

# *A conceptual research framework for human resource information systems adoption and use in universities*

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**Abstract**—Human resource information systems (HRIS) are adopted and used in various organizations all over the world. Following on this trend, universities including those in South Africa have also adopted and are using such systems for their human resource (HR) purposes. However there is still a lack of understanding on how organizations such as universities adopt and use HRIS. This paper provides a conceptual research framework for HRIS adoption and use. Specifically the paper addresses the determinants and dimensions of HRIS as both a process (adoption and use process) and as an outcome in a university. The simultaneous examination of both adoption and use, and how the adoption process may influence use is a novel, holistic approach to understanding IS within organizations

**Keywords**—Use, HRIS, Universities, Institutional theory, Upper echelon theory, TOE

## I. INTRODUCTION

Knowledge-based economies, globalization, quick technological advancements and other trends have changed how organizations, specifically universities, function and have altered the role of human resources [43]. In such economies, there is an increased awareness and acknowledgement that information and people are the two of the most important investments in any organization [43].

An important innovation within the HR field is human resources information systems. Often, HRIS is regarded as a backbone for modern HR function [18; 43] and it assists people with HR related information as an organizational investment. The system enables an organization to gather, store and analyze workforce data associated with HR and to increase the availability and flow of information [14]. The system is not only limited to computer software and hardware; HRIS comprises of organizational procedures, policies, data and people essential to direct the HR function [23] Given their importance, how the system is adopted and used is crucial in order for the university to be effective and efficient.

There are numerous studies on HRIS adoption and use; however there are few studies that have focused on both HRIS adoption and use concurrently. [47] have looked at public

sector adoption of HRIS, [8] examined factors that influence HRIS adoption and so did [43]. Researches such as [47]; [4] and [19] suggest that HRIS adoption remains under researched.

HRIS use research includes the works of [25], [42]; [2]; [35]; [3] and [22]. The research done by these scholars has built the field and provided valuable insights of how the phenomenon unfolds in organizations. However, there are few studies that theorize both HRIS adoption and HRIS use simultaneously. The argument for theorizing both HRIS adoption and HRIS use simultaneously is that in order to understand use, there has to be knowledge on how HRIS was adopted, and how adoption influences use. The paper is about how to study or understand the adoption of both HRIS and HRIS use, and how HRIS adoption process may influence HRIS use in a university context.

The remainder of the paper is organized as follows: a brief definition of HRIS, HRIS types and their value in organizations, HRIS as both a process and outcome is discussed, HRIS studies in universities, followed by a discussion on previous HRIS studies and theories informing HRIS adoption and use studies, why universities in South Africa as a context for the study, the conceptualized HRIS adoption and use framework is presented and discussed, lastly potential contribution followed by a brief discussion to conclude the article.

## II. WHAT IS HRIS

HRIS can be defined as an Information System within organizations adopted and used to support the “planning, administration, decision making and control activities of human resource management” [11:11]. [24] added that HRIS includes people, policies, procedures and data. Essentially, HRIS is adopted in the organization to deliver support through timely, accurate and value-adding information, to personnel in throughout organization.

There are numerous concepts used to refer to HRIS. Authors such as [39] refer to HRIS as a, e-HRM or electronic human resource management, [31] HRIT or Human resource information technology [40], web-based HRM], [5] call it intranet-based HRM, HRIS by [29], virtual HRM [26], HR-ICT by [12] and HR-ERP by [10] There are many names that can be used to refer to HRIS, for the purpose of the study the words HRIS will refer to either or one of the alternative names mentioned above.

#### A. HRIS value in organizations

HR related information systems enable an organisation to gather, store and analyse workforce data associated with HR, they enable organisations to increase the availability and flow of information [14] HRIS enable the transfer and automation of routines associated with administrative tasks and legislative functions generally completed by the HR department [7]. It provides a complete representation of a single, integrated database [26]. Employees could access the same information easier to facilitate decision making.

These systems are meant to increase the effectiveness of HR and IS processes, cut expenses, and decreases process request times [17]. This in turn frees some time for HR personnel to pay attention more on becoming a strategic partner in the organisation [6] and [29] Further, HRIS improves employee satisfaction in the organization by delivering HR services quicker and timely. In order for an organization to reap benefits from HRIS, certain conditions must be in place. [45], assert that these conditions include top management commitment and support, managing organizational size, resource availability, organizational vision, HR mission, culture, systems and employee motivation.

### III. HRIS AS BOTH A PROCESS AND AN OUTCOME

As categorized and documented by [9], an organizational innovation such as HRIS can be perceived as a process, that answers “how” questions, and as an outcome, that answers “what” questions.

An innovation as a process has *driver*, *source*, *locus*, *direction* and *view* concepts. The *source* of the innovation is where the innovation was invented, either internal or external or a combination of both. The *driver* concept can be available resources and knowledge within the organization or external influences in the market. The *locus* dimension is about the extent of an innovation process, either organizational or in the market. The *level* dimension is defines the process as individual, in a group or organizational. *Direction* determinant is about how the process of innovation starts, whether it starts at the top going down or if it starts at the bottom going up.

Innovation as an outcome answers questions related to “what or what kind”. Concepts in innovation as an outcome are: *form*, *magnitude*, *referent*, *nature* and *type*. *Referent* concept is about the newness of an innovation, in the market, organization or the industry. *Magnitude* is whether the

innovation is radical or incremental. *Form* concept is whether the innovation is a process, service based, product or a business model innovation. Type concept refers to the innovation as technical ([13] or an administrative innovation. Technical innovations often include processes, technologies and products and used to support services or create products. HRIS can be classified as both an administrative innovation and technical.

### IV. PREVIOUS STUDIES AND THEORIES INFORMING HRIS ADOPTION AND USE STUDIES

Previous HRIS studies have focused on how HRIS supports the management of human resources in organizations such as the work of [6] and [30]. HRIS adoption and how users perceive the system in organizations [35]. Evaluating the type of information users seek on the system [2]. Conditions for a successful HRIS implementation have been also been investigated [15] HRIS benefits and limitations [1] HRIS impact on organizational performance [28] HRIS and security [50], factors influencing adoption of HRIS [47]; [43], HRIS use [42]; [2]; [25]; [35] and [3]. HRIS related literature could be summarized as focused on the following themes: HRIS adoption and implementation, HRIS use and use condition, HRIS and security, trust and privacy, HRIS use and Use conditions, HRIS and organizational performance, HRIS implementation success, global HRIS integration, and HRIS enabling strategic focus.

Theories, models and frameworks used to underpin HRIS adoption and use studies include institutional theory, technology, organization and environment (TOE) framework, unified theory of acceptance and use of technology (UTAUT), diffusion of innovation (DOI), work adjustment theory, technology acceptance model (TAM), actor network theory (ANT), resource based view (RBV). Certain studies used a model, theory or framework to underpin the work, while other studies used combinations. A majority of the studies were positivist, with case studies and survey as research strategies. Both private and public sector organizations have received attention in European, Asian, Americas and United Kingdom (UK) based countries. In this paper, the study context is a typical South African university. There is no known study that theorizes both HRIS adoption and use process simultaneously in a university.

### V. THE CONTEXT OF SOUTH AFRICAN UNIVERSITIES

Universities in South Africa are faced with the challenge of attracting and retaining qualified and skilled academic staff [44]. Despite this, the expectation from government is that universities should play a bigger role in improving the country’s student outcomes to cut poverty drastically, supply scarce skills and fast-track economic growth [20]. Therefore, transforming inequalities faced by society today.

Unfortunately, universities in South Africa are characterised by high staff turnover rates, with reasons ranging from high student numbers, uncompetitive remuneration

packages and incentives, little to almost no support for post graduate research, biased promotion policies and university cultural practices; all of which translate to academics putting in more working hours [33]; [37] and [20]. Since the student population continues to grow, it in turn puts added load on the staff in such institutions. The added pressure also means universities have to attract and retain skilled, knowledgeable people to address the demand. HRIS can assist with addressing some of these challenges by facilitating HR processes. Typical HRIS components such as e-recruitment could assist the university identify potential candidates for a job, e-training could assist in identifying employees who need training in a certain subject, HR planning could be done on the HRIS and it can assist in standardizing procedures, reports could easily be pulled out of the HRIS, assisting in quicker decision making. Despite HRIS adoption and use, there is no knowledge or understanding of how systems such as HRIS are adopted and used in universities in South Africa, this paper proposes a research framework that could assist in understanding both HRIS adoption and HRIS use simultaneously.

## VI. THEORETICAL UNDERPINNING

In order to have a holistic understanding of how HRIS is adopted and used in universities, several theoretical frameworks, theories of adoption and use will be deployed in the study. The study is underpinned by institutional theory, upper echelon theory and TOE (technology, organization and environment) framework. These will be discussed below.

### A. Institutional Theory

Institutional Theory highlights the role that pressures from competitors, regulators, shareholders, customers, professional associations, government, organizational actions and social factors play in an organizational innovation [48] The pressures that act on organizations, internal or external, direct them to adopt and use the innovation in order to look legitimate and conform to norms of the institutional environment [41] and [27] That could be what happened when the HRIS was adopted, a retrospective investigation could reveal some insights into the adoption of HRIS in universities.

From this view, it can be assumed that one of the reasons that top management in the university decided to adopt HRIS could be based on pressure arising from the environment through various stakeholders such as government, political and professional associations that the university is associated with.

### B. Upper Echelon Theory

[32] Have confirmed the multiple roles of top management in innovation adoption; top management offer guidance and support at the initial stages. Later they harmonise group members' interactions and create suitable conditions for the implementation on the innovation

Upper echelon theory proposes that key decision makers in an organizations' behaviour are influenced by their experiences, personalities and values [16]. Leaders' creative efforts are a result of technical and professional expertise and the ability to process complex information and motivation. [33] argue that this theory is premised in "who" makes the decision as a central source of success or failure in organizations. This is important for HRIS as the university's top management team were responsible for decisions taken when the system was adopted. Their decisions could influence how the system is perceived and used currently within the organization.

### C. Technology Organization and Environment (TOE) framework

TOE is an adoption framework which is focused on an organization's internal influences that could influence how a technology is adopted, the context is represented by the technology, environment and the organization (Oliveira & Martins, 2011). The technological context refers to the expertise, knowledge, infrastructure and support of the IS, the organizational context refers to descriptive measures such as size the size, scope etc., environmental context refers to the industry within which the organization is operating from [46].

TOE factors were identified for HRIS adoption within the university, some of the TOE HRIS adoption antecedents are related to some of the pressures applicable to institutional theory in this context

## VII. CONCEPTUALIZED RESEARCH HRIS ADOPTION AND USE FRAMEWORK

This section introduces the research framework of HRIS adoption and use; the framework details both HRIS adoption and use simultaneously. It combines the discussed underpinning theories, framework and literature surveyed as presented below

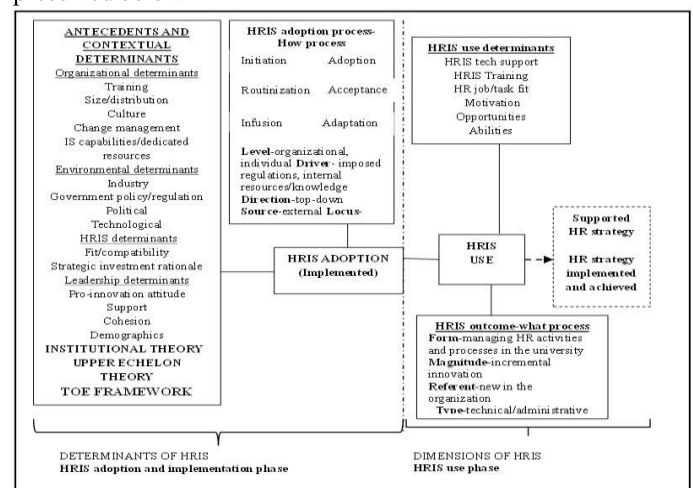


Fig. 1. A conceptualized research framework of HRIS adoption and use in universities.

Fig 1 as the framework is made up of four pillars; the first two represent the determinants of HRIS consisting of antecedents and contextual determinants and HRIS adoption process. The last two pillars represent dimensions of HRIS innovation as both a process and outcome. Dimensions of HRIS is made up of HRIS use determinants and HRIS outcomes

#### A. Determinants of HRIS

This pillar labels HRIS antecedents and contextual determinants that influence its adoption in a university setting. HRIS *organizational determinants* include training, size/distribution, norms, values and culture, change management, and IS capabilities/dedicated resources. *Environmental determinants* is made up of industry pressure government policy/regulation, political, technological and professional associations. *HRIS determinants* is made up of fit and strategic investment rationale. *Leadership determinants* is made up of pro innovation attitude, support, cohesion, demographics and IS knowledge. This pillar is underpinned by upper echelon theory, institutional theory and technology, environment and organizational (TOE) framework. All these elements are believed to influence HRIS adoption in universities.

#### B. HRIS adoption process

In this paper HRIS is understood to be both a process and an outcome. The HRIS outcome process is about the “how” process. The how process includes understanding how the HRIS was initiated, adopted, routinized, accepted, infused and adapted in the university. All these concepts are parts that make up adoption as a process. For a holistic understanding of HRIS adoption process, the following concepts need to be labeled and known. *Level-organizational* and *individual, driver-imposed regulations/internal capabilities, direction-top-down, source-external* and *locus-organizational*.

#### C. HRIS use determinants

HRIS use determinants influence how users use the systems; they are *HRIS technical support, HRIS job/task fit, training, motivation, opportunity* and *abilities* in order to achieve a desired outcome in the form of realized organizational strategy.

#### D. HRIS outcome

Dimensions that relate to innovation outcomes should answer the “*what*” or “*what kind*” questions [9]. The dimensions for HRIS as an outcome in the university are; *form-managing HR activities and processes, magnitude-incremental innovation, referent-new* in the organization and *type-technical/administrative*.

### VIII. CONTRIBUTION ARISING FROM THE PAPER

The suggestion and use of a framework instead of a model suggests that the study is interpretive in nature. With this in mind, a potential contribution from the research is outlined according to [49] “contribution for interpretive research”. The classification for the contribution include the primary *audience*- other researchers in the IS field, those who investigate IS adoption or use in organization. The *literature* the paper aims to contribute to is IS impact on organizational performance, IS adoption and use in organizations. What the paper *claims to offer* is the idea IS adoption and use examined concurrently, this view gives a holistic view of an IS in an organization. The argument is that if IS adoption is understood, it’s easier to clarify IS use. The paper could be *used* as a reference for HRIS adoption and use studies.

### IX. CONCLUSION

HRIS importance in organizations cannot be underplayed anymore; the systems assist the HR department in making HRM processes easier, effective, faster and cheaper [8]. Therefore, it is important to understand how such systems are adopted and used in organizations. The simultaneous examination of both adoption and use, and how adoption influences use is a novel, holistic approach to understanding IS within organizations. A limitation of the paper is that it is only theoretical and future studies could use the framework proposed to study IS adoption and use in organizations.

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