IGI Global,

Sabir, F., Abrar, M., Bashir, M., Baig, S. A., & Kamran, R, (2015). e-HRM impact towards company's value creation: Evidence from banking sector of Pakistan. *International Journal of Information, Business and Management, 7*(2), 123-143.

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business Students* (6th ed.). Harlow, England: Pearson Education Limited.

Schaupp, L. C., Carter, L., & McBride, M. E. (2010). E-file adoption: A study of US taxpayers' intentions. *Computers in Human Behavior, 26*(4), 636–644.

Sekaran, U. (2003). *Research Methods for Business, A skill Building Approach* (4th ed.). New York, NY: John Wiley & Sons.

Sekaran, U., & Bougie, R. (2013). *Research Methods for Business: A Skill-Building Approach* (6th ed.). New York, NY: John Wiley & Sons.

Shackman, J. D. (2013). The use of partial least squares path modeling and generalized structured component analysis in international business research: a literature review. *International Journal of Management*, 30(3), 78-85.

Shrivastava, S. & Shaw, J. B. (2003) Liberating HR through Technology. *Human Resource Management, 42*, 201-222. http://dx.doi.org/10.1002/hrm.10081

Siddiqui, K. (2013). Heuristics for sample size determination in multivariate statistical techniques. *World Applied Sciences Journal 27*(2), 285-287.

Sobel, M.E. (1982) Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology, 13*, 290-321.

Strohmeier, S. (2007). Research in e-HRM: Review and implications. *Human Resources Management Review 17*(1), 19-37.

Strohmeier, S. (2009). Concepts of e-HRM consequences: a categorization, review and suggestion. *The International Journal of Human Resource Management, 20*(3), 528-543.

Strohmeier, S. (2013). Employee relationship management - Realising competitive advantage through information technology? *Human Resource Management Review, 23*(1), 93-104.

Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. *German Journal of Human Resource Management, 34*(3), 345-365. https://doi.org/10.1177/2397002220921131

Strohmeier, S., & Kabst, R. (2014). Configurations of e-HRM: An empirical exploration. *Employee Relations, 36*(4), 333-353.

Sutner, S. (2022, December 09). *Employee self-service (ESS).* Tech Target Network. https://www.techtarget.com/searchhrsoftware/definition/employee-self-service

Tan, K. S., & Eze, U. C. (2008). An empirical study of internet-based ICT adoption among Malaysian SMEs. *Communications of the IBIMA, 1*, 1-12.

Tansley, C., Newell, S., & Williams, H. (2001). Effecting HRM-style practices through an integrated human resource information system. *Personnel Review, 30*, 351-371.

Teo, T. S. H., Lim, G. S., & Fedric, S. A. (2007). The adoption and diffusion of human resources information systems in Singapore. *Asia Pacific Journal of Human Resources, 45*(1), 44-62.

Thathsara, A. D. S. & Sutha, J. (2021). Investigating the influence of E-HRM practices on organizational performance: The mediating role of organizational agility (with special reference to financial institution). *International Journal of Engineering and Management Research, 11*(1), 1-8. https://doi.org/10.31033/ijemr.11.1.1

Thomas, A. B. (2004). *Research skills for management studies*. London: Routledge.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation.* Lexington, MA: Lexington Books.

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management, 1*, 28–45.

Trochim, W. M. K. (2006). *Research Methods Knowledge Base*. Retrieved from https://conjointly.com/kb/

Umar, T. R., Yammama, B. A., & Shaibu. (2020). The implications of adopting and implementing electronic human resource management practices on job performance. *Journal of Human Resource Management, 8*(2), 96-108.

Venkatesh, V., Morris, G. M., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a uniform view. *MIS Quarterly, 27*(3), 425-478.

Vizcarguenaga-Aguirre, I. & López-Robles, J. R. (2020). *Mono, mixed or multiple strategy approach: a descriptive study of the latest published articles in the International Journal of Project Management*. 3rd International Conference on Research and Education in Project Management. University of the Basque Country.

Welbourne, T. M. (2010). New media: Opportunity or curse for HR? *Human Resource Management, 49*(1), 1-2.

Wright, P. M., & Dyer, L. (2000). *People in the E-Business: New challenges, new solutions* (CAHRS Working Paper #00-11). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies.

Yu, J., Yuan, L., Han, G., Li, H., & Li, P. (2022). A Study of the Impact of Strategic Human Resource Management on Organizational Resilience. *Behavioral Sciences, 12*(508), 1-18. https://doi.org/10.3390/bs12120508

Zafar, J., Shaukat, M., & Mat, N. (2010). An analysis of e-human resource management practices: A case study of State Bank of Pakistan. *European Journal of Social Sciences,15*(1),18-26.

Zhao, X., Lynch, J. G., & Chen, Q. (2010), Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research, 37*(3), 197-206.

Zuboff, S. (1988). *In the age of the smart machine: The future of work and power*. New York, NY: Basic Books.

QUESTIONNAIRE

Dear Sir / Madam,

This research aims to explore the relationships between e-HRM practices and organizational resilience as perceived by HRM professionals. This doctoral study is for academic purposes only. Your confidentiality is guaranteed, and your data will not be reported individually. Your personal and honest views, perceptions, and opinions about your work setting will help me complete this research.

PLEASE ENCIRCLE THE APPROPRIATE OPTION

Gender: (**1**) Male (**2**) Female

Age (Years): (**1**) 25 or below (**2**) 26-30 (**3**) 31-35 (**4**) 36-40

(**5**) 41-45 (**6**) 46-50 (**7**) 51 and above

Education: (**1**) Bachelor's degree (**2**) Master's degree (**3**) Others

Experience: (**1**) 5 years or below (**2**) 6-10 years (**3**) 11-15 years

(**4**) 16-20 years (**5**) 21-25 years (**6**) 26 years and above

Profession: (Optional) ……

Organization: (Optional) ……

Sector: (**1**) Public (**2**) Private

How long you had e-HRM implemented in your organization? (In Years)

(**1**) Less than 1 (**2**) 1-3 (**3**) 4-5 (**4**) More than 5

The following statements ask about the way you feel, think, view, perceive, or opine in your organization. For each statement, please encircle the number that most appropriately matches your answer, by using the scale given below:

(**1**) Strongly disagree (**2**) Disagree (**3**) Neutral (**4**) Agree (**5**) Strongly agree

	How do you feel, think, view, perceive or opine about following statements during your job?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Relative advantage					
1.	Using e-HRM enables me to accomplish tasks more quickly.	(**1**)	(**2**)	(**3**)	(**4**)	(**5**)

	How do you feel, think, view, perceive or opine about following statements during your job?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.	Using e-HRM improves the quality of work I do.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	Using e-HRM makes it easier to do my job.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	Using e-HRM enhances my effectiveness on the job.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
5.	Using e-HRM gives me greater control over my work.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Compatibility					
1.	Using e-HRM is compatible with all aspects of my work.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	I think that using e-HRM fits well with the way I like to work.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	Using e-HRM fits into my work style.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Complexity					
1.	My interaction with e-HRM is clear and understandable.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	I believe that it is easy to get e-HRM to do what I want to do.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	Overall, I believe that e-HRM is easy to use.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	Learning to operate e-HRM is easy for me.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Trialability					
1.	Before deciding to use e-HRM applications, I was able to properly try them out.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	I was permitted to use e-HRM on trial basis long enough to see what it could do.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	I am able to experiment with e-HRM as necessary.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Visibility					
1.	In my organization, one sees e-HRM on many desks.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	e-HRM is *not* very visible in my organization.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	I have had plenty of opportunity to see e-HRM being used.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**

	How do you feel, think, view, perceive or opine about following statements during your job?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	e-HRM practices					
1.	My organization finds the candidates through online as their recruitment process for the purpose of cost and time saving.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	My organization involves in online selection process conducting interview and preliminary test though audio and video conferencing method.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	My organization has full phrase of e-training facility for the current employees to improve their skills that are required to perform their jobs efficiently.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	My organization uses software programs to measure employee performance, record performance, and review employee feedback for future improvements.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
5.	My organization tends to follow the online system that administers compensation related issues of employees.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
6.	My organization has the system of keeping the employees' past and present documents for future reference.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
7.	My organization uses the Internet to deliver promotional messages to potential candidates through digital channels such as search engines, email, websites, and social media.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
8.	My organization receives applications through online from the potential candidates for current and future job vacancies.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
9.	My organization uses the internet and their own website for their day-to-day business communication such as receiving and sending e-mail from inside or outside of organizations.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
10.	My organization helps the employees through online by using emotional intelligence.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
11.	My company uses a web-based leave management system to track all of its employees' leave records, entitlements, and balances.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**

	How do you feel, think, view, perceive or opine about following statements during your job?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Operational e-HRM outcomes					
1.	The adoption of e-HRM system by the organization improved effectiveness of the HR functions.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	The introduction of e-HRM system to your organization allowed the integration of dispersed HR functions.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	The implementation of e-HRM system led to the reduction of HR department headcount.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	The e-HRM system exploitation led to the integration and harmonization of HR activities	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Relational e-HRM outcomes					
1.	The organization gained high internal client satisfaction with the implementation of the current e-HRM system.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	The investment in the current e-HRM system led to a noticeable enhancement of employee communications.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	The implementation of the current e-HRM system contributed to the optimization of the workflow between HR department management and employees.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	The implementation of e-HRM has improved the total quality of HR support to employees.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Transformational e-HRM outcomes					
1.	The e-HRM system implementation led to the decentralization of HR activities by shifting execution responsibility to line management and employees.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	The e-HRM system contributes in realizing organizational values and culture changes made within the organization.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	The implementation of the current e-HRM system shifted administrative activities to employees through self-service technologies.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	e-HRM system implementation led to improved talent management through E-performance management and self-assessment.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**

