ANTECEDENTS AND OUTCOMES
OF HRIS USAGE

By

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ABSTRAK

Suatu keputusan sumber manusia yang baik adalah berdasarkan kepada sistem maklumat sumber manusia (SMSM) yang baik yang sepatutnya dibekalkan kepada kedua-dua jaluran pengurus dan sumber manusia dalam memudahkan mereka membuat keputusan. SMSM terdiri daripada beberapa elemen. Setiap elemen mesti berfungsi dengan baik sekiranya sistem ini dapat mendatangkan faedah kepada organisasi. Pada asasnya, sistem adalah satu set aktiviti yang mengambil input, menukarkan input kepada output. Fungsi khas SMSM adalah untuk menghimpun, mengumpul dan membantu dalam menganalisa data yang diperlukan oleh jabatan sumber manusia bagi melaksanakan tugas mereka dengan berkesan. Maka permahaman yang baik tentang faktor-faktor yang mempengaruhi penggunaan SMSM secara meluas oleh pengguna dan hasil yang memberi kesan kepada tugas kerja sumber manusia adalah penting dalam memastikan penggunaan SMSM dapat membantu sumber manusia. Kajian ini membentangkan faedah hasil soal selidik yang dilaksanakan ke atas 70 pakar sumber manusia tentang faktor inovasi yang dijangka mempengaruhi tahap penggunaan SMSM secara meluas. Kajian ini juga mengkaji faktor hasilan penggunaan SMSM secara meluas. Keputusan menunjukkan bahawa *"visibility"* ialah ciri inovasi yang dijangka mempengaruhi pengguna dalam penggunaan SMSM secara meluas. Terdapat lima hasil akhir daripada penggunaan SMSM. Ia adalah membenarkan maklum balas maklumat, membenarkan autonomi maklumat, membenarkan hubungan professional luaran, masa yang diperlukan untuk aktiviti transformasi dan masa yang diperlukan untuk aktiviti sokongan teknologi maklumat. Kajian ini juga membincangkan implikasi hasil kajian dan cadangan penyelidikan masa hadapan.

ABSTRACT

A good human resource decision is based on a good human resource information system (HRIS) which should be provided to both human resource and line managers to facilitate decision making. A HRIS is made up of numerous elements. Each element must function properly if the system is going to benefit the organization. Basically, a system is a set of activities that takes inputs, transforms them into outputs. The special function of HRIS is to gather, collect, and help analyze the data necessary for the human resource department to do its job properly. A good understanding of the factors influencing user adoption the extent use of HRIS and the outcomes that impact human resource (HR) job roles is therefore critical in ensuring the HRIS usage is helping human resource. This study presents the benefits from a survey of 70 HR professional on perceived of innovations factors influencing the extent use of HRIS and to examine the outcomes factors by extensive use of HRIS. Findings revealed that visibility is the attribute of perceived of innovations that influence users extent use of HRIS. There are five outcomes factors by extensive use of HRIS. There are enable information responsiveness, enable information autonomy, enable external professional link, time required on transformational activities and time required on IT support activities. This study also discussed implications of the findings and future research recommendations.

Chapter 1

INTRODUCTION

1.1   Introduction

A good human resource decision is based on good human resource information system (HRIS) which should be provided to both human resource and line managers to facilitate decision making. This concept is known as decision-support-system (DSS). A HRIS is made up of numerous elements. Each element must function properly if the system is going to benefit the organization. Basically, a system is a set of activities that takes inputs, transforms them into useful items and then outputs the new items to where they can be used. The HRIS is usually a part of the organization's larger management information system (MIS), which would include accounting, production, and marketing functions, to name just a few. The special function of HRIS is to gather, collect, and help analyze the data necessary for the human resource department to do its jobs properly (Anthony, Kacmar & Perrewe, 2002).

Most salient factors impacting organizations and employees today is technological change and advancement (e.g., computer-supported supplemental work-at-home, overall labor changes, organizational structure, organization of work). Information technology (IT) has grown substantially in recent years. Roach (1991), found that in 1991 American service sector companies spent more than $100 billion on hardware and in 1996 American banks spent almost $18 billion on IT (The Economist, 1996). One implication is that the nature of work is likely to shift as IT has the potential to change the roles of employees within the organization.

