THE ROLE OF HUMAN RESOURCE INFORMATION SYSTEMS IN HUMAN RESOURCE PLANNING IN PRIVATE SECTOR ORGANISATIONS IN SRI LANKA

BY

UDANI CHATHURIKA WICKRAMARATNA

2009/MISM/042

submitted in accordance with the requirements for the degree of

MASTERS IN INFORMATION SYSTEMS MANAGEMENT

SUPERVISORS: Mr. SAJITHA DISHANKA MBA (Colombo)

Dr. CHAMINDA JAYASUNDARA

FACULTY OF GRADUATE STUDIES

UNIVERSITY OF COLOMBO

28 February 2011

Declaration

I certify that this Thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any University, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Date: …….. …….

Udani C. Wickramaratna

The undersigned, have supervised the dissertation entitled THE ROLE OF HUMAN RESOURCE INFORMATION SYSTEMS IN HUMAN RESOURCE PLANNING IN PRIVATE SECTOR ORGANISATIONS IN SRI LANKA presented by Udani Chathurika Wickramaratna, a candidate for the degree of Masters in Information Systems Management, and hereby certify that, in my opinion, it is worthy of submission for examination.

Date: …….. …….

Dr. Chaminda Jayasundara

Supervisor

Abstract

Human Resource Information System (HRIS) has become one of most vital information systems in the market. This study focuses on the role of HRIS in human resource planning (HR) in private sector organisations in Sri Lanka. The purpose is to explore the functionality and contribution of HRIS in HR planning through HRIS recruiting and training & development subsystems as perceived by senior HR executives in Sri Lankan private sector organisations.

A pilot survey was carried out to identify the problem using structured interviews with Heads of HR of three selected private companies. A structured questionnaire was used to collect data from senior HR executives of selected private sector companies in Sri Lanka. Answers received from 89 respondents were analysed. The overall response rate was 48 percent. The deductive mode of reasoning, cross-sectional study and quantitative techniques were selected as research methods.

The results of the survey showed that the most frequently accepted HRIS feature is training needs analysis (TNA) and that there is high positive correlation between HRIS job analysis and the effectiveness of HR planning. Most Sri Lankan private sector organisations perceived the contribution to efficiency of HR planning through HRIS skill inventory, HRIS TNA, HRIS training program evaluation, HRIS succession planning, HRIS labour demand and supply analysis and decision-making, as the greatest contribution of HRIS. This study shows that HRIS needs to offer more intelligent capabilities to increase the effectiveness of HR planning. HRIS vendors need to win the trust of HR professionals through enriching features and increasing the awareness and usage of HRIS in HR planning, especially its effectiveness.

Acknowledgements

My sincere thanks go to my supervisor Mr. Sajitha Dishanka and the course coordinator Dr. Chaminda Jayasundara for their guidance and advice.

My heartfelt gratitude goes to Prof. K A P Siddhisena, Mr. R A B Abeygunewardene, for his invaluable advice and support during the data analysis phase of this research and to Dr. S Mahakalanda for his remarkable assistance throughout the program.

I would like to extend my deepest gratitude to the group of people who helped shape this research as it progressed. First and foremost to Mrs. Fathmath Stephan, Directress of “The Business Studies Centre” and Mrs. Keren Stephen (CFA) Amba Research Lanka (Private) Limited for introducing me to several professionals: Mr. Sunil Dissanayake (Head-Group Human Resources Hayleys PLC); Mr. I. C. L. Bertus (Chief Officer HR and Legal, Sri Lanka Telecom PLC) and Mr. Chamara Pussella (Senior Executive - HR of Amba Research Lanka (Private) Limited). I would like to thank them for their kind and unlimited support during the pilot survey. My gratitude also goes to all the senior HR executives who took time off their busy schedules to respond to the questionnaire. My sincere thanks go to my group members for their encouragement, guidance, and advice and to Ms. Shashikala Perera for having agreed to proofread this thesis.

Table of contents

List of tables

List of figures

List of acronyms

BPO	:	Business Process Outsource
DSS	:	Decision Support System
ESS	:	Executive Support System
HR	:	Human Resource
HRIS	:	Human Resource Information Systems
HRM	:	Human Resource Management
IaaS	:	Infrastructure as a Service
IS	:	Information Systems
IT	:	Information Technology
MIS	:	Management Information System
PaaS	:	Platform as a Service
SaaS	:	Software as a Service
SHRP	:	Strategic Human Resource Planning
SOA	:	Service Oriented Architecture
TPS	:	Transaction Processing Systems

Chapter 1

1. Introduction

Organisations continuously invest substantial amounts of money on Information Systems. If they invest without identifying the current value of support and future limitations, they cannot gain competitive advantage in a rapidly changing business world (Tansley *et al.*, 2001). They may even go bankrupt without ever meeting these two ends. Human Resource Information System (HRIS) is one Information System in which one should invest intelligently. Most of the large-scale organisations spend large amounts on HRIS, but unfortunately, many of them utilise it just for human resource (HR) administrative purposes rather than for effective and efficient human resource planning. After spending considerable amounts, if HRIS is used only for administrative work, it will not be effective. This study aims to find out the contribution of HRIS in human resource planning throughout recruitment, selection, training and development within the perception of Senior HR Executives developing a conceptual framework and test the hypotheses.

1.1. Background to the research

1.1.1. Conceptual background

As the new economy shifts gears, we enter an era when the careful examination of value creation is not enough (Sharma, 2000). Therefore, entrepreneurs invested further on Information Technology (IT) and Information Systems (IS) intending to lead the market and to gain a competitive advantage (Tansley *et al.*, 2001). Gradually IS turned out to be the backbone of the organisations, used for most of the operational level activities such as Sales/Marketing Systems, Manufacturing/Production Systems, Finance/Accounting Systems, Human Resource System, etc. furnishing effective and efficient services. Furthermore, IS has been developed to support business decision making in order to increase the quality of business decisions (Figure 1.1).

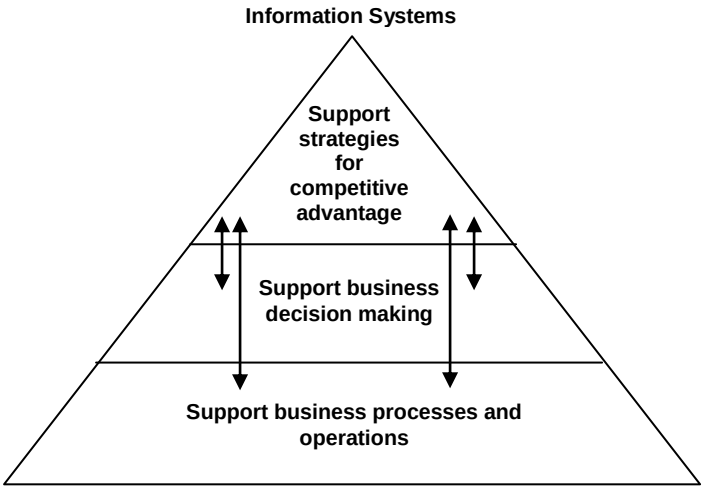

Figure 1.1: Contribution IS to a business

Source: O'BRIEN and Marakes, 2008b

One of the major types of systems used in at the operational level of an organisation is Transaction Processing System (TPS). Massive deployment of TPS in organisations diminished the competitive advantage of IS. After a while, organisations endeavoured to use IS at managerial and strategic level to gain competitive advantage.