	How do you feel, think, view, perceive or opine about following statements during your job?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5.	The introduction of e-HRM allowed HR professionals of your organization to focus on more meaningful tasks that provide increased value to your organization.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
6.	The improved accuracy and quality of the information derived from the e-HRM system contributed to the formulization of the organizational strategy.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
7.	The adoption of e-HRM technology was driven by the need of your organization's HR department to spend more time on HR planning activities.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
8.	e-HRM systems allow HR staff to redirect time onto strategic initiatives.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Organizational resilience					
	Robustness					
1.	My organization stands straight and preserves its position.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
2.	My organization is successful in generating diverse solutions.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
3.	My organization shows resistance to the end in order not to lose.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
4.	My organization does not give up and continues its path.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Agility					
5.	My organization rapidly takes action.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
6.	My organization develops alternatives in order to benefit from negative circumstances.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
7.	My organization is agile in taking required action when needed.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Integrity					
8.	My organization is a place where all the employees are engaged to do what is required from them.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
9.	My organization is successful in acting as a whole with all of its employees.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**

Rev: December 31, 2023

Appendix A

ERP/e-HRM USER ORGANIZATIONS

SAP ERP/HCM/SuccessFactors Users List

	Private	34.	Alka Pvt. Ltd.
1.	Indus Motors Ltd.	35.	ICI Pakistan Ltd.
2.	Atlas Honda Ltd.	36.	Sitara Chemical Industries Ltd.
3.	Atlas Autos Pvt Ltd.	37.	Ittehad Chemical Ltd.
4.	General Tyres & Rubber Company	38.	Mayfair Textiles
5.	Thal Ltd.	39.	Din Leather Pvt. Ltd
6.	Seimens (Pakistan) Engg Company	40.	International Textile Ltd. Pakistan
7.	Atlas Engineering	41.	Khaadi
8.	Lucky Cement	42.	United Textile Ltd.
9.	Pakland Cement Ltd.	43.	Naya Tel (Pvt.) Ltd
10.	Saadi Cement Ltd.	44.	Oxford University Press, Pakistan
11.	OBS Pharma	45.	Karachi Electric Supply Corporation
12.	Ali Gohar Pharmaceutical	46.	KSB Pumps
13.	Getz Pharma	47.	Exide Pakistan
14.	Hilton Pharma (Pvt.) Ltd.	48.	Abu Dawood Trading Company
15.	Macter Pharma International	49.	Dewan Group of Companies
16.	Punjab Beverages	50.	Engro Eximp (Pvt.) Ltd.
17.	Orient Electronics	51.	Engro Eximp AgriProducts Ltd.
18.	Colgate Palmolive Pakistan	52.	Metro Habib Cash & Carry
19.	Continental Biscuits Ltd.	53.	Atlas Hitech
20.	Asian Foods		
21.	Coca Cola Beverages Ltd.		**Public**
22.	Tapal Tea (Pvt.) Ltd.	1.	Pakistan Refinery Limited
23.	Cadbury Pakistan	2.	Pak Arab Refinery Limited
24.	National Foods Limited	3.	Government Holdings Pvt. Ltd.
25.	Engro Foods (Pvts.) Ltd.	4.	Pakistan State Oil
26.	Packages Ltd.	5.	Pakistan Telecommunication Ltd.
27.	Tri-Pack Films	6.	National Telecommunication Corp.
28.	National Refinery	7.	Ufone
29.	Byco Oil Pakistan Limited	8.	Auditor General of Pakistan
30.	Pakistan Petroleum Limited	9.	Federal Board of Revenue
31.	Mari Petroleum Company Limited	10.	Higher Education Commission
32.	Engro Fertilizer Ltd.	11.	National Bank of Pakistan
33.	DIC Pakistan Ltd.		

Source: *SAP Enterprise Business Solution*. Siemens (Pakistan) Engineering Co. Ltd. https://assets.new.siemens.com/siemens/assets/api/uuid:b7138aae-5468-47f9-848a-434005d5a56a/EBS-brouchure.pdf

	Private	57.	FFBL
54.	Shell Pakistan	58.	Mari Petroleum Company Limited
55.	Lucky Cement Limited	59.	Exide Pakistan Ltd.
56.	Coca Cola	60.	Indus Motor Company Ltd.

61.	Pepsi	87.	Thal Limited
62.	Eni Pakistan Ltd.	88.	Allied Bank Limited
63.	Fauji Fertilizer Company Ltd.	89.	Soneri Bank Limited.
64.	Dalda Foods Ltd.	90.	Continental Biscuits Ltd.
65.	TOTAL	91.	MCB Bank Limited
66.	Pak Suzuki Motor Company Limited	92.	Sitara Chemical Industries Ltd
67.	Colgate-Palmolive Pakistan Limited.	93.	K-Electric Limited
68.	Amreli Steels Ltd.	94.	EBM Private Ltd.
69.	Byco		
70.	Dewan Salman Fibre Ltd.		**Public**
71.	Bulleh Shah Packaging (Pvt.) Ltd.	12.	Ministry of Finance, Govt. of Pakistan
72.	Tapal Tea (Private) Ltd.	13.	Government Holdings (Private) Ltd.
73.	Unilever Pakistan Limited	14.	Controller General of Accounts
74.	Descon	15.	Pakistan State Oil
75.	Packages Limited	16.	Pakistan Petroleum Limited
76.	National Foods Limited	17.	Higher Education Commission
77.	Orient Electronics	18.	PARCO
78.	Telenor Pakistan	19.	Pakistan Refinery Limited
79.	Volta Batteries	20.	Ufone Pakistan
80.	National Refinery Limited	21.	FESCO
81.	Mobilink	22.	National Bank of Pakistan
82.	FINCA Pakistan	23.	GEPCO
83.	Habib Bank Limited	24.	SEPCO
84.	Mayfair/Asian Food Industries	25.	IESCO
85.	Nestlé Pakistan	26.	MEPCO
86.	Dubai Islamic Bank		

Source: F. Zahid. Account Director-Large Enterprise, *SAP Pakistan* (personal communication, October 21, 2019)

Oracle E-Business Suite/HCM/Fusion Cloud HCM Users List

	Private	17.	FedEx
1.	United Bank Ltd.	18.	K-Electric Limited
2.	Allied Bank Ltd.	19.	KAPCO
3.	Askari Bank Ltd.	20.	Central Depository Company
4.	BankIslami Pakistan Ltd.	21.	3M Pakistan
5.	MCB Bank Ltd.	22.	Atlas Honda Limited
6.	Habib Bank Ltd.	23.	OMV (Pakistan) Exploration
7.	Mobilink Microfinance Bank	24.	Siemens (Pakistan) Engg. Co. Ltd
8.	HBL Microfinance Bank	25.	Pakistan Tobacco Limited
9.	Meezan Bank Limited	26.	NCR corporation
10.	BHP Billiton Petroleum	27.	Gillette Pakistan Limited
11.	KUFPEC Pakistan	28.	LUMS
12.	Orient Petroleum Inc.	29.	IDAP, Lahore
13.	Pakistan Oilfields Limited	30.	Hamdard Laboratories Pakistan
14.	Attock Refinery Limited	31.	MOL Pakistan
15.	DP World/QICT	32.	Saudi Pak, Islamabad
16.	ALSTOM	33.	ENI Pakistan

34.	Shifa International Hospital	8.	Pakistan International Airlines
		9.	Allama Iqbal Open University
	Public	10.	Defence Housing Authority, Lahore
1.	NRSP Microfinance Bank	11.	PIEDMC, Lahore
2.	PTCL	12.	NITB, Islamabad
3.	PTA	13.	QATPL, Government of The Punjab
4.	Ufone Pakistan	14.	NUST
5.	Sui Southern Gas Company Ltd.	15.	Fauji Foundation
6.	Oil and Gas Development Company	16.	SECP, Islamabad
7.	WASA, Lahore		

Source: Ora-Tech Systems Pvt. Ltd. https://www.ora-tech.com/clientele

	Private	70.	Tata Textile Mills Ltd.
35.	Gul Ahmed Textile Mills Limited	71.	Ibrahim Group
36.	Attock Refinery Limited	72.	Greenstar Social Marketing Pakistan
37.	Dawlance Electronics Pvt. Ltd.	73.	EFU Life Assurance Ltd
38.	Bestway Cement Limited	74.	Engro Corporation
39.	Soorty Denim Mill	75.	United Bank Limited
40.	Karachi Stock Exchange	76.	Fauji Fertilizer Company Limited
41.	DG Khan Cement Company Ltd.	77.	Crescent Steel
42.	HUBCO	78.	Herbion Pakistan (Pvt) Ltd
43.	Pak Elektron Ltd.	79.	Allied Bank Limited
44.	Mazars Pakistan	80.	M&P
45.	Pepsi	81.	Arif Habib Limited
46.	Lucky Textile Mills Limited	82.	IBM
47.	Quadri Group	83.	Faisal Bank Limited
48.	Al-Abbas Sugar Mills Limited	84.	First Credit & Investment Bank Ltd.
49.	Crescent Steel and Allied Products	85.	OBS Healthcare
50.	Feroze1888 Mills Limited	86.	JS Bank Limited i
51.	Renfro Crescent (PVT) Limited	87.	Haleeb Foods Limited
52.	Dollar Industries (Pvt.) Ltd.	88.	Jahangir Siddiqui & Co. Ltd.
53.	Faysal Bank Limited	89.	Hilal Foods (Pvt.) Ltd.
54.	Naveena Group, Lahore	90.	MCB Bank Ltd.
55.	Kohinoor Textile Mills Limited	91.	Hinopak Motors Limited
56.	Habib Bank Limited	92.	Silkbank Limited
57.	US Denim Mills (Private) Ltd.	93.	Image Garments (Pvt.) Ltd.
58.	Meezan Bank Limited	94.	Kohinoor Industries Limited
59.	Sapphire Group	95.	United Bank Ltd.
60.	Mobilink/Jazz	96.	Central Depository Company
61.	Dancom Pakistan (Pvt.) Ltd.	97.	Aga Khan University Hospital
62.	Warid Pakistan	98.	Dr. Ziauddin Hospital
63.	Hinopak Motors Limited	99.	Jubilee Life Insurance
64.	Telenor Pakistan	100.	Al-Abbas Fabrics (Pvt.) Ltd.
65.	Alkaram Textile Mills Pvt. Ltd.	101.	Atlas Group
66.	Naveena Group, Karachi	102.	Berger Paints Pakistan Ltd.
67.	Young's Private Ltd.	103.	Dadabhoy Cement Industries Ltd.
68.	Lucky Textile Mills Ltd.	104.	Dewan Group of Companies
69.	Getz Pharma (Private) Limited	105.	QICT