Suhaya (1998) found that government is responsible on information technology development in Malaysia. Most of IT based infrastructure has been support by government such as Multimedia Super Corridor (MSC), smart school, telemedicine, national smart card and etc. The emergences of the New Economy and the accompanying paradigm shift have led to changes to work processes because of the advancement of ICT and the incorporation of Information Technology into the economic system. In line with the aspirations of the Malaysia Government to create a seamless Electronic Government that can function 24 hours a day and seven days a week, the Ministry of Human Resources sought to harness the power and capabilities of ICT and Information Technology to create a more dynamic and effective management of the labor market to meet the needs of the workforce and industry. Therefore, the organizational needs HRIS for managing human resource.

1.2   Problem Statement

Today, we live in a global information society with a global economy that is increasingly dependent on the creation, management and distribution of information system (IS) resources. Many organizations have realized the importance of developing IS strategy for strategic advantage and as a competitive weapon.

However, if IS projects do not properly support the organization's strategic objectives, business operations or management needs of an organization, they can seriously damage its prospects for survival and success. Guinan, Lepak & Bartol, (1997), found that almost 75% of all IS projects are never completed, while between one-third and one-half of all IS projects never reach the implementation stage. In a survey conducted by Price Waterhouse, 25 per cent of senior executives responsible for IS project implementation in the financial services sector reported that over 50 per cent of IS projects end in failure (Car & Lee, 1994).

According to *Workforce*, many smaller companies already use service providers for payroll, and training departments are rapidly incorporating online classes as well as video technology (Temple, 2000). With this growth in IT utilization, practitioners and researchers alike recognize that IT may have a tremendous impact on the different functions and individuals in the organization (Gardner et al., 2003). Ulrich (1997b), for instance, has argued that, "technology will change how work is done in general and how HR (human resources) is practiced in particular". As the human resource management function increases its use of IT, there are likely to be implications for HR professionals as well (Sparrow & Daniels, 1999).

As more HR professionals are able to be more responsive, answer queries more quickly, and provide more accurate information, HRIS may enable HR professionals to increase their responsiveness to their constituencies. Thus, this study to investigate that more extensive use of HRIS, HR professionals to be able to provide increased information responsiveness.

The increase HR autonomy may result from employees using sites such as kiosk and web applications that are a result of increased HRIS usage. Thus, this study investigate that more extensive use of HRIS will enable HR professionals to be more autonomous in handling HR information.

An IT system may connect an organization to the internet, and thus allow HR professionals to access other organizations and points of reference to gather information that they need to remain current in their industry. By having increased information connectivity, HR professionals can demonstrate flexibility in the event of unanticipated change. Thus, this study investigate that more extensive use of HRIS will enable HR professionals to increase their link to external professionals.

With more extensive use of HRIS, there will likely be more time available for HR professionals to allot to other activities as they transform current activities and focus on business operations and practices. HR professionals will be expected to spend more time attending to organization wide issues, strategy development issues, and organizational change efforts. Thus, this study investigate that more extensive use of HRIS will require HR professionals to spend more time on broader and more transformational issues.

IT influences the focus of work that HR professionals perform by focusing more time on activities related to IT support, such as maintaining and developing IT-based HR applications. Thus, this study investigate that more extensive use of HRIS in the HR function will require HR professionals to spend more time on IT support activities.

Overall this study investigates several factors that may contribute to increase the HRIS usage and it also will examine how HR professionals handle HR information as well as the expectations placed on them resulting from an increased reliance on IT.

1.3   Research Objectives

The overall objective of this study IS are to identify and examine the existing key factors that have contributed to the HRIS implementation focus is extent of use and finally to address the issue by investigating how jobs in one professional occupational segment, human resource (HR), are influenced by extensive use of IT.

a) To identify the most common factors influencing the extent use of HRIS.

b) To examine the outcomes by extensive use of HRIS.

1.4   Research Questions

In order to achieve the above mentioned objectives, this study will try to answer following research questions:

1. What are the factors influence HR professional to use the HRIS?

2. What are the factors impact HR professional by extensive use of HRIS?

3. How effective HRIS system implementation in HR department?

1.5   Significance of Study

This study on HRIS system usage differs from many previous researchers on information system. Thus, this present study has added an extra dimension compared to previous studies by expanding the context of technology usage in job roles purposes. Understanding the factors influencing HRIS implementation and outcomes on HRIS usage will help management in the process of developing the appropriate system and strategies for future.