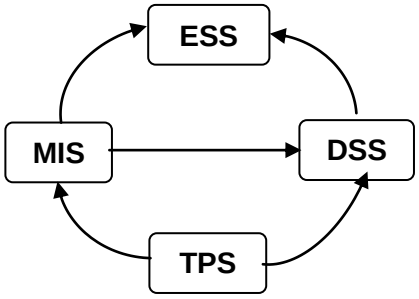

Figure 1.2: Relationship of systems to one another

Among the four main types of systems within the industry, Management Information System (MIS) and Decision Support System (DSS) are mostly used for business decisions that take output from TPS. Executive Support System (ESS) is especially used for strategic level decisions that take input from MIS and DSS (Figure 1.2). MIS outputs are inputs to DSS as well. TPS, MIS, DSS and ESS support different organisational levels (Figure 1.3). In most firms, these systems are loosely coupled resulting in inefficient information transportation from one to another, leading to failure to respond quickly to the challenges in the business environment. Lack of system integration becomes crucial when organisations try to achieve corporate objectives.

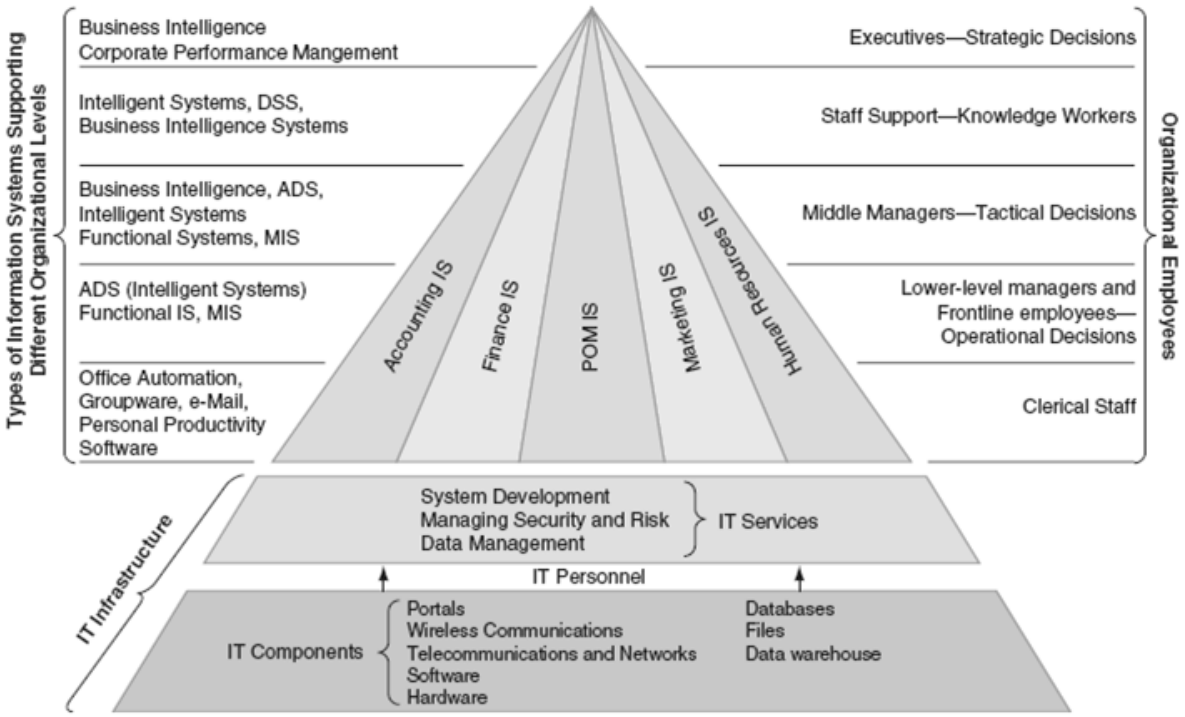

Figure 1.3: People in organisations

Source: Turban *et al.*, 2007

Human resource information systems

Human Resource Information System (HRIS) is one of the most important Management Information Systems, which contributes to human resource administration functions of an organisation. HRIS, aptly described by Noe *et al.*, (2007), as a computer system used to acquire, store, manipulate, analyse, retrieve, and distribute information related to human resources. Modern HRIS needs to help organisations by automating most of the HR planning functions. HRIS becomes an important strategic tool since it collects, manages and reports information for decision-making. Fully integrated organisational HRIS ought to interface with other systems enabling and enhancing the communication between departments such as payroll system with accounting system. Since HRIS deals with employees' personal data, which are sensitive, it should ensure data security while transferring information from one place to another. HRIS should be able to enhance communication between employers and employees and build strong relationship with unions and management committees. HRIS should be capable of identifying trends, evaluating and managing costs, comparing the organisation with other competitive organisations and issue relevant reports. New HRIS trends seem to build important effect on HR planning embedding new technology with organisational objectives and goals. Enterprise Resource Planning System (ERP systems), when linked with the HRIS sub system, provides a competitive advantage to organisations over their competitors.

Human resource decision support system (HR DSS)

HRIS may consist of Human Resource Decision Support System (HR DSS) enabling decision making and forecasting capabilities of HR executives. Sigmaconsultancy (2001) says that HR DSS simulate (or 'model') a range of employment situations, and thereby help the employer to see how people will react to different employment offers or work situations and that if the modelled situations are realistic, HR DSS will be highly accurate.

HRIS and human resource planning (HRP)

The role of human resource planning is, according to Pattanayak (2009), to incorporate the planning and control of human resources into the corporate level plans. As a result all resources are used together in the best possible combination. HR thus planning plays a crucial role in an organisation placing the right person in the right job at the right time. It forecasts the organisation's human resource requirement and develops a plan to fulfil the future workforce positions. HR planning aids to align the organisational objectives with its human resource concerns through short-term as well as long-term strategic HR plan by evaluating the feedback regularly (Figure 1.4).

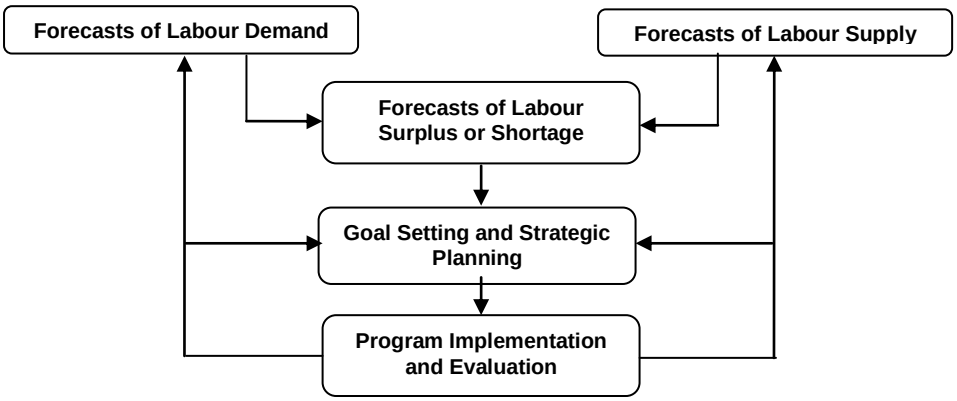

Figure 1.4: Human resource planning

Source: Noe *et al.*, 2007

If HRIS facilitates HR planning functions such as recruitment and selection, training and development and succession planning, organisations would gain a competitive advantage. HRIS or Human Resource Management Systems (HRMS) can assist in recognising experienced, qualified and skilful employees. It can provide a statistical overview for the whole organisation to improve its productivity by selecting and developing potential employees for positions.