106.	Shirazi Trading Company (Pvt.) Ltd.	132.	ArwenTech Pvt. Ltd.
107.	Tranzum Courier Service	133.	Masood Textile Mills
108.	TNT Courier	134.	Fatima Sugar Mills Limited
109.	LOTTE Confectionery Co. Ltd.	135.	Reliance Weaving Mills Ltd.
110.	Muller & Phipps Pakistan (Pvt.) Ltd.	136.	Pakarab Fertilizers Limited
111.	UBL Fund Managers	137.	Fatima Fertilizer Company Limited
112.	Askari Bank Ltd.	138.	Fazal Cloth Mills Limited
113.	Agritech Limited	139.	Stylo House, Lahore
114.	TPL Trakker Ltd.	140.	Swisstex Chemicals (Private) Ltd.
115.	Organon Pakistan (Pvt.) Ltd.		
116.	Tapal Tea (Pvt.) Ltd.		**Public**
117.	Thatta Cement Company Limited	17.	State Bank of Pakistan
118.	Attock Petroleum Limited	18.	Civil Aviation Authority
119.	BHP Billiton Petroleum	19.	Sui Southern Gas Company Limited
120.	PARCO	20.	Sui Northern Gas Pipelines Limited
121.	Parazelsus Pakistan Pvt Ltd.	21.	First Women Bank Limited
122.	Ufone Pakistan	22.	National Logistics Corporation
123.	International Brands Limited	23.	Pakistan International Airlines
124.	Hussain Mills Limited	24.	State Life Insurance Corporation
125.	Umar Group of Companies, Lahore	25.	Lahore Electric Supply Company
126.	Monnoo Group of Industries, Lahore	26.	NADRA
127.	Zahidjee Textile Mills Limited	27.	Peoples Steel Mills Ltd.
128.	Medical Devices (Pvt.) Ltd.	28.	Defence Housing Authority, Lahore
129.	Master Group of Industries, Lahore	29.	Oil and Gas Development Co. Ltd.
130.	Nishat Group of Companies, Lahore	30.	EOBI
131.	Dawood Lawrencepur Limited	31.	Karachi Port Trust/KICT

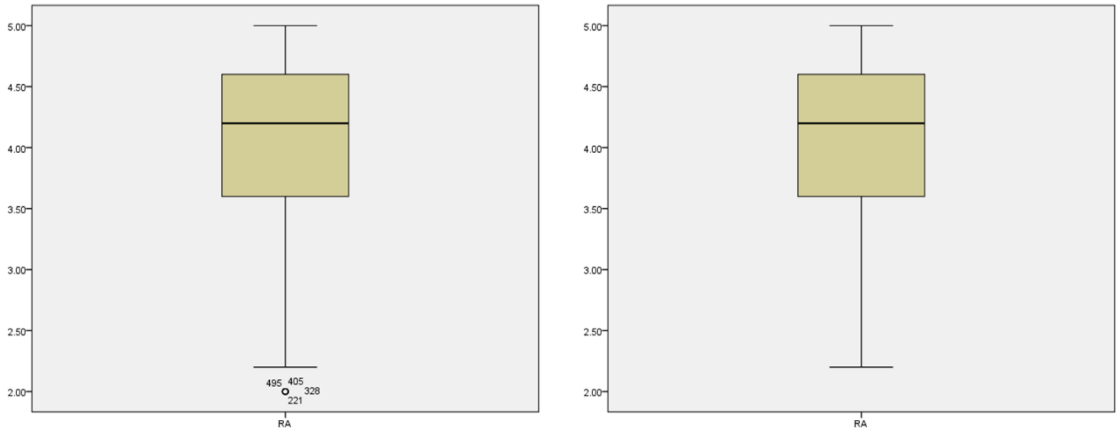
Source: A. Arshad. Oracle Apps Techno-Functional Consultant.
https://www.slideshare.net/EngrAdilArshad1/oracle-erp-in-pakistan