1.6   Definition of variables

Several key terms are used throughout this study and it is very important to define the meaning of each to enable better conceptualization.

a. Relative Advantage – is defined as the degree to which an innovation is perceived to be better than the idea it supersedes. It can also be viewed as the degree to which an innovation is perceived to bring added benefits to the user. Hence, it is often measured in terms of economic profitability, productivity improvement and other benefits.

b. Compatibility – is defined as the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential

adopters. An idea that is more compatible with existing values and norms is less uncertain to the potential adopters and hence fits more closely to an innovation to be easily accepted by potential adopters into part of their lifestyle.

c. Complexity – is defined as the degree to which an innovation is perceived as relatively difficult to understand and use.

d. Trialability – is defined as the degree to which an innovation may be experimented with on a limited basis.

e. Visibility – is defined as the degree to which the results of an innovation are visible to others. The results of some ideas area easily observed and communicated to others, whereas some innovations are difficult to observe or to describe to others.

f. Extent use of HRIS – is defined as the degree of uses the HRIS

g. Enable Information Responsiveness – is defined as enable HR professionals to access more information, allow them to answer queries from employees and managers in a timely fashion, and enable them to be more efficient at handling complex information as repetitive job tasks are automated.

h. Enable Information Autonomy – is defined as enable HRIS bundles information so that HR professionals can access this information and evaluate what was not previously accessible. HRIS was found to be associated with greater autonomy for middle managers as well as less predetermined decision procedures.

i. Professional Link – is defined as HR professionals are more likely to have increased opportunity to make connections to information from external sources. An HRIS may connect an organization to the internet, and thus allow

HR professionals to access other organizations and points of reference to gather information that they need to remain current in their industry.

j. Time Required on Transformational Activities – is defined as there will likely be more time available for HR professionals to allot to other activities as they transform current activities and focus on business operations and practices. It is expect that HR professionals will be expected to spend more time attending to organization wide issues, strategy development issues, and organizational change efforts.

k. Time Required on IT Support Activities is defined as HRIS influences the focus of work that HR professionals perform by focusing more time on activities related to IT support, such as maintaining and developing IT-based HR applications.

1.7   Organization of thesis

This thesis is divided into five chapters. Following this chapter is chapter two which review the literature related to HRIS research and the theory used as a framework of this study, Theory of Diffusion (Rogers, 1983) and Theory of IT framework (Remenyi et al. 1991; Zuboff, 1988). In chapter three the research methodology adopted for the current study will be discussed. It consists of research design, research hypotheses, population and sample, data collection methods, variables and measurement, questionnaire design, as well as the statistical tools used in analyzing the data. Result of the findings is reported in chapter four and finally, chapter five will conclude the results of the study, the limitations, and suggestions for the future research.

Chapter 2

LITERATURE REVIEW

2.1   Introduction

In the IT literature, one of the most prominent frameworks of IT impact includes three states of use: automation, information, and transformation (Remenyi et al. 1991; Zuboff, 1988). This framework of IT impact is developmental in that each stage is inherent in the technology but must be developed in order to be accessed or exploited.

The adoption and diffusion of innovation is a subject that has been widely studied across a broad spectrum of disciplines, including social science, marketing, engineering and management. Diffusion literatures have been developed across a number of disciplines explaining the flow of information, ideas, practices, products, and services within and across cultures and subcultures, or market segments. For example, Rogers (1983) diffusion of innovation theory identified compatibility, relative advantage, complexity, trialability and observability as characteristics of an innovation that influence its adoption.

Azjen and Fishbein's (1980) Theory of Reasoned Action (TRA) model which explains people's actions by identifying the causal connections between various components: beliefs, attitude, intentions and behavior. Davis et al. (1989) then adapted the TRA model to develop the Technology Acceptance Model (TAM), which is meant to explain computer usage behavior. Davis uses a broader theoretical framework to propose 'perceived usefulness' and 'perceived ease of use' as key innovation characteristics that influence adoption. All the three models mentioned above will be briefly discussed in the next section as part of literature overview.

Similarity in these models will also serve as the foundation of the research framework of this study and will be discussed in more detail in the later part.

2.2   Human Resource Information System (HRIS)

A human resource information system (HRIS) is a system used to acquire, store, manipulate, analyze, retrieve, and distribute pertinent information about an organization's human resource (Tannebaum, 1990). Initially, such a system was used in human resource management to support transaction processing and maintain management control. HRIS is an organized approach for obtaining relevant and timely information on which to base human resource decisions. A HRIS should be designed to provide information which is timely, accurate, concise, relevant and complete. The absence of even one of these characteristics reduces the effectiveness of an HRIS and complicates the decision-making process. Conversely, a system processing all these characteristics enhances the ease and accuracy of the decision-making process. An effective HRIS also produces several important reports and forecasts related to business operations (Mondy & Robert, 1993)

Slotnick et al. (1986) lists the attributes applicable to HRIS as efficient use of resources, speed, compatibility, updateability, accessibility, data integrity and privacy and security. Cohen (1989a, 1989b, 1989c) identifies the essential functions of an HRIS as: selection and placement; performance management; training and education; and career planning and development. The establishment of an HRIS looks towards the integration and support for three essential, corporate processes strategic planning, operational planning, and human resource planning (including career planning). Specifically, this means capabilities for succession planning, position control, management development, career planning and action research (Burack, 1985).

2.2.1 Definition of HRIS

An effective HRIS is crucial to sound human resource decision making; it typically employs computers and other sophisticated technologies to process data that reflect the day-to-day operations of a company, organized in the form of information to facilitate the decision-making process.

2.2.2 Common HRIS Functions

The Table 2.1 below shows the list of the more common HRIS functions and what is typically included within each function. Some firms HRIS will have all those information and more (Anthony, Kacmar & Perrewe, 2002).

2.2.3 HRIS Benefits

Mondy and Robert (1993) identify the HRIS advantages as follows:-

    i. A computerized HRIS is superior to a manual system in many respects. Because much of the information is automatically entered into the system, errors are less likely to occur.

   ii. Also, the HRIS's ability to connect to other computer exposes it to data that would otherwise be too difficult or costly to obtain.

  iii. Automated HRIS is backlog reduction. A well-designed HRIS will allow for more efficient input operation than a manual system could provide.

2.2.4 Making a HRIS work

HRIS in organization involves two key issues: training users and tying strategies and decisions. Just as it is the role of a human resource department to provide training to members of an organization in certain areas, the department also must make sure that

its employees and other users are properly trained to use the HRIS. Training often includes introducing users to new terms and familiarizing them with the capabilities of the system. Commercial system developers often provide training to organizations. If the system is developed in-house, then the training function may fall to the department that created the system. However, teaching employees how to use the system is not the only training component needed.

Table 2.1

Common HRIS Functions

Functions	Descriptions
Wages and salaries	Company pay structure, planned raises and wage histories
Benefits	Company benefit packages, data on benefits used/accumulated
EEO compliance	Information on minority hiring, recruitment, and advancement
Labor Relations	Labor contract data, grievance information and worker seniority lists
Training and Development	Information on various training programs, employees who have received training, and planned training and development activities
Health and safety	Information on company accidents and the individuals involved costs of accidents, and other data required by government and insurance reports.
Management succession/career planning	Information on skills, specialties, accomplishments, and possible promotions
HR planning	Projection of future needs
Staffing	Job assignments and possible employee specialties
HR data management	Basic employee information such as wages, social security numbers, and job titles
Monitoring and reporting HR policy	A DSS component helps organizations compare actual HR performance to desired HR performance.
General organizational data	Organizational structure, management levels, and special functions information
Demographics	Information about worker availability, education, ages
External databases	Information on other companies or economic trends

Source: Anthony et al. (2002)

According to Anthony et al. (2002), the second step in making a HRIS work is tying strategies and decisions. Even if users know how to use the system, it will not serve the organization if they cannot perceive any benefits from its use. As a result, a firm should make sure that the system serves necessary functions and provides

information that will aid decision makers in achieving organization goals and strategies. If management believes that the HRIS is not being used effectively, a HRIS audit can be conducted. This detail examining company-specific reasons for having a HRIS and for gathering the data included, as well as the reasons for the procedures used to access the data, the reports provides, and many other functional characteristics. Misuse, under use, and potential use all are uncovered.

2.2.5 HRIS Success

The ideal assessment of HRIS success would probably include data from a return on investment or utility analysis. This may explain why in the information systems (IS) field of inquiry, user satisfaction and system usage have become two common measures of system success. Gardner et al. (2003) found that age and gender may have some influence on users of IT. According to Haines and Petit (1997), user information satisfaction is expected to influence system usage to a certain extent. Haines and Petit (1997) found that seven *individual characteristics* that are expected to influence user satisfaction and system usage are:-

    i.   Age

Users who are older are expected to be less satisfied with systems (Igrabia & Nachman, 1990) and to use them to a lesser extent (Lee, 1986). Older users are more likely to exhibit higher levels of computer anxiety and resists computer-based systems to a greater extent.

    ii.   Gender

Because the data processing professions have been dominated by males and because it is a common belief that women exhibit higher levels of computer anxiety (Zmud, 1979), and because computers have

been associated with the male domain (Dambrot, Watkins-Malek, Silling, Marshall, & Garver,1985), there may be sex differences in computer attitudes and behaviors. Thus women users are expected to be less satisfied with systems and to use them less than men do.

iii. Education

Education is another individual variable that has been included in IS research (Lucas, 1975).

iv. Task Characteristic

Some task characteristic such as the structure of decision making, the type of work accomplished, and the decision making level in the organizational hierarchy are also expected to influence system success. The more structured the tasks being accomplished, the easier the development process and the greater the likelihood of implementation success (Cheney, Mann, & Amoroso, 1986).

v. Work Experience

Work experience is expected to influence system usage. It has been suggested that the length of time in an organization or in a position can change the way individuals make use of the formal and informal information flow (Fuerst & Cheney, 1982).

vi. Computer Experience

Users with more computer experience are expected to be more confident in their ability to use the system and more satisfied with the experience (Igbaria & Nachman,1990).

vii. Computer Understanding

Finally, users with a better understanding of computers are expected to be more satisfied with the system (Raymond, 1988) and to use the system to a greater extent (Montazemi, 1988).

According to Gardner et al. (2003) size was used as a control variable because of the possibility that larger organizations may have more resources to invest in IT. Haines and Petit (1997) mentioned that three *organizational condition* are also expected to influence user satisfaction and system usage. There are:

    i.   Size

A system are less likely to succeed in small organizations than in large organizations, we expected that users in larger organizations would be more satisfied and use the system to a greater extent.

    ii.   Availability of Internal User Support

As sources of expert information and assistance, the presence and size of the IS and HRIS departments (or units) are expected to increase user satisfaction and system usage.

    iii.   Organization Computer Experience

Users in organizations that have more computer experience are expected to exhibit lower levels of user satisfaction.

According to Haines and Petit (1997), finally eleven *system conditions* are expected to influence user satisfaction and system usage. There are:

    i.   Involvement

Users who were more involved in the HRIS development and implementation process are expected to be more satisfied with the system and to use the system to a greater extent.

    ii.   Training

Users who receive more HRIS training are expected to be more satisfied with the system and to use it to a greater extent. It was expected that users with more HRIS training would be more satisfied with their level of computer competence and thus express higher levels of satisfaction and use.

iii. Support

Users who receive more support from general management and from their immediate superior for using the system are expected to be more satisfied with it and to use it to a greater extent.

iv. Documentation

Users who have access to complete, structured, and well written documentation are expected to be more satisfied with the system.

v. Applications Development

Users who have access to applications that were developed internally as opposed to purchased applications are also expected to be more satisfied with the system. It is believed that the "in-house" development of applications results in a better fit between users' needs and the system that supports those needs and the system that supports those needs. It is also possible, however, that "in-house" systems lack documentation and sophistication, bringing lower satisfaction levels.

vi. Dependence

Users who are not dependent on external support for application processing are expected to be more satisfied with the system and use the system to a greater extent.

vii.   On-Line

Users who have access to more on-line applications are opposed to batch applications are expected to be more satisfied with the system and to use the system to a greater extent/

viii.   Access

Users who have free access to hardware and software products are expected to be more satisfied with the system and use the system to a greater extent.

ix.   Applications

Users who have access to a greater number of administrative applications are expected to be more satisfied with the system and to use the system to a greater extent.

x.   Ease-of-use

Users who perceive that the system is easy to use are expected to use the system to a greater extent. A HRIS that is difficult to use, meaning that it is not flexible, is not easy to learn, or lacks integration, would tent to frustrate users and thus inhibit its use.

xi.   Usefulness

Users who perceive that the system is useful are expected to use the system to a greater extent. Systems that enhance effectiveness and increase productivity would, therefore, be considered more successful.

2.3   Review of IT's Impact

IT is a vital component in the transformation of an organization (Farbey, Land & Target, 1994). During this process, IT increases the ability to change and to respond

for immediate and direct economic benefit.   It facilitates the streamlining of the administrative process and enables the decentralization of the scope and scale of the business.   Table 2.2 below shows how information technology influences process innovation.

IT applications, such as shared databases, networking, and telecommunications, are able to meet the need for closer coordination in the business area. Shared databases greatly ease the information dissemination process, providing an online environment for those who seek information as well as standardizing the format in which all receive such information. While shared databases facilitate the distribution of information, networking assists both collection and dissemination. Networking also facilitates rapid implementation of business decisions made at one level of an organization by permitting the timely conveyance of such decisions to all affected parties

Such communication takes place most commonly through telecommunications, through applications such as voicemail, e-mail, or video and teleconferencing. Teleconferencing defies the limits of geography, for example, by permitting people in remote locations to "meet" together with the help of technology in specially equipped meeting rooms. IT has broken the long-standing assumption that colleagues separated by many miles could only meet infrequently thanks to geographical limitations. This facilitates contacts among team members in different locations and can dramatically shorted the product development cycle (Hammer & Champy, 1993).

Overall, today's IT mechanisms promote a business environment that is more efficient, more adaptable and more flexible at all levels than ever before.

Organization characteristics such as just-in-time and total quality management can be ensured with analysis of virtual organizations supported by virtual reality technology.

Table 2.2

How information technology influences process innovation

Capability	Impact and Benefit
Automation	IT can replace or reduce human labor in a process
Analytical	IT can improve analysis of information and decision making
Disintermediation	IT can be used to connect two parties within a process and eliminate intermediaries from a process
Geographical	IT can transfer and coordinate information with rapidity and ease across large distances, making processes independent of geography
Informational	IT can capture vast amounts of detailed process information for purpose of understanding
Integrative	IT can coordinate tasks and processes
Intellectual	IT can capture and distribute intellectual assets
Knowledge management	IT allows the capture and dissemination of knowledge and expertise to improve the process
Sequential	IT can enable changes in the sequence of tasks in a process, often allowing parallelism
Tracking	IT allows the detailed monitoring of process status, inputs and outputs
Transactional	IT can transform unstructured processes into routinized transaction

Source: Farbey et al. (1994)

2.4   Technology Adoption

2.4.1   Introduction

Azjen and Fishbein's (1980) Theory of Reasoned Action (TRA) model which explains people's actions by identifying the causal connections between various components: beliefs, attitude, intentions and behavior. Davis et al. (1989) then

adapted the TRA model to develop the Technology Acceptance Model (TAM), which is meant to explain computer usage behavior. Davis et al. (1989) uses a broader theoretical framework to propose 'perceived usefulness' and 'perceived ease of use' as key innovation characteristics influence adoption.

The adoption and diffusion of innovation is a subject that has been widely studied across a broad spectrum of disciplines, including social science, marketing, engineering and management. Diffusion literatures have been developed across a number of disciplines explaining the flow of information, ideas, practices, products, and services within and across cultures and subcultures, or market segments. For example, Rogers' (1983) diffusion of innovation theory identified compatibility, relative advantage, complexity, trialability and observability as characteristics of an innovation that influence its adoption. Subsequent research provided empirical support for compatibility, relative advantage and complexity (Tornatzky & Klein, 1982). In the IT literature, one of the most prominent frameworks of IT impact includes three stages of use: automation, information, and transformation (Remenyi et al.1991; Zuboff, 1988). This framework of IT impact is developmental in that each stage in inherent in the technology but must be developed in order to be accessed or exploited. Similarity in these models will also serve as the foundation of the research framework of this study and will be discussed in more detail in the later part.

2.4.2 Theory of Diffusion

In this theory, Rogers (1983) proposed that innovation adoption is a process of uncertainty reduction and information gathering. Information about the existence of the innovation as well as its characteristics and features flows through the social system within which adopters are situated. Potential adopters engage in information seeking behaviors to learn about the expected consequences of using the innovation:

an assessment and evaluation of this information determines adoption behavior. Thus, communication channels and information processing by potential adopters play a central role in Roger's theory. In innovation diffusion theory, a significant outcome is an individual's decision is influenced by five key perceptions about the characteristics of the innovation: relative advantage, compatibility, complexity, trialability, and observability.

a) Relative advantage

Relative advantage is the degree to which an innovation is perceived to be better than the idea it supersedes. It can also be viewed as the degree to which an innovation is perceived to bring added benefits to the user. Hence, it is often measured in terms of economic profitability, productivity improvement and other benefits. The nature of the innovation determines which specific types of relative advantage it brings to the end user. The adoption of an innovation depends on how these benefits an innovation brings match the demand of potential adopters. In the TAM model, this particular attribute is referred to as perceived usefulness. In general, the relative advantage of an innovation as perceived by members of a social system is positively related to its rate of adoption.

b)   Compatibility

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. An idea that is more compatible with existing values and norms is less uncertain to the potential adopters and hence fits more closely to an innovation to be easily accepted by potential adopters into part of their lifestyle. An innovation can be compatible or incompatible with (1) socio-cultural values and beliefs, (2) previously introduced ideas, or (3) client needs for the innovation.

c)   Complexity

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Any new idea may be classified on the complexity simplicity continuum. Some innovations are clear in their meaning to potential adopters whereas others are not. In the TAM model, this attribute is referred to as perceived ease of use.

d)   Trialability

Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan are generally adopted more rapidly than innovations that are not divisible. Some innovations are more difficult to divide for trial than others. The personal trying out of innovation is a way to give meaning to innovation, to find out how it works under one's own interpretation. This trial is a means to dispel uncertainty about adopting an innovation.

e)   Observability or Visibility

Visibility (named as Observability by Rogers) is the degree to which the results of an innovation are visible to others. The results of some ideas area easily observed and communicated to others, whereas some innovations are difficult to observe or to describe to others. Rogers (1962, as cited by Benbasat and Moore) argued that when an innovation is easily observable or visible to potential adopters, it is more likely for the innovation to be adopted.

2.4.2.1 Rate of Adoption

Rate of adoption is the relative speed with which an innovation is adopted by members of a social system. It is generally measured by the number of individuals adopting an innovation over a period of time. In other word, rate of adoption is

measured by the steepness of the adoption curve for an innovation. Figure 2.1 shows the variables that affect the rate of adoption of innovations. The perceived attributes of innovation are one of the key factors affecting rate of adoption of an innovation. From 49 to 87 percent of the variance in rate of adoption of an innovation can be explained by five attributes: Relative advantage, compatibility, complexity, trialability, and observability (Rogers,1983).

Perceived of Innovations
* Relative Advantage
* Compatibility
* Complexity
* Trialability
* Observability or Visibility

Rate of Adoption
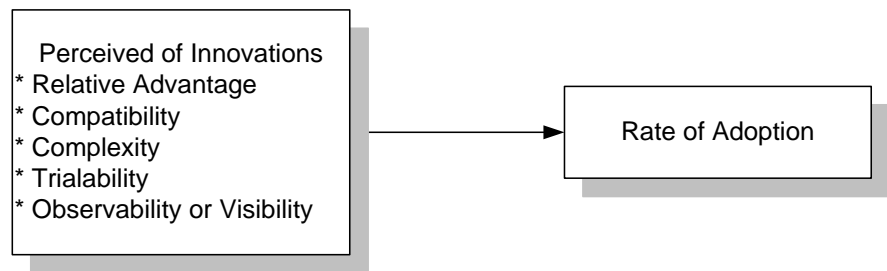
Figure 2.1 Theory of Diffusion (Rogers)

2.4.3   Theory of IT Framework (Remenyi & Zuboff)

According to Remenyi et. al (1991) and Zuboff (1988), IT impact includes three stages of use are automation, information, and transformation. The notion that extensive use of information technology impacts the HR professional job role through influencing information demands on these employees as demand for providing IT support. In the automation stage, IT is used primarily to automate manual systems and reduce the need of personnel to perform routine activities. According to Zuboff (1988), IT automation often reduces the amount of routine work that must be done, potentially providing more opportunities for individuals to think and use their full cognitive capacities.

Informating IT provides a deeper level of transparency to activities, events, and objects by generating "… information about the underlying productive and administrative processes through which an organization accomplishes its work

(Zuboff, 1988, p.9). In HR, a transformational impact might foster a new culture or mindset as professionals try to think outside the box to formulate various innovations. IT transformation may also lead HR professionals to create innovative practices or to innovatively deliver HR practices to their clients.

As more HR professionals are able to be more responsive, answer queries more quickly, and provide more accurate information, HRIS may enable HR professionals to increase their responsiveness to their constituencies. Thus, with more extensive use of HRIS, HR professionals to be able to provide increased information responsiveness.

The increase HR autonomy may result from employees using sites such as kiosk and web applications that are a result of increased HRIS usage. Thus, with more extensive use of HRIS will enable HR professionals to be more autonomous in handling HR information.

An IT system may connect an organization to the internet, and thus allow HR professionals to access other organizations and points of reference to gather information that they need to remain current in their industry. By having increased information connectivity, HR professionals can demonstrate flexibility in the event of unanticipated change. Thus, with more extensive use of HRIS will enable HR professionals to increase their link to external professionals.

With more extensive use of HRIS, there will likely be more time available for HR professionals to allot to other activities as they transform current activities and focus on business operations and practices. HR professionals will be expected to spend more time attending to organization wide issues, strategy development issues, and organizational change efforts. Thus, with more extensive use of HRIS will require HR professionals to spend more time on broader and more transformational issues.

IT influences the focus of work that HR professionals perform by focusing more time on activities related to IT support, such as maintaining and developing IT-based HR applications. Thus, with more extensive use of HRIS in the HR function will require HR professionals to spend more time on IT support activities. Figure 2.2 shows the IT framework by Remenyi et al. (1991) and Zuboff (1988).
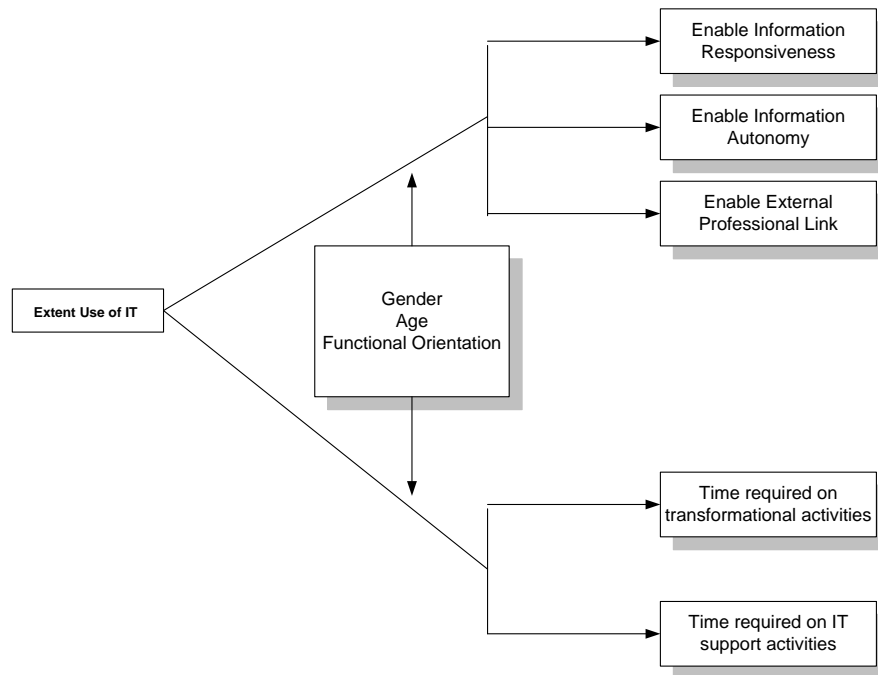

Figure 2.2 Theory of IT Framework (Remenyi & Zuboff)

2.5   Theoretical Framework

The objective of this study is to understand the influence of various perceived attributes of innovations towards extent of use of HRIS system usage and the outcomes of extent of use of HRIS system usage. The research framework is an adaptation based on theory of adoption and theory of IT framework. Rogers (1983) proposed that there are five factors that contributing to the rate of adoption such as relative advantage, compatibility, complexity, trialability and visibility. According to Remenyi et. al (1991) and Zuboff (1988), IT impact includes three stages of use are automation, information, and transformation. The notion that extensive use of information technology impacts the HR professional job role through influencing