Organisational recruiting sources such as direct applications, advertisements, public or private employment agencies, colleges, universities, etc. are going to be replaced by HRIS electronic recruiting facilities reducing the cost of the organisation. Employee selection must be according to the job type and relevant skill requirements such as technical skills, intelligence, interpersonal skills, computer skills, etc. HRIS skill

inventory facilities can be used to store data in a skill database facilitating the selection of the most suitable candidates after analysing their skills and qualifications according to the job requirement.

Organisations make jobs more rewarding by job enlargement, job enrichment, job rotation, and empowerment. In addition, organisations reengineer jobs to compensate labour shortages. Employees gain training and development opportunities whenever HR planning department decides to redesign current jobs for more rewards. Tao *et al.*, (2006) state that training, especially, is an important strategic practice in the development of internal competence. HRIS facilitates for Training Needs Analysis (TNA) to decide what training and development program might best meet the need, saving time and cost. TNA enables individuals to learn at their own level, as well as learning only what they need to know in order to benefit their work (Eighteen, 1999). TNA is an excellent HR tool, which assists the organisation to maintain a training record for each delegate, showing skill levels before and after the training. Succession planning is another part of training and development, used to identify and track high-potential employees already working in the organisation in order to fill the top management positions whenever they become vacant. Organisations define strategies to accomplish succession-planning objectives. HRIS skill inventory and TNA facilitate succession planning as well.

HRIS is one of the systems that organisations invest and implement according to their corporate, HR and IS/IT strategies. HRIS is developed to assist the organisational HR planning. HRIS can mainly provide information to the organisation in order to select and recruit candidates or train and develop the employees to execute the HR plan. However, few organisations use HRIS for HR planning. Most organisations use HRIS to generate a limited number of traditional reports of HR administration work such as online leave management, salary calculations, attendance recording, etc., rather than trying to take the essence of available HRIS features. In the Sri Lankan context, proper HRIS studies do not exit. Therefore a pilot survey was carried out as an initial information generating tool.

1.1.2. Contextual background

A pilot survey was carried out to identify the contextual background of HRIS. Initially three organisations that had implemented HRIS were selected and their Heads of HR were interviewed to identify the problems of the context. Their annual reports were referred to in order to identify their policies. One of the leading manufacturing organisations, Hayleys was identified as a successful HRIS user mostly in HR administration functions and HR planning functions. Furthermore, Hayleys looks forward to upgrade its HRIS in near future with more facilities to enhance recruitment, selection, training and development. Sri Lanka Telecom (SLT), a leading telecom service provider in Sri Lanka, was identified as another successful HRIS user in administration functions but with less success in HR planning due to infrastructure problems. Amba Research Lanka (Private) Limited was selected as the third organisation. Amba has outsourced HR administration functions and runs HR planning functions by itself using HRIS on a satisfactory level. Still, Amba has not fully employed training and development facilities of HRIS. According to the pilot survey, though organisations use HRIS, they are not yet using some aspects of HRIS due to lack of knowledge or lack of support from the existing system. All three organisations have spent substantial amounts on HRIS and its services.

In an organisation all the departments, i.e. IT, HR, finance, production, marketing need to work together to achieve organisational goals. All these departments need to have good IT governance, which is inline with corporate, HR and business strategies. The HR department has a very significant role in an organisation because it deals with the most valuable asset; human capital. Though the HR department does not generate any monetary output, it plans to achieve the organisational objectives using available human capital for which good IT governance and IT investment are essential. One of the most significant challenges faced by personnel executives today is measuring the performance of their human resource information system (HRIS) in order to justify the value-added contribution of HRIS towards accomplishing the organisation's mission (Hagood and Friedman, 2002). In large organisations that have more than one hundred

employees it is difficult to ensure that various HR decisions complement each other. In such a case, the role of HRIS is very vital.

Hayleys stands out as a successful HRIS user thanks to its good IT governance policy. The company says in its 2009 annual report (Hayleys, 2009:98) that the company continues “to give attention to shaping the Group’s IT systems in line with its strategies and objectives” and that “dedicated staff is deployed Group-wide to support this need”. With good IT governance, IT investments can be well planed and take place when the organisation needs it. Hayleys (2009:98) mentions: “investments in IT projects and systems are made after consideration is given to their suitability for the related projects”. According to Head – Group HR and Group Management Committee of Hayleys Group, Hayleys was intelligent enough to promote good IT governance and IT investments. Therefore, Hayleys gained competitive advantage over its competitors by getting the best possible use out of their IS while the other leading organisations suffered due to poor IT governance.

Large-scale organisations are capable of investing in highly integrated ERP system along with HRIS. MIS or Enterprise Resource Planning (ERP) systems build integration among all the departments of an organisation. Head – Group HR of Hayleys, disclosed that Hayleys is currently executing HRIS integrated with ERP system. He said that the integrated system worked successfully and that they extracted optimum use of its features not only for operational level activities but also for incorporating the planning and control of human resources. According to him, HRIS facilitated for succession planning, HR planning and had increased the accuracy of decision-making in the HR planning department. “The Group’s investment in IT resources covers resources operated and managed centrally and resources deployed in the various sectors. The former includes an ERP system and Internet and e-mail services catering to most sectors in the Group, and a Group-wide data communication system. The latter includes sector specified resources such as logistic management system” (Hayleys, 2009:98).

Chief Officer HR of Sri Lanka Telecom (SLT) disclosed that SLT had spent around 30 million LKR for Telecom Management Information System (TMIS) and HRIS

in 2004. Approximately they spend around 300,000 LKR annually for the maintenance of HRIS. Even after having spent such a substantial amount, SLT still faces technical problems when the company tries to integrate HRIS with the main TMIS. SLT uses HRIS for traditional HR functions such as payroll, attendance and bonus calculations, but very defectively for HR planning. SLT's annual report (2009) has not paid satisfactory attention to organisational IT governance though they have mentioned corporate governance in detail. SLT has only mentioned their infrastructural risk: "Major IT applications are replicated at the disaster recovery site and in establishing this; a DR mock-up has been successfully completed. SLT Intranet meanwhile has been completely replicated at the disaster recovery site" (Sri Lanka Telecom, 2009:90). Poor focus on IT governance may be the reason that SLT is unable to absorb the essence of information systems such as HRIS.