Appendix B

BOXPLOTS, HISTOGRAMS, AND NORMAL Q-Q PLOTS

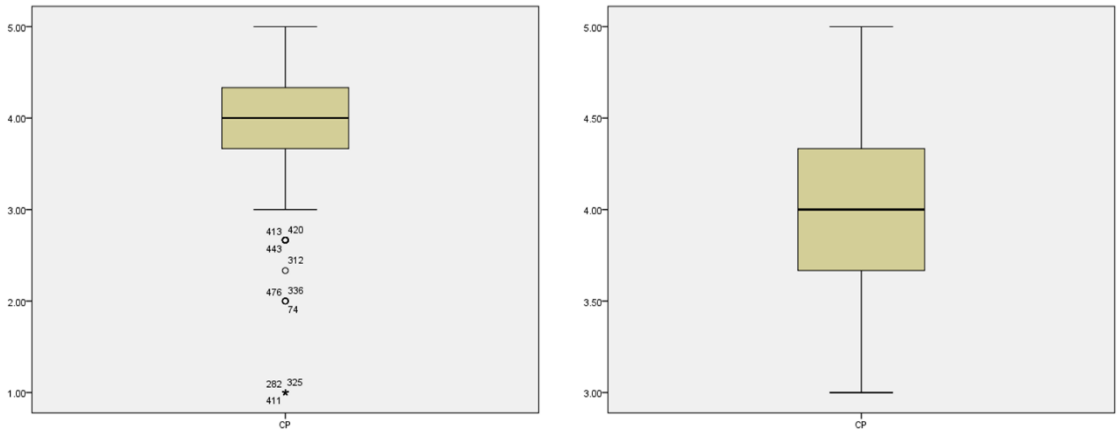
1. Boxplots

Figure B.1: Relative advantage



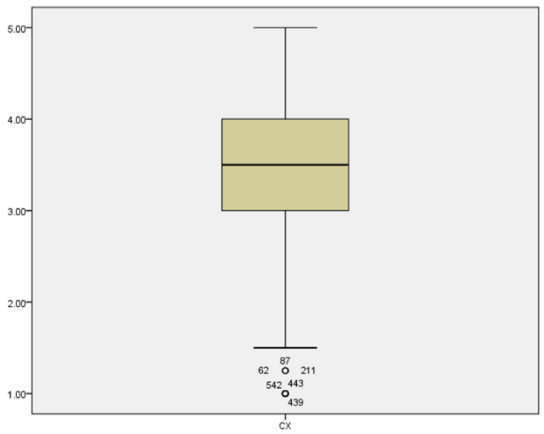
With outliers | After Winsorization

Figure B.2: Compatibility

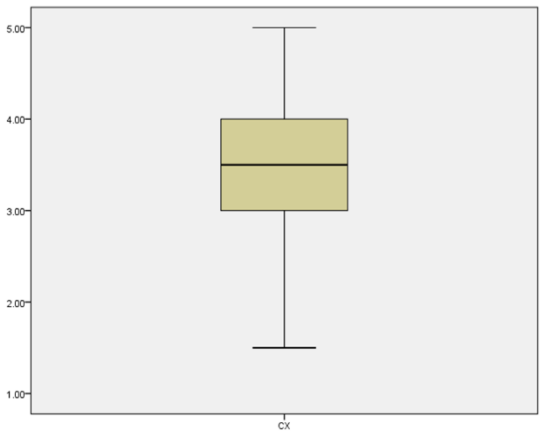


With outliers | After Winsorization

Figure B.3: Complexity

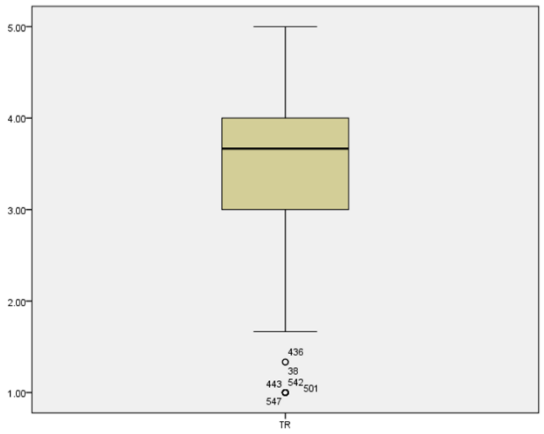


With outliers

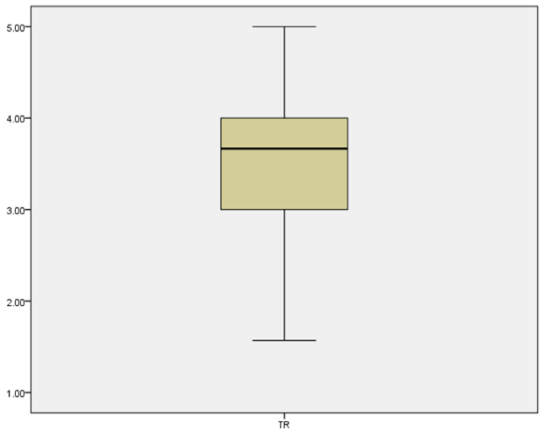


After Winsorization

Figure B.4: Trialability



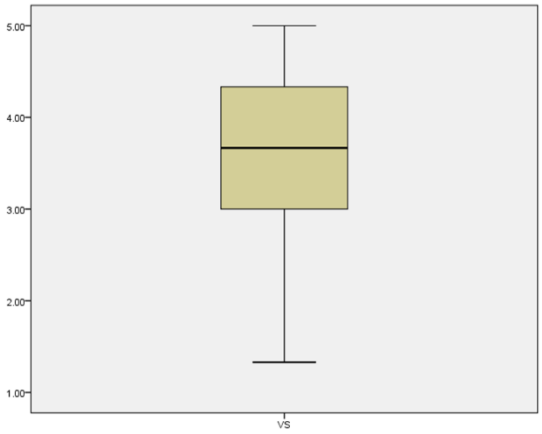
With outliers



After Winsorization

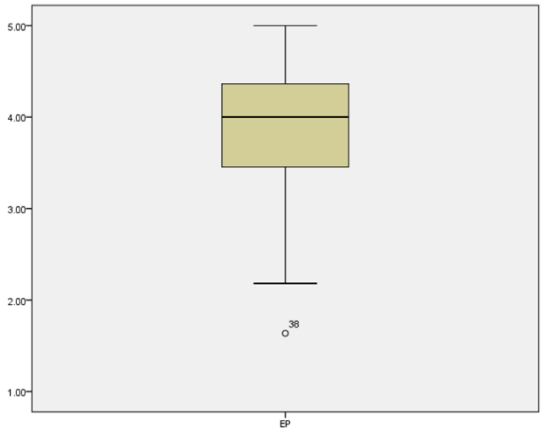
Figure B.5: Visibility

With outliers

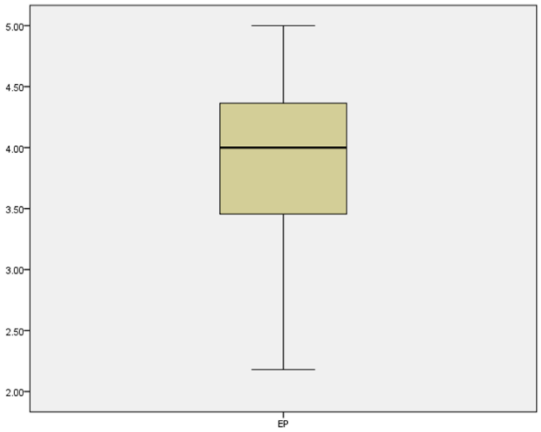


After Winsorization

Figure B.6: e-HRM practices

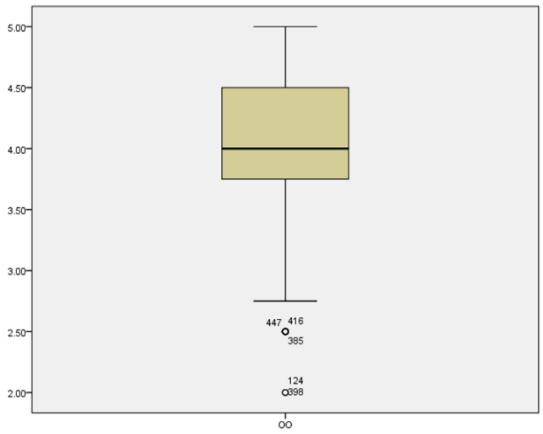


With outliers

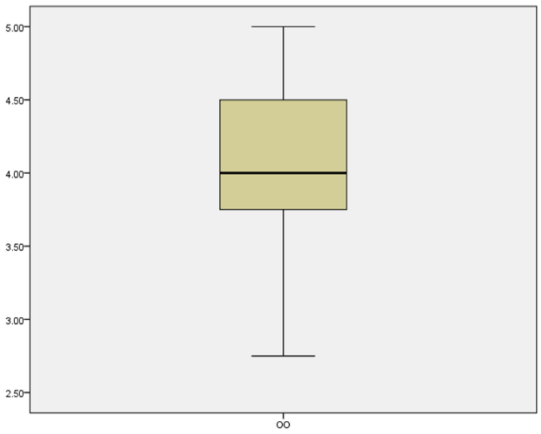


After Winsorization

Figure B.7: Operational e-HRM outcomes

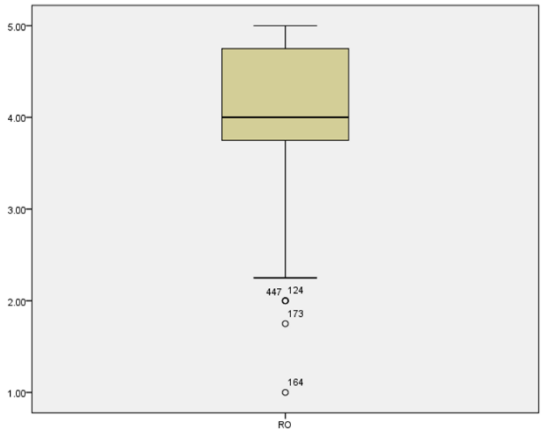


With outliers

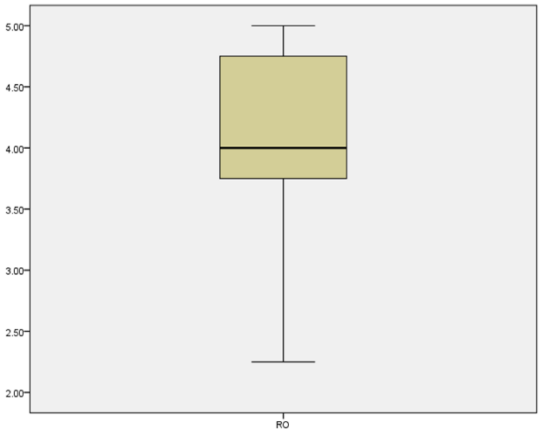


After Winsorization

Figure B.8: Relational e-HRM outcomes

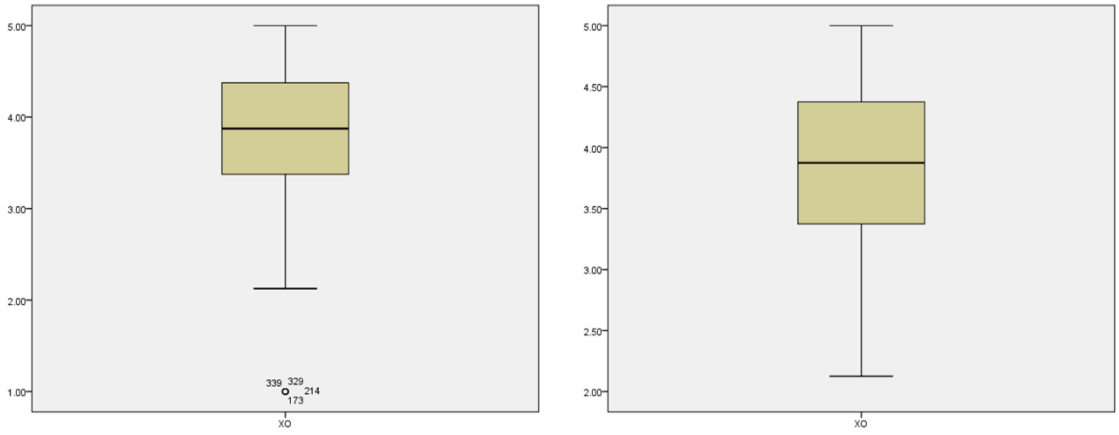


With outliers



After Winsorization

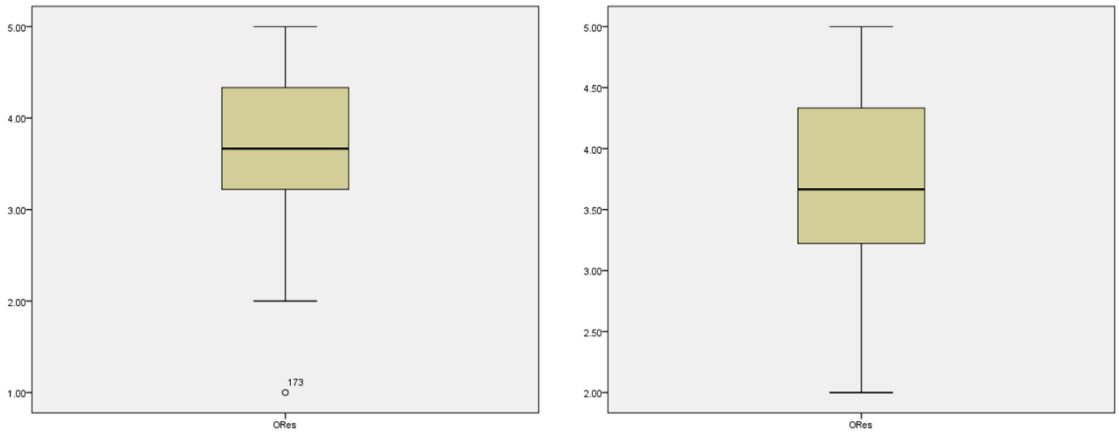
Figure B.9: Transformational e-HRM outcomes



With outliers

After Winsorization

Figure B.10: Organizational resilience



With outliers

After Winsorization

2. Histograms

Figure B.11: Relative advantage

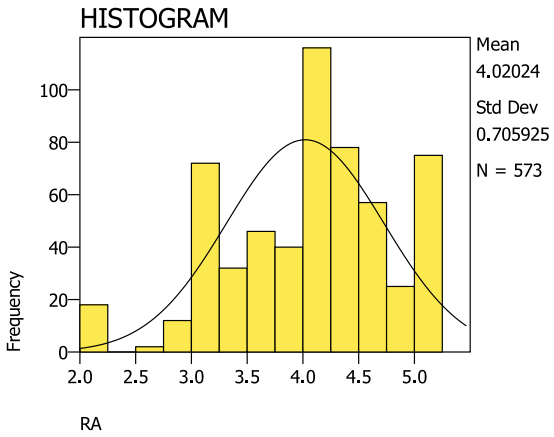


Figure B.12: Compatibility

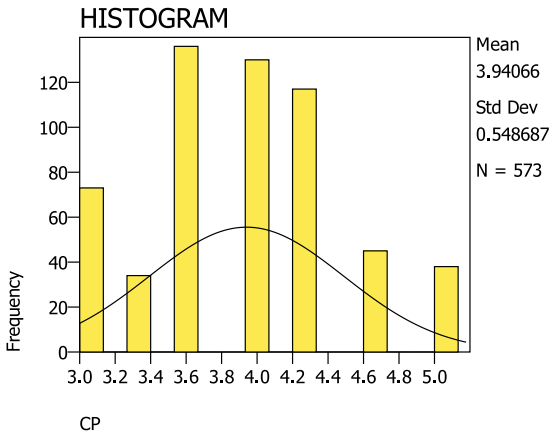


Figure B.13: Complexity

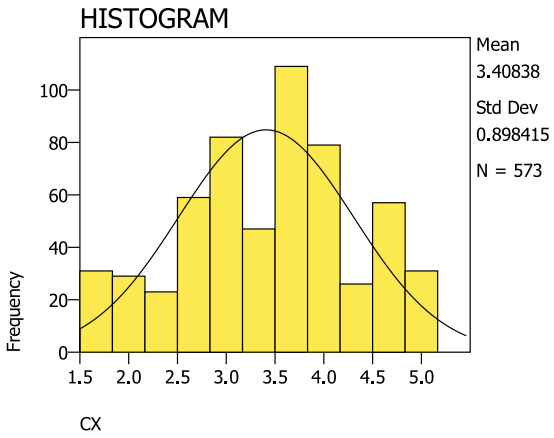


Figure B.14: Trialability

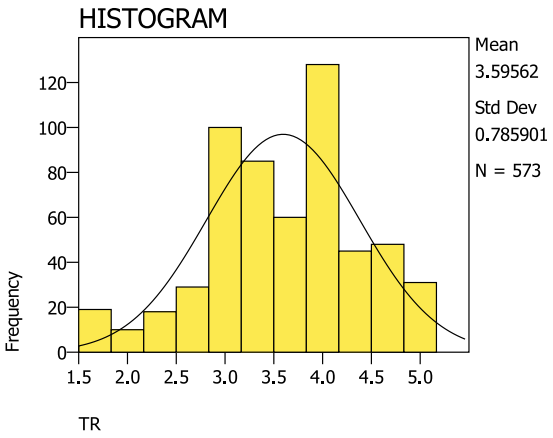


Figure B.15: Visibility

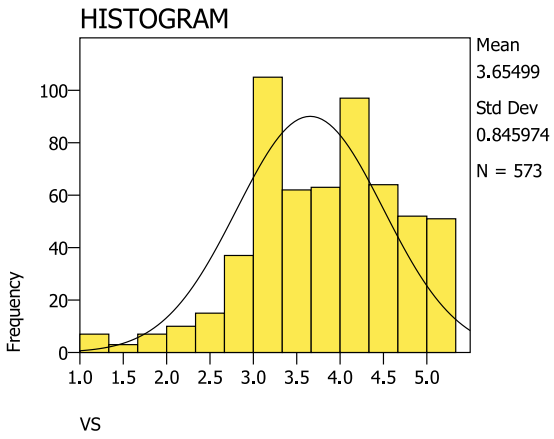


Figure B.16: e-HRM practices

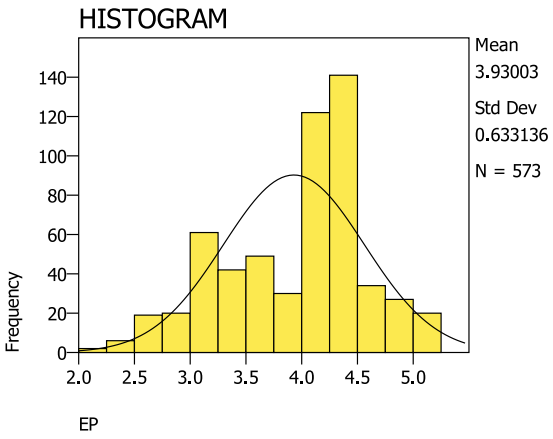


Figure B.17: Operational e-HRM outcomes

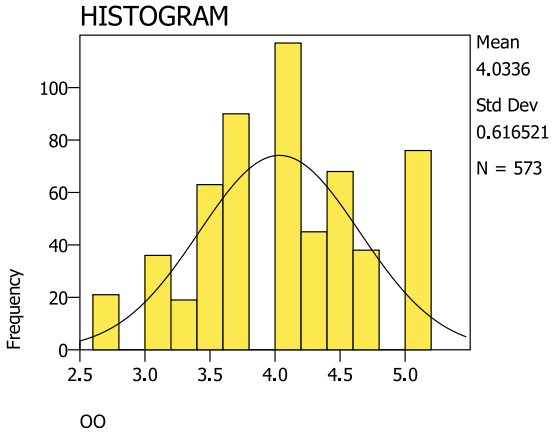


Figure B.18: Relational e-HRM outcomes

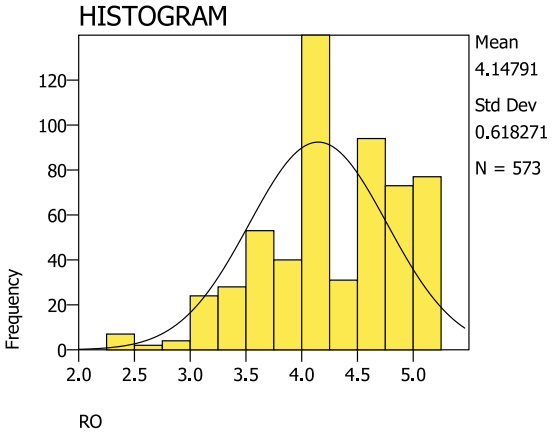


Figure B.19: Transformational e-HRM outcomes

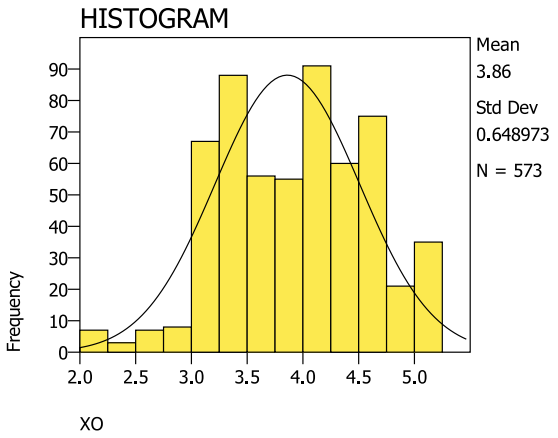
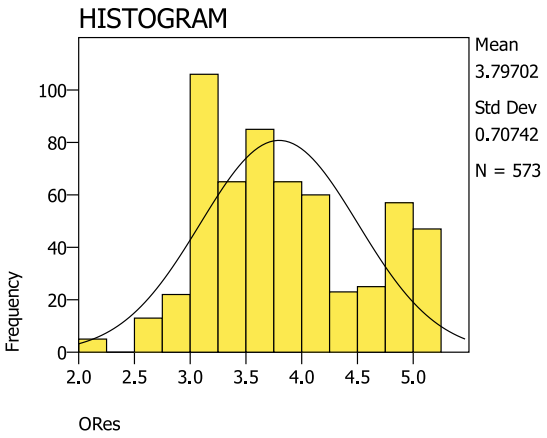


Figure B.20: Organizational resilience



3. Normal Q-Q Plots

Figure B.21: Relative advantage

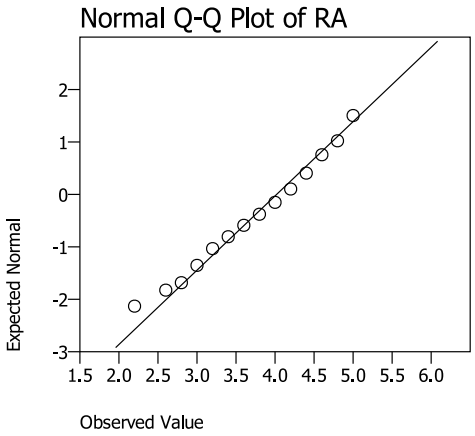


Figure B.22: Compatibility

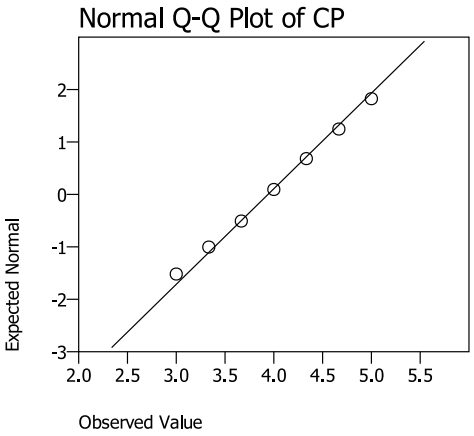


Figure B.23: Complexity

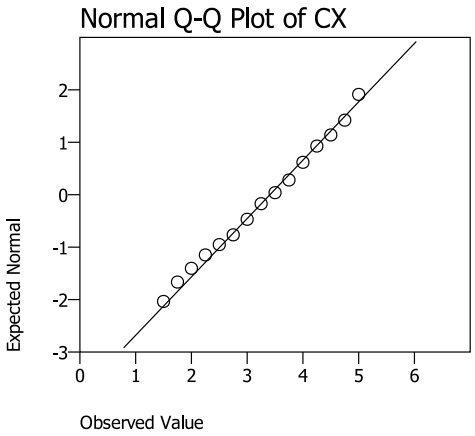


Figure B.24: Trialability

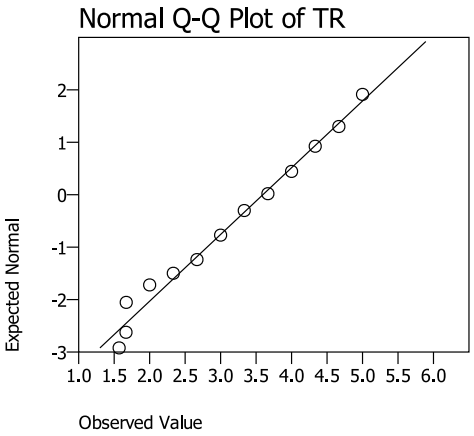


Figure B.25: Visibility

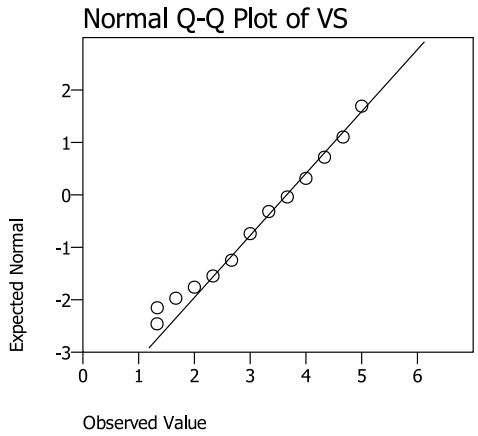


Figure B.26: e-HRM practices

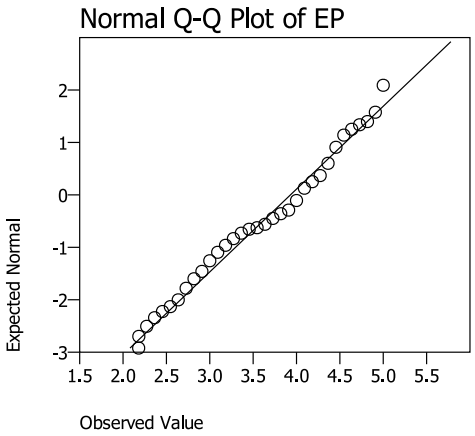


Figure B.27: Operational e-HRM outcomes

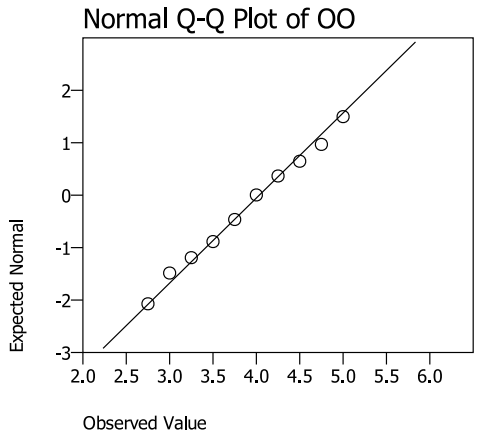


Figure B.28: Relational e-HRM outcomes

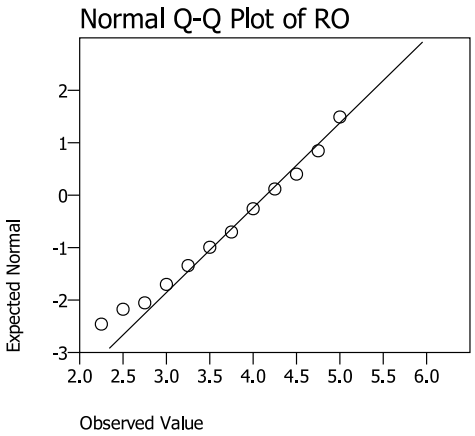


Figure B.29: Transformational e-HRM outcomes

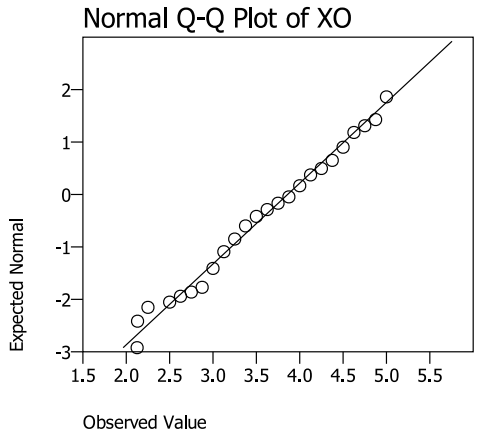
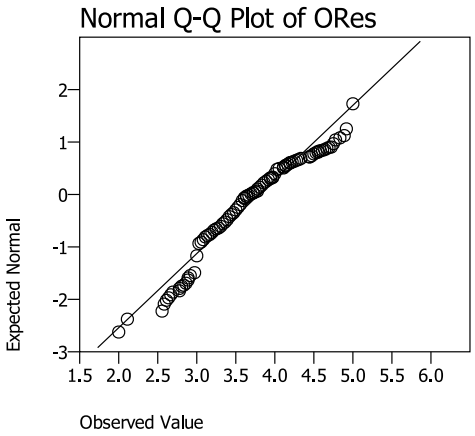


Figure B.30: Organizational resilience



4. Normal P-P Plots

Figure B.31: RA and EP

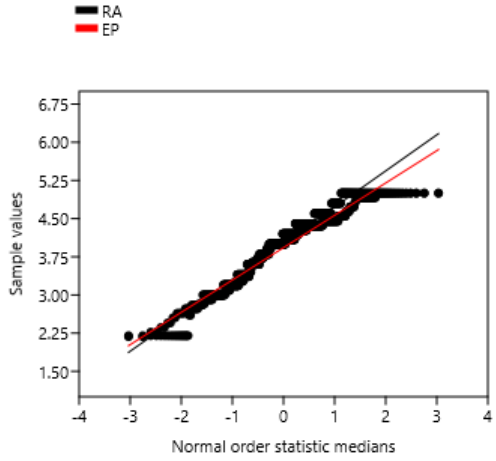


Figure B.32: CP and EP

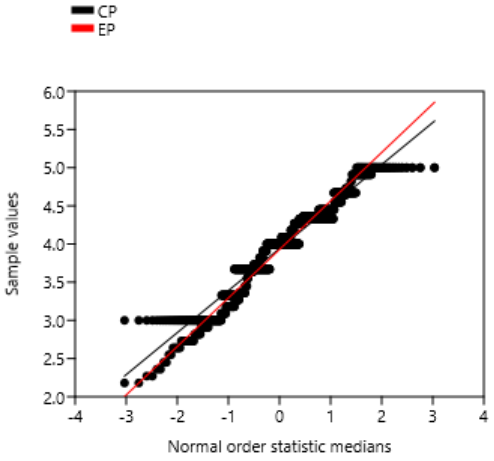


Figure B.33: CX and EP

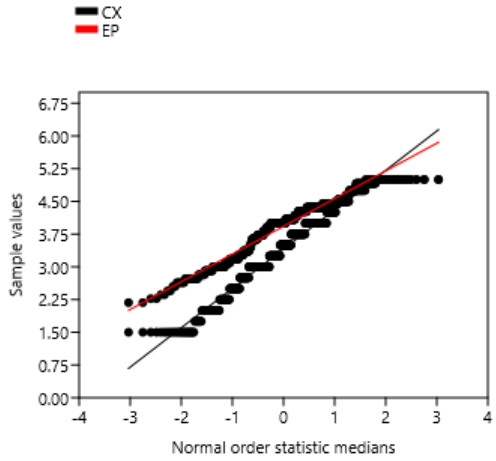


Figure B.34: TR and EP

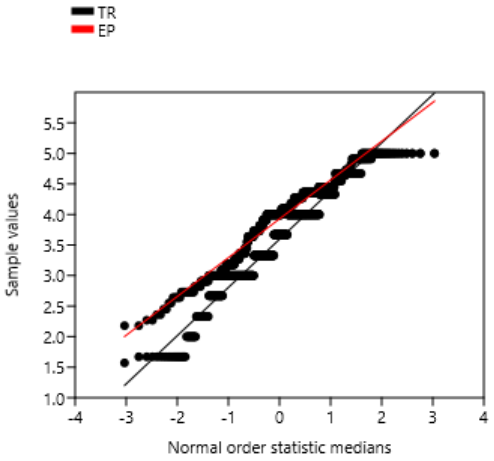


Figure B.35: VS and EP

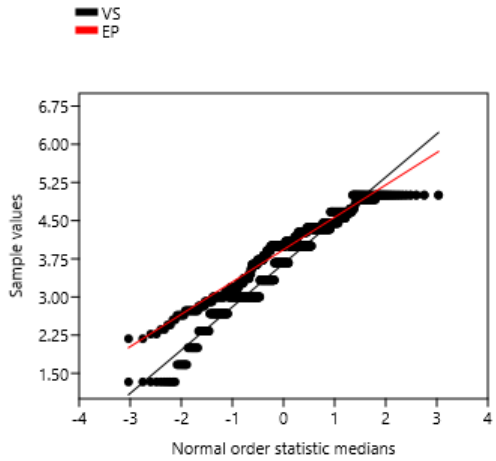


Figure B.36: EP and OO

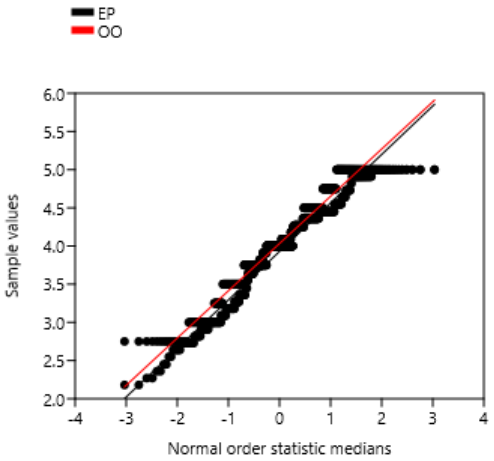


Figure B.837: EP and RO

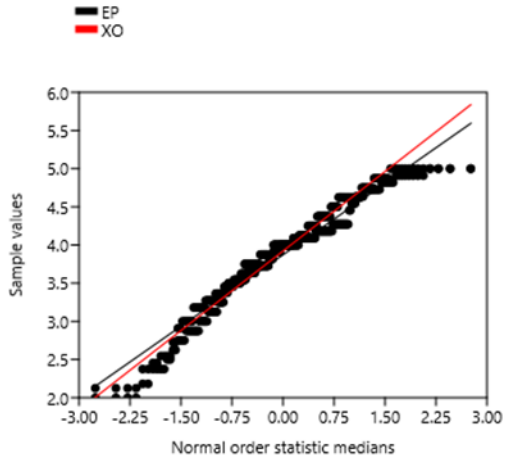


Figure B.38: EP and XO

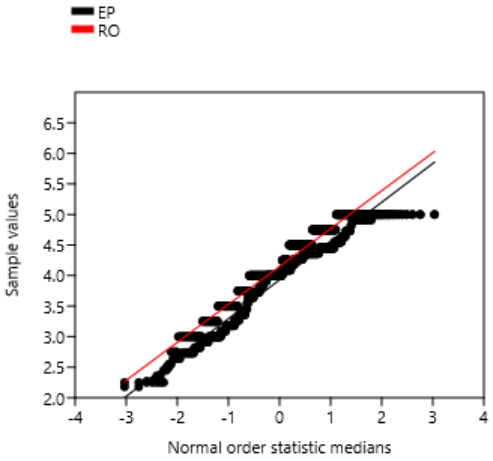


Figure B.39: EP and ORes

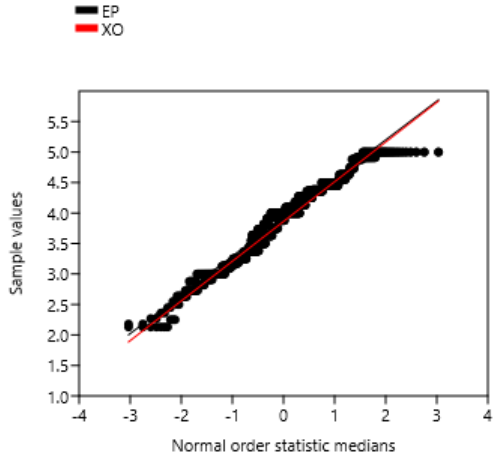


Figure B.40: OO and XO

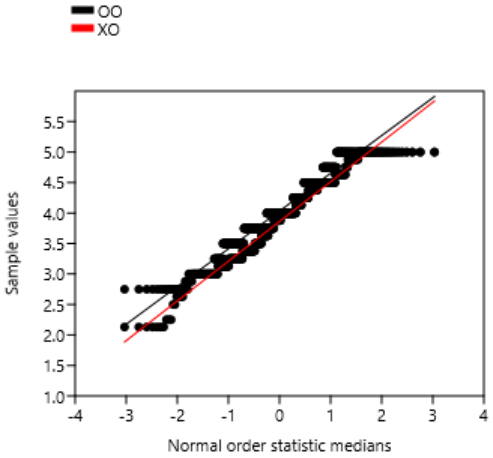


Figure B.41: RO and XO

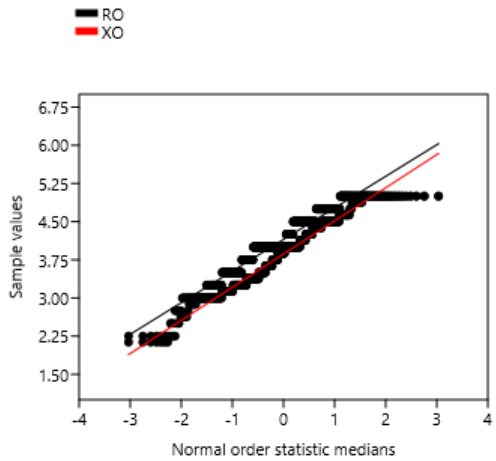
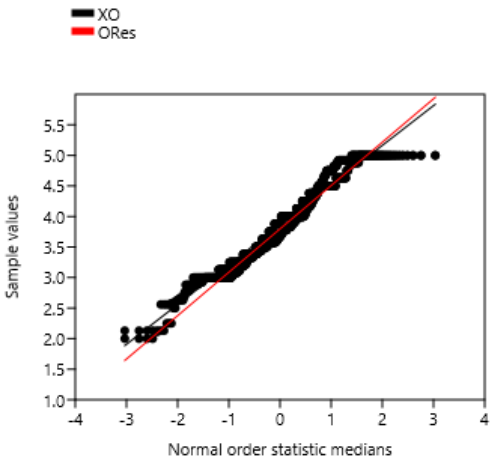


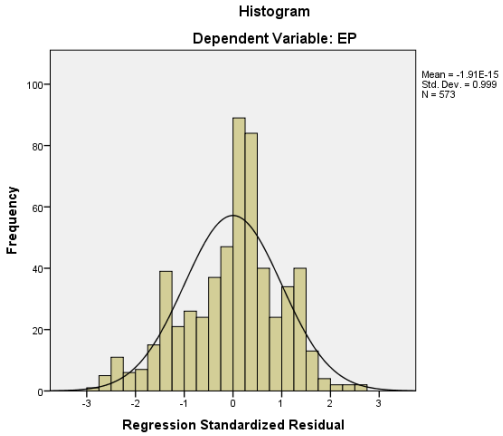
Figure B.42: XO and ORes



Appendix C

RESIDUALS' HISTOGRAMS, AND NORMAL P-P PLOTS

Figure C.1: Relative advantage and e-HRM practice



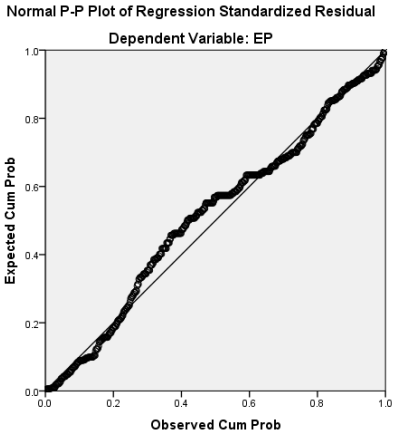
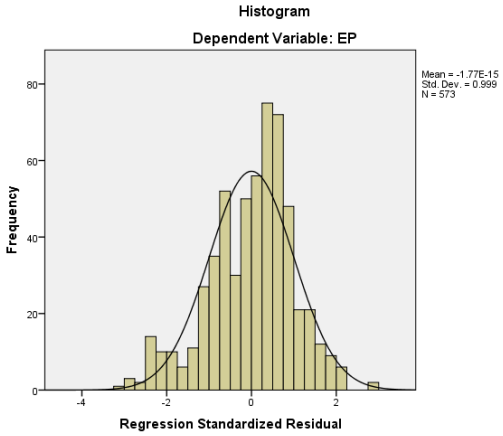


Figure C.2: Compatibility and e-HRM practice



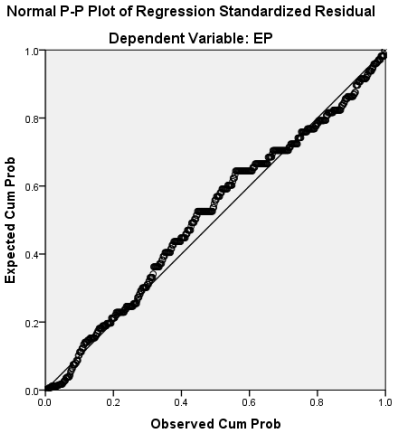
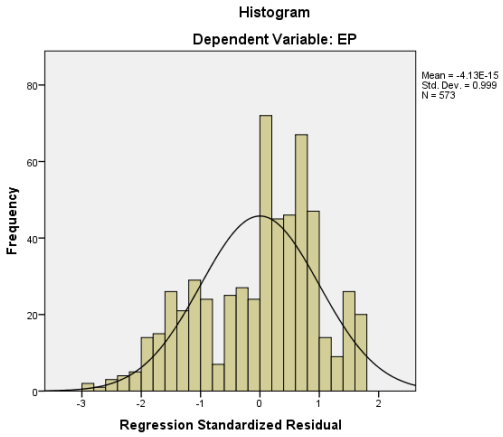


Figure C.3: Complexity and e-HRM practice



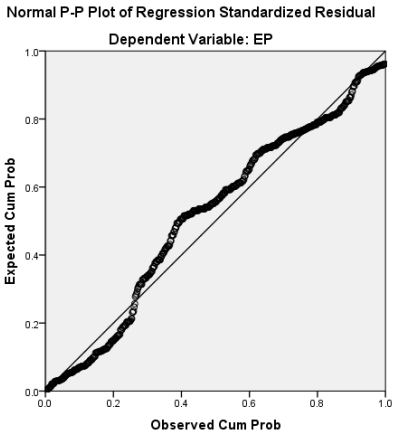
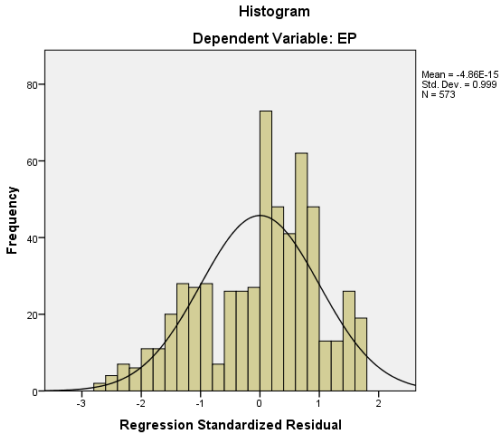


Figure C.4: Trialability and e-HRM practice



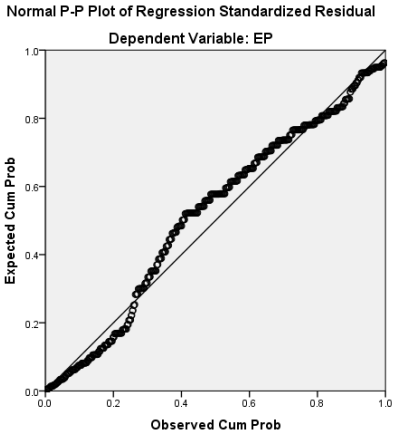
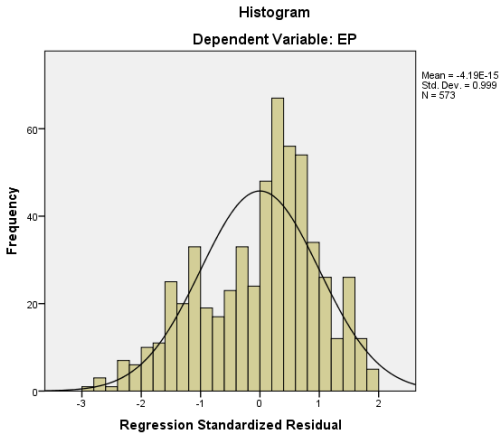


Figure C.5: Trialability and e-HRM practice



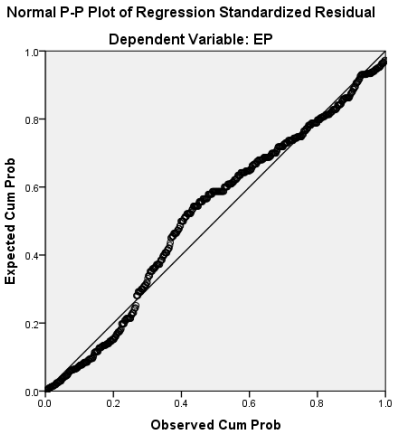
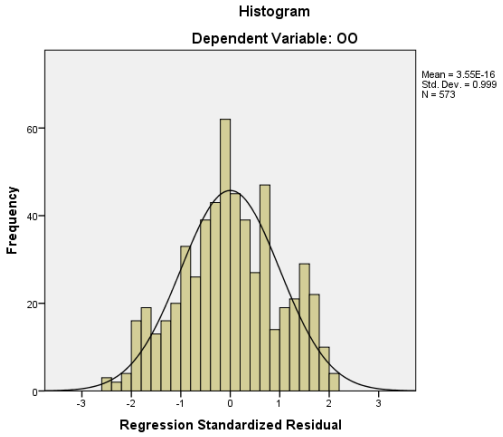


Figure C.6: e-HRM practice and operational e-HRM outcomes



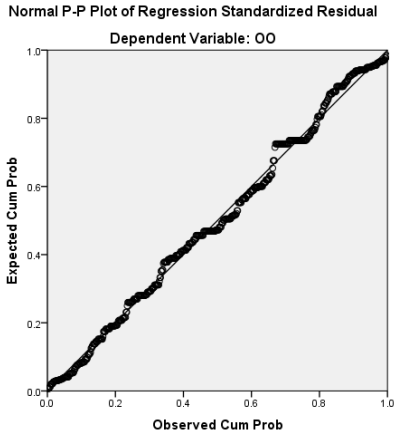


Figure C.7: e-HRM practice and relational e-HRM outcomes

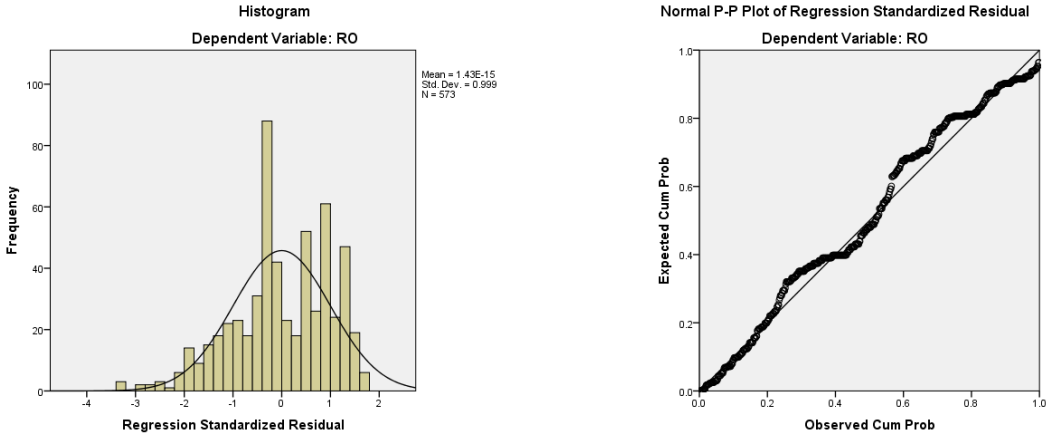


Figure C.8: e-HRM practice and transformational e-HRM outcomes

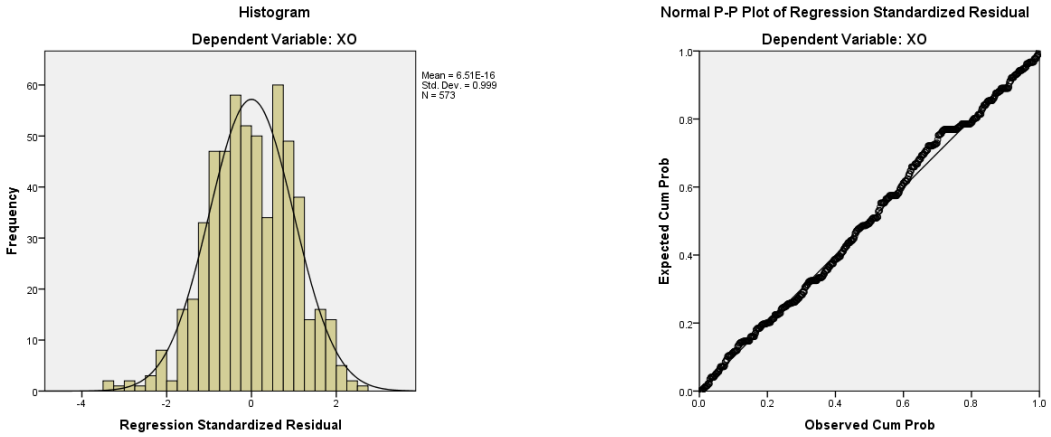


Figure C.9: e-HRM practice and organizational resilience

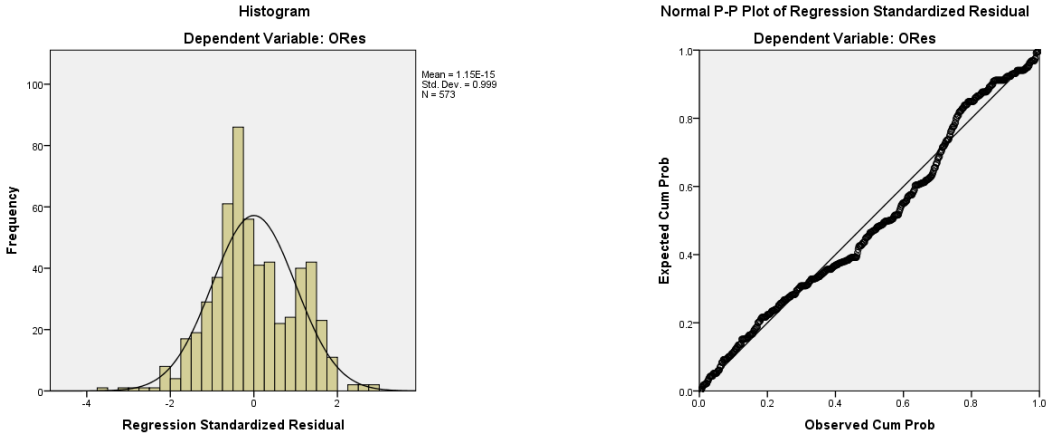


Figure C.10: Transformational e-HRM outcomes and organizational resilience