Some organisations desire to outsource HRIS to gain a cost effective solution. Senior Executive – HR of Amba Research Lanka (Private) Limited says that their organisation gained optimum use of HRIS though its administrative functions executed by their overseas service provider. Further, he explained that they were pleased to pay a lump sum, which was far above the ground for their service provider's high quality HRIS administrative services. According to him, HR planning functions of HRIS is handled by the organisation thus they can concentrate more on the HR planning aspect. By outsourcing HRIS administrative functions the organisation expected to gain convenience and more time for planning rather than cost reduction. However, he said that they had not used their HRIS for training and development functions of the organisation.

1.2. Research problem and hypotheses

1.2.1. Research problem

Chief Officer HR of SLT said that SLT initially used HRIS for administrative activities such as salary calculations and attendance recordings successfully. According to him, they did not use HRIS as a management tool which contributes to HR planning and planning related activities such as recruitment, selection, succession planning, training, and development. Although SLT has identified the inadequacy of the existing system, the company cannot afford a new system right now since they have already spent a considerable amount on HRIS. Therefore, HRIS does not play a significant role in SLT's HR planning department to manage SLT employees fairly, equally and transparently.

According to Head – Group HR of Hayleys, HRIS is used to reduce the cost and increase the productivity by compensating labour shortages which has led to flatter their company with wider spans of supervision. He feels that HRIS fairly supported HR administrative functions as well as HR planning functions. However, according to him, Hayleys used traditional recruiting sources rather than the e-recruiting facilities of HRIS when recruiting employees due to lack of support for the current system. Hayleys plans to upgrade the current system in order to facilitate recruitment, selection, training and development as well.

Senior Executive – HR of Amba Research Lanka (Private) Limited, said that Amba uses HRIS for HR planning functions but not for identifying the training needs of the organisation due to lack of support for the existing system.

According to annual reports, organisations that are smart enough to set overall information system policies in advance seem to acquire HRIS to fulfil their HR administrative functions as well as human resources planning functions. Though the existing HRIS system supports HR planning functionalities of the organisations, some organisations do not fully utilise them for recruiting, selection, training and development due to the dependence on traditional methods or due to unawareness. Others struggle to align their existing HRIS system facilities with the HR planning functionalities owing to

lack of support from their existing system or lack of investments to upgrade the system with required features.

The pilot survey findings lead to the conclusion that all three organisations are fully aware of the administrative functionality of HRIS and make use of them but do not make optimum use of HRIS functions in support of HR planning. How does HRIS contribute to HR planning? Do the available HRIS functionalities adequately support organisational HR planning efficiency and effectiveness? This survey is to investigate the contribution of HRIS to human resources planning through recruiting, training and development subsystems to reveal the strength of HRIS as a management information system and as a decision support system as against a mere transaction processing system. This study would guide future HRIS users to make optimum use of HRIS functionalities in HR planning rather than employing it only for administrative works.

1.2.2. Purpose of research

The aim of this research is to explore the functionality and contribution of HRIS in HR planning through HRIS recruiting and training and development subsystems within the perception of senior HR executives in Sri Lankan private sector organisations.

This study would contribute to the body of knowledge by filling the existing gap in the HR planning aspect of HRIS studies by analysing the senior HR executives' behaviours, opinions and awareness of HRIS functionalities towards the success of HR planning. HR planning was selected as the focus of this study since it is likely to be supported by HRIS tools; job analysis, skill inventory, e-recruiting, TNA, training evaluation, succession planning, HRIS labour demand and supply analysis and decision-making. This study would determine the contribution of this to human resources planning by developing a conceptual framework and testing it using hypotheses.

1.2.3. Significance of the study

In the Sri Lankan context, HRIS is still in its initial stages since a lot of forming and reforming are going on in the industry. There is a vast knowledge gap within Sri Lankan research studies as to how HRIS could contribute to HR planning. Therefore, finding the role of HRIS in HR planning in private sector organisations in Sri Lanka would be very important, and would contribute to the body of knowledge.

HR planning is one of the most crucial aspects of an organisation, which can be facilitated by HRIS functionalities. A number of vendors supply HRIS software to the market under different names and prices. Organisations spend substantial amounts to acquire HRIS software. After a while, they suffer when they try to align the available HRIS functionalities with HR planning. Sometime though organisational HRIS support for HR planning features, organisations do not use all the functionalities due to poor response from the users. It is time to conduct a proper study to find out how HRIS could contribute to HR planning other than as a means of facilitating administrative matters. This study would not only fill the existing knowledge gap in research studies, it would also encourage organisations to review their IS policies and HRIS utilisation in HR planning.

Through this study, HRIS vendors would also be able to re-evaluate the HR planning functionalities of HRIS to minimise deficiencies and enhance its services. Furthermore, vendors can decide as to whether they have instructed their clients to make optimum use of HR planning through the opinion of the senior HR executives.

1.2.4. Research question

1. How effectively and efficiently does the HRIS recruiting subsystem contribute to workforce planning of an organisation?
2. How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?
3. What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?

1.2.5. Research objectives

1. To explore the contribution of HRIS recruiting subsystem to workforce planning of an organisation
2. To investigate the contribution of HRIS training and development subsystem to workforce planning of an organisation
3. To identify the overall contribution of HRIS in HR planning through HRIS recruiting and training and development subsystems of an organisation

1.2.6. Hypotheses

For research purposes, null and alternative hypotheses are developed as follows:

1. **The greater utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.**

   $H_0$1: higher utilisation of HRIS job analysis process in an organisation does not increase the efficiency and effectiveness of HR planning.

   H_a1: higher utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.

2. **The greater utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning.**

   $H_0$2: higher utilisation of HRIS skill inventory process in an organisation does not increase the efficiency and effectiveness of HR planning.

   H_a2: higher utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning.

3. **The greater employment of HRIS e-recruitment process in an organisation increases the efficiency and effectiveness of HR planning.**

   $H_0$3: higher employment of HRIS e-recruitment process in an organisation does not increase the efficiency and effectiveness of HR planning.

   H_a3: higher employment of HRIS e-recruitment process in an organisation increases the efficiency and effectiveness of HR planning.

4. **HRIS training need analysis (TNA) process increases the efficiency and effectiveness HR planning of an organisation.**

   $H_0$4: HRIS training need analysis (TNA) process does not increase the efficiency and effectiveness of HR planning of an organisation.

   H_a4: HRIS training need analysis (TNA) process increases the efficiency and effectiveness of HR planning of an organisation.

5. **HRIS training process evaluation increases the efficiency and effectiveness of HR planning of an organisation.**

   $H_0$5: Training process evaluation of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

   H_a5: Training process evaluation of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

6. **Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation.**

   $H_0$6: Succession planning of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

   H_a6: Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

7. **Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation.**

   $H_0$7: Labour demand and supply analysis of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

   H_a7: Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

8. **HRIS decision-making process increases the efficiency and effectiveness of HR planning of an organisation**

   $H_0$8: Decision-making process of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

   H_a8: Decision-making process of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

1.3. Justification for the research

This research will disclose the role of HRIS in HR planning with special emphasis on recruitment and selection and training and development since these processes have direct involvement in HR planning. Recruitment and selection process is categorised into three sub processes: job analysis, skill inventory and e-recruiting based on the facilities of HRIS, which contribute towards HR planning. Training and development process is categorised into three sub processes: TNA, training evaluating, and succession planning (based on the facilities of HRIS to find the contribution of training and development to HR planning). HRIS labour demand and supply analysis and decision-making also have direct involvement in HR planning

This study proposes a conceptual framework representing the role of HRIS in HR planning through recruitment and selection and training and development.

During the pilot survey, Heads of HR who were directly involved in HR planning were interviewed to analyse their views. They emphasised that senior HR executives were more involved in HRIS than them. For this reason, I have selected senior HR executives as a focus group to carry out this research, as they are the experts who directly use HRIS.

Beadles *et al.* (2005), find out that user satisfaction and perception of the system has often been used as a proxy measure for the effectiveness of the system. This is because the ideal assessment of HRIS success might include hard measures such as Return on Investment (ROI) the control of extraneous variables makes this type of measurement of success difficult if not impossible.

Although the management plans to make use of HRIS in HR planning, if the existing HRIS functionalities do not support the objectives, the effort will not bear fruit. This research would help to identify whether the existing HRIS in an organisation is still in its developing stages or whether it has matured to facilitate HR planning as well. This study will identify if organisational HRIS consists of MIS and DSS to support HR decision making or merely TPS. It makes recommendations for the future developments of HRIS in order to fit into HR planning. A lot of research has focused on the administrative

functionalities of HRIS but very few studies have been carried out on the HR planning aspects of HRIS, particularly in the Sri Lankan context. There is a vast knowledge gap as to how recruitment and selection and training and development functionalities of HRIS contribute to HR planning. Not many studies exist on the HRIS HR decision-support functionality for HR planning in available literature either. Therefore, this research is important especially in the Sri Lankan context.

1.4. Methods

1.4.1. Design

Research process: deductive

For the investigation, deductive process is used since the researcher develops a conceptual framework and tests the hypotheses. Deductive process is more suitable as the research would be moving from the general to the particular situations of organisations.

Research purpose: applied

This research takes place for the academic purpose of exploring the role of HRIS in HR planning. The problem is specific, which is currently faced by most of the HRIS users in private sector organisations in Sri Lanka. Therefore, the findings of this research can be applied in future to enhance HRIS practices to achieve organisational objectives, which would support HR planning.

Research method: quantitative research

A quantitative method is used to achieve research objectives effectively. Hypotheses were tested using questionnaires.

Purpose of the study: exploratory and hypotheses testing

The role of HRIS in HR planning is an exploratory study owing to the lack of similar studies in Sri Lanka. Most of the studies are based on the role of HRIS in HRM but not in HR planning. An exploratory study is undertaken when not much is known about the situation at hand, or no information is available on how similar problems or research issues have been solved in the past (Sekaran, 2003).

Studies that engage in hypotheses testing usually explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation (Sekaran, 2003). Senior HR executives who deal with organisational HRIS for HR planning mainly participated in the study. The purpose of the study is to analyse the views of the focus group (the HRIS users) in an organisation and develop a sound theory on the role of HRIS.

Type of investigation: correlational study

This research is a correlational study since the researcher is interested in outlining the variables associated with the problem. A study is called a correlational study, when the researcher is interested in delineating the important variable associated with the problem (Sekaran, 2003).

The researcher's interference is minimal as questionnaires are used to gather information from the senior HR executives within the field. Sekaran (2003) points out that a correlational study is conducted in the natural environment of the organisation with minimum interference by the researcher with the normal flow of work.

Time horizon: cross sectional

Studies are called one-shot or cross sectional when data are gathered just once, perhaps over a period of days or week or months, in order to answer a research question (Sekaran, 2003). Researcher generated facts from Heads of HR through field visits to some organisations within the pilot survey and through e-mailing the questionnaire to

senior HR executives of the organisations. Data are gathered just once from the focus group therefore, time horizon is cross sectional.

1.4.2. Target population

Population

HRIS user population is restricted to large-scale organisations due to implementation and maintaining cost, lack of knowledge, technical problems, etc. Thirty-one large scale private sector organisations have implemented and use advanced HRIS in Sri Lanka. HRIS uses information based on client information of HRIS vendors such as hSined, Microimage, Empower Performance, OrangeHRM, Greenwich Lanka (Pvt.) Limited. The number of employees working in an organisation is used as a factor to decide whether the organisation is large, medium or small-scale. If an organisation has more than hundred employees, it is considered large scale (May *et al.*, 2002). Most of the large-scale organisations are located within the Colombo district (LankaTopTen, 2010).

1.4.3. Sampling methods: Probability sample: Stratified random

Stratified random sampling is used to select senior HR executives who use HRIS to extract information to assist the top management based on the organisation type: financial, manufacturing, and service.

1.4.4. Data collection methods and procedures

1. Semi-structured interviews

Three semi-structured interviews were conducted with the Heads of HR of selected organisations: Hayleys, SLT and Amba as a pilot survey. Their experiences, knowledge, personal views on HRIS were documented. Structured questions based on HRIS were posed to identify the contextual background of HRIS in the organisations.

2. **Questionnaire**

Questionnaire, designed using the likert scale method was e-mailed to the senior HR executives who deals daily with HRIS to get their views.

3. **Organisational annual reports**

Annual reports were used to cross-reference the number of employees, annual profit, investments on IS, IS policy, etc.

4. **Internet / web sites**

HRIS vendors' web sites used to find out the correct HRIS users, HRIS features, and cost. Wikis and blogs are used for user comments and technical problems regarding HRIS.

5. **Journal articles and references**

Journal articles and references used to find out information on previous research work relevant to IS, HRM, HR planning and HRIS.

1.4.5. Data analysis

Data analysis techniques

Senior HR executives were involved in the research study. It is based on three different industries: financial, manufacture and service. Percentage frequency in frequency distribution, median and mode through measure of central tendency are used to analyse data. Spearman's correlation coefficient is used to assess the strength of relationships between two variables.

Data analysis tool

SPSS (Statistical Package for Social Sciences) version 16 is used to analyse the data set. Bar charts are used wherever possible.

1.5. Delimitation of scope and key assumption

HRIS user population is small since most organisations cannot afford it. Especially small organisations cannot use integrated HRIS with ERP within an affordable cost. However, it is not possible to gather data from everybody due to time and financial limitations of this research. In some organisations, senior HR executives were not willing to express their opinions due to reasons of confidentiality. Therefore, I had to restrict the sample size. Within the pilot survey, HR Heads emphasised the suitability of senior HR executives for this study since they are mostly involved in HRIS. Therefore, senior HR executives' perception is considered as the measurement of HRIS' role in HR planning. Researcher had to resort to stratified random sampling to ensure that each case in the population had an equal chance of being included in the sample based on the industry type.

Research was carried out within the Colombo area. The outcome of this study may not merit a generalisation, yet it would be reliable since most of the large-scale business organisations are located within the commercial area of Colombo. Therefore, research undertaken in Colombo district would not affect the overall result. Only private sector organisations were selected for the research, due to access difficulties and lack of HRIS usage within the public sector. HRIS vendors' perception was not included in this research, for then the research would expand in to another aspect of HRIS.

Corporate planning consists not only of human resource planning but also of marketing, financial and production planning as well. For this research study, only the HR planning aspect is taken in to consideration since HRIS mainly involve HR functions and research has to be carried out within a limited time. This research can be further extended to find out the role of HRIS in as much larger scope of corporate planning as well.

1.6. Outline of this research

Chapter 1: Introduction

This chapter includes the background to this research, its objectives and discusses HRIS's functional role within an organisation, human resource planning and HRIS theoretical perceptions.

Chapter 2: Literature survey

This chapter analyses the existing studies and their findings. It also highlights the existing gaps of knowledge and examines the potential contribution of the current study to fill this gap.

Chapter 3: Research design

This chapter lays out the conceptual framework of the thesis. Research approach, methods and strategy are selected considering the alternative actions. Conceptual framework is developed identifying the variables, their relationships. Select the appropriate statistical methods that can be used to analyse the data.

Chapter 4: Data Analysis

In this chapter, results are discussed using appropriate charts, graphs and tables with selected software packages.

Chapter 5: Summary, conclusion and recommendations

Presents a summary of the study recapitulating the findings and highlights future areas for research. Existing gaps that could not be addressed in the current research are also documented.

1.7. Chapter conclusion

Information Systems add value to an organisation enhancing efficiency and effectiveness of daily activities. Human resource planning is the process of forecasting employment needs. HRIS is one of the Information Systems that facilitates HR planning. Even though HRIS facilitates HR planning, some organisations are unable to make use of it due to various problems such as lack of support through the existing system, lack of knowledge or because of dependence on the traditional methods. This research study mainly aims to find out whether the organisational HRIS role contributes to effective and efficient HR planning processes through recruitment and selection and training and development processes.

Chapter 2

2. Review of Literature

2.1. Introduction

Information System/Information Technology is an interesting subject area for many researchers in this information age. HRIS is a MIS, which is employed by many organisations spending substantial amounts. Many studies have discussed HRIS benefits, obstacles and usage on various occasions. HR planning is another research area that has been discussed continuously for many years. However, there are not many studies based on the contribution of HRIS in HR planning in the Sri Lankan context. This literature survey attempts to gather the existing knowledge based on HRIS models, HRIS, HR planning, recruitment and selection and training and development. By reviewing existing studies, the researcher tries to reveal the knowledge gap, which has to be addressed in the near future. Researcher identified three main layers: IS, HRIS and HR planning to gather existing knowledge. Other sub areas relevant to these three layers will also be discussed.

2.2. IS/IT and corporate strategy

Tanriverdi (2006) points out that unlike technologies that are applicable in a few specific industries, information technologies have a wide range of applicability across almost all industries. In today's corporation, untold sums of monies have been, are and continue to be invested in purchasing, customising, installing and maintaining computerised information systems and their associated data warehouse (Simon, 2006). The purpose of these systems is to allow the corporation to collect and disseminate consistent internal data and these sophisticated internal information systems deliver vast quantities of data to managers (Simon, 2006). Therefore, the fundamental principles of good IT management are also applicable in many industries. Managers are under constant pressure to reduce costs and increase the value of their firm's IT resources.

> According to Williams (1997), the danger of investing in the wrong technology is that it can have a disastrous long-term effect on strategic planning and therefore it is essential that the proposed key technology identifies both the current value of support and the future potential or limitations that may result when changing business situations are considered. Further the complexity and investment of the information system will also depend on the level of management and decision making that is required. Williams (1997) identified three levels of information management:
>
> - Strategic – required by senior management to direct the organisation as a whole. Planning and decision making at this level is for survival and prosperity. Such information tends to be derived mostly from external sources and thus information systems for this level are sophisticated, expensive, and typically oriented towards markets, competition, and demographic analysis.
> - Tactical – required by middle-tier management to implement strategies by selecting appropriate tactics. This level of information is concerned with current performance, utilization of resources and short-term forecasts. Information systems at this level can be varied and use data from both external and internal sources depending on the organization's culture and stage on its life cycle.

- Operational – required by junior management for day to day running of the functions. This level of information will be very detailed and derived from operational data mainly from within the system. Some external information may be required if customer sales and service, and supplier service are to be analysed.

Williams's clarification is more appropriate since organisations need to consider all three levels: strategic, tactical and operational information management requirements when they evaluate and invest on IS. If an organisation expects to use IS for strategic level planning and decision-making, they may bear a high cost but may not need that much funds for tactical or operational level IS. However, this may depend on the existing business environment, uniqueness of IS, organisational strategic plan and requirements. Williams (1997) says that it is no longer enough for information systems (IS) to support the operation and that information systems should be developed as part of the strategic plan of the organisation. Pyburn (1983) is of the opinion that IS has become increasingly important to the successful implementation of corporate strategy. Wade and Tanriverdi (2006) also see IT as a strategic organisational resource. Williams (1997) states that information system strategies could be random, inspirational or unarticulated thoughts or could be the result of careful analysis and detailed planning. However, his statement cannot be accepted as it is. The most intelligent option is to analyse the organisational long-term objectives and develop IS strategy at corporate level rather than having random, inspirational or unarticulated thoughts about IS strategy. Then an organisation can align IS strategy with not only corporate strategy but also with other strategies such as business and HR.

2.3. HR transformation and HRIS

HR transformation initially focused on making HR operations more efficient and effective through process standardisation and technology. The next generation of HR transformation is more tightly linked to corporate strategy and to creating business value through HR services that address a company's most pressing strategic challenges (Deloitte, 2006). HR department's role gently shifts from transaction and administration to business and strategic transformation.

In the literature on business process transformation using IT, a key development has been the introduction of Enterprise Resource Planning (ERP) systems (Tansley *et al.*, 2001). An ERP system incorporates a number of IT systems from the different functional areas of the organisations, which are integrated to form a single, common database (Devenport, 1998). Yet, in his opinion, while these IT systems are configurable, they nevertheless require companies to adapt or even completely rework their processes to fit the requirements of the system. The HR information system (HRIS) element of an ERP system will incorporate records for employee resources, rewards, training, etc (Tansley *et al*., 2001). Thus personal data on employees can potentially be used much more flexibly to transform the way people are managed within organisations and to transform the role of the HR department (Tansley *et al*., 2001). An integrated HRIS offers the potential for the flexible and imaginative use of stored personal data, which can in turn encourage a transformation of both the people management style used and the role of the Personnel/HR department (Tansley *et al.*, 2001). According to Tansley, HRIS plays an important role in HR transformation storing personal data on employees changing the traditional management styles.

The strategic role of the HR function means not only being involved in strategic planning from the outset and during the implementation phase but also matching employee resources with business needs (Panayotopoulou *et al.*, 2005). However, this does not mean that the administrative role will cease to exist, although there is an inherent tension between the outlook required for a strategic HR role and that of the HR specialist in a traditional role (Panayotopoulou *et al.*, 2005). Specifically, a HRIS may

contribute to firms' strategic positioning in a number of ways, for instance, by improving customer service levels to managers and employees and enhancing the lines of communication between the company and its employees (Alvarez-Suescun, 2007) or by harmonizing tools and practices of management staff and developing HR management and strengthening corporate character (Alvarez-Suescun, 2007).

Figure 2.1: HR transformation tightly linked to corporate strategy
Source: Lokhandwala, 2009

Beadles *et al.* (2005) have postulated that HRIS will be implemented at three different levels: the publishing of information; the automation of transactions; and, finally, a change in the way human resource management is conducted in the organization by transforming HR into a strategic partner with the line business. In their view, the evolution of HR as promoted by HRIS evolves from information to automation and from automation to transformation. They note that while HRIS has been widely deployed, a transformation of human resource management has occurred in relatively few organizations.

According to Beadles *et al.* (2005), the use of HRIS has been advocated as an opportunity for human resource HR professionals to become strategic partners with top management. The idea is that HRIS would allow for the HR function to become more efficient and to provide better information for decision-making. However, the authors question whether HRIS has fulfilled its promise. The Beadles study has questioned decision-making aspects of HRIS while talking about the HRIS role as strategic partner. Studies have not addressed this aspect in depth. Especially, similar studies cannot be found on the Sri Lankan context.

The most challenging request from next generation HR transformation is to achieve organisationally desired objectives rather than support for standard transactions and reporting. Even though Lokhandwala (2009) has discussed employee training, performance, succession plans and compensation modelling functionalities of HRIS, it was not a detailed study. Very few research studies have scrutinised aspects like how HRIS functionalities such as recruitment, selection, training and development facilitate HR planning aspects. HR planning functionalities of HRIS is very important for HRIS to play a strategic role in the HR department. In order to analyse HR planning aspects, HRIS users' perception towards its functionality is very important. How do HR professionals perceive the role of HRIS? Top management, personnel management and MIS management all differ in their views of the role of HRIS and the meaning of HRIS effectiveness (DeSanctis, 1986). This research study would fill the existing knowledge gap in literature in Sri Lanka; how does HRIS affect HR planning in private sector organisations?

2.3.1. HRIS benefits and obstacles

Many studies cited HRIS benefits, such as the improvement in accuracy, the cost saving and the timely and quick access to information through HR reports (Ngai and Wat, 2006). In HR, reports can be generated from data input into a HRIS database via previously programmed report generators, thereby making ”transparent" HR collective data from the aggregation of the personal data actually input (Tansley *et al.*, 2001). Ngai and Wat (2006) studied how HRIS reduced the cost of an organisation. How it maintained customer satisfaction, improved quality, and innovations. Almost all the HR applications involve the automating of HRM activities (Ngai *et al.*, 2006). Further more Ngai and Wat (2006) showed how the accuracy and timeliness of HRIS varied according to operating, controlling, and planning HR activities. Due to technological evolution in mid 1990s, HRIS has shaped the need for and the nature of human resource planning within organisations.

HRIS was not only designed to automate HRM activities to gain administrative advantages; rather, it could also be used for decision making to provide strategic advantages for companies (Ngai and Wat, 2006). The key element in the support HRIS provides for the company's HR strategy is the availability of information as input for HR-relating decision-making processes (Beulen, 2009). Ngai and Wat (2006) listed benefits of HRIS: increases competitiveness by improving HR operations, shifts the focus of HR from the processing of transactions to strategic HRM, makes employees part of HRIS and reengineers the entire HR function of companies. Alvarez-Suescun (2007) also highlighted HRIS as a competitive tool which can be used in the organisational HR department. Reddic (2009) stated that the scope of HRIS was information rich and transaction poor. First, this implied that the typical justification for the implementation of HRIS of reducing costs might not be found in the survey findings presented. It seemed that improving customer service and providing higher quality services were important factors. Second, more effort should be devoted to finding ways to increase the use of HRIS to support more advanced strategic decision-making tools within public sector organisations. The evidence showed that there was more use of HRIS for basic information, but much less on decision support functions. Reddic arrived at an important conclusion; improving customer service and providing higher quality services were important than reducing cost, which is not much discussed in other studies. In particular, most researchers emphasised the decision-making inability of HRIS.

Kovach and Cathcart (1999) mentioned that lack of top management support, funds, HR knowledge of system designers and HR solutions are the main factors that keep organisations away from HRIS. Teo *et al.* (2007) also came up with similar findings: departmental relative advantage, compatibility, top management support, size of the organization and HRIS expertise emerged as important variables discriminating between adopters and non-adopters of HRIS. A research conducted by the Institute of Management and Administration (2002) indicated the issues in managing a HRIS to include: lack of staff; lack of budget; problems with time management; need to work with other departments; and lack of information technology (IT) support. Ngai and Wat (2006)

found costs to be the main barrier to the implementation of HRIS. Hall and Torrington (1986) identified the relationship between HRIS and organisational size. Ball (2001) identified two fundamental differences between small and large firms when purchasing HRIS: cost and risk. Small firms cannot afford advance enterprise resource planning (ERP) systems (i.e. SAP, PeopleSoft) due to cost. The risk of implementing new software was high for small organisations. They needed longer time to develop HRIS to have more sophisticated facilities. Martinsons (1994) as cited by Ngai and Wat (2006) and Ball (2001) showed that small organisations have a lesser possibility of implementing HRIS due to lack of funds. However, Ball (2001) foresaw suitable HRIS systems for small organisations though they did not facilitate all the features that large organisations gain. He states that the small business sector is seen as a growth area by some HRIS software vendors who prefer flexible, low-cost, genetic, Windows-based products. Recent practitioner literature examining the use of HRIS in small companies advanced the view that the issues they face regarding HRIS uses are slightly different to their larger counterparts, yet research in HRIS to date is oriented to the larger organisation Ball (2001).

Ngai and Wat (2006) concluded that cost of adopting, operating and maintaining the HRIS is relatively high. Cost created barriers and kept HRIS away from small organisations. Same issues caused the lack of attention given to develop and enjoy sophisticated benefits of HRIS. Özçelik and Ferman (2006) say that HRIS may create resistance from employees due to emotional resistance to change or use technology due to learning difficulties, and fear of measures taken to ensure the security of information. Most HRIS researches focus on its' benefits and implementation barriers. Most of them observed the high cost of HRIS. Few of them analysed the HRIS decision support benefits.

2.3.2. HRIS usage

Human resource planning, recruiting, and training are less frequent users within personnel perhaps reflecting greater use of the system for routine reporting than for decision support (DeSanctis, 1986). Ngai and Wat (2006) stated that HRIS usage was decided by the HR strategy of an organisation and further described a matching process between different strategies and different system usage. If the strategy were to reduce cost, the system would have been based on administration purposes. Martinsons (1994) as cited by Ngai and Wat (2006) classified HRIS into two types according to their usage: "unsophisticated" and "sophisticated". Payroll and benefits administration, and employee absence records keeping electronically is listed as "unsophisticated" since it is an electronic replication of the contents of the HR department's manual files. He called this simple minded automation. Use of IS in recruitment and selection, training and development, HR planning and performance appraisal, is classified as "sophisticated" since those support decisions which involve expert judgements. A quality-based strategy is similar to an expert systems approach. Innovation strategy matched with decision support systems.

Kovach and Cathcart (1999) also noted that HRIS information could be used for administrative purposes, which reduced cost and time, and supported more analytical decisions as well. They further added two general purposes of HRIS applications as administrative purposes that reduced processing costs and time, and decision-support applications that assisted HR managers, non-HR managers, and employees to make better decisions. The key was to focus on making better decisions, not just producing data faster. According to a survey conducted in 1998, Ball (2001) showed that 60 percent of Fortune 500 companies used the HRIS to support daily human resource management (HRM) operations. He classified HRIS according to administrative and analytical aspects and predicted out though HRIS was used for administrative purposes, the trend would be to use it for analytical purposes.

HRIS functionality nowadays includes corporate communication, recruitment, selection, training, employee opinion survey, compensation, payroll services and employee verification as well as general information (Ngai and Wat, 2006). According to Beulen (2009), the HRIS contributes positively to staff retention for global IT service providers in emerging markets. HRISs have indirect influence on retention management. But a HRIS can also be a strategic HR tool. HR executives can use HRISs to support their strategy and talent management programs by considering some specific functionality, such as human resource planning, staff development and regulatory compliance, benefits administration, and performance appraisal (Beulen, 2009).

According to Beulen (2009), performance appraisal is an important factor in employee retention. In performance appraisal, it is really important that employees' individual expectations are managed well, but the same holds for the expectations of departments and divisions (Beulen, 2009). The degree to which objectivity regarding individuals' performances is properly assessed is very important and employees' sense of being appraised objectively is increased by setting clear objectives before the assignment, and by assessing their performance together with them afterwards (Beulen, 2009). These insights should be used to set the HRIS parameters and to implement its functionalities (Beulen, 2009). When such aspects are implemented, HRIS may indeed contribute significantly to the optimization of retention management (Beulen, 2009).

Though Beulen (2009) studied in depth the staff retention aspect of HRIS, most of the researchers had studied unsophisticated usages of HRIS. They have not focused much on whether the users enjoy the sophisticate usages fully or partly. Are the benefits received worth the cost? These aspects are not much analysed by most of researchers. Even Beulen (2009) has not done as in-depth study regarding HR planning since his objective was to find whether HRIS' contribution to staff retention was positive or not.

2.3.3. Integrating the technologies of HR

Many HRIS are part of larger, enterprise-wide systems that enable integration of organisational information about human resources with the major functions, such as finance and production (Tansley and Newell, 2006). In a similar manner HRIS become a major MIS sub-function within the personnel areas of many large corporations (DeSanctis, 1986). The MIS area plays an advisory role in HRIS and must coordinate planning of systems design and enhancements across all functional areas (DeSanctis, 1986). DeSanctis (1986) indicated that 33% of firms did not coordinate personnel department plans with corporate strategic plans. Lack of planning from the overall organisational level to the department level made coordination of plans between MIS and the HRIS area difficult to achieve.

DeSanctis (1986) study showed that still some organisations struggle to integrate HRIS with overall IS. The management issues associated with HRIS may also be encountered in other functional areas of the organisation where information systems are developing independence from the corporate MIS area (DeSanctis, 1986).

HRIS brings many advantages such as ease of use, sophistication, security of data, flexibility of reporting, low cost, and most important, the integration of human resource information into all aspects of the organization (Özçelik and Ferman, 2006). Wang (2005) described the need for technology innovation and HRM integration. Once integration is achieved, security and privacy issues rise. Few researches have addressed this aspect as well. Security and privacy concerns associated with employee record keeping, interfacing with information systems in other functional areas, career path for HRIS employees, and lack of cooperative relationships between human resource and MIS staff are additional problems confronting the organisations (DeSanctis, 1986).

Security and privacy concerns do not exist only in HRIS; it is affected by e-HRM as well. As Ngai *et al.* (2006) said that the security and privacy of information is another concern in Internet-supported HRM and that is necessary to have a secure way of transferring sensitive data via the Internet.

HRIS and e-HR

In an organisational context, the Internet makes it possible for an organization to automate HR processes. Various existing HR functions, applications or services can virtually be transformed to Web-based ones (Ngai *et al.*, 2006). More and more HRM systems today are being changed to e-HRM systems, mainly due to the advent of Internet technology and the emerging concept of business intelligence (Zhang and Wang, 2006).

Reddic (2009) addressed the effectiveness of HRIS and the use of web-based self-service in HR. He concluded that most of the web based HR is currently providing information rather than more advanced self-service based applications. The most pronounced method is using the Web for recruitment. The Internet has dramatically changed the ways of both job seekers and organizations in employment practices (Ngai *et al.*, 2006). CVs sent through the Internet can be scanned for keywords identifying the required knowledge, skills, competencies and experience (Ngai *et al.*, 2006). This information can then be stored in the information system for immediate or future use (Ngai *et al.*, 2006). Ngai *et al.* (2006) pointed out that the Cisco Corporation has achieved a 45% reduction in recruitment costs since using the web as its core channel for recruitment.

Web-based training and performance evaluation are two other functions supported by e-HR, which was studied by Ngai *et al.* (2006). The proliferation of the Web has enabled HR to train employees in city government virtually from home or at work. Web was mostly being used to provide information on benefits information (Reddic, 2009). Web-based training (WBT) is a popular approach to distance learning using the technology of the Web, the Internet, intranets and Extranets. Individuals use the commonly available Web browsers of Internet Explorer (IE) and Netscape to access different types of information – text, pictures, audio and videos – over the Internet (Ngai *et al*., 2006). The Internet plays an important role in reducing the effort and agony of managing performance evaluation as well. Typically, individuals have their performance evaluated at regular intervals. Performance evaluations can easily be tracked online by

one or more sources such as supervisors, peers, customers or subordinates (Ngai *et al.*, 2006).

The current e-HRM literature distinguishes three types of e-HRM: operational e-HRM, relational e-HRM and transformational e-HRM (Rue¨l *et al.*, 2007). For the operational type of HRM, this issue amounts to a choice between asking employees to keep their own personal data up-to-date through an HR web site or to have an administrative force in place to do this for them. In terms of relational HRM, there is a choice between supporting recruitment and selection through a web-based application or use a paper-based approach (through advertisements, paper-based application forms and letters etc.). Finally, in terms of transformational HRM, it is possible to create a change-ready workforce through an integrated set of web-based tools that enables the workforce to develop in line with the company's strategic choices, or to use paper-based materials (Rue¨l *et al.*, 2007). The literature on e-HRM suggests that, overall, the three goals of e-HRM are cost reduction, improving HR services, and improving strategic orientation (Rue¨l *et al.*, 2007).

In many organisations, e-HRM has led to a radical redistribution of the work that HR managers used to do. Many of the reporting-type activities, previously performed by HR professionals, can now be performed on-line by managers and employees (Rue¨l *et al.*, 2004). On their own desktops, line managers nowadays perform appraisals, evaluate employee costs, generate HR reports (turnover, absenteeism), process training requests and oversee competence management (Rue¨l *et al.*, 2007).

According to Martin and Reddington (2009), e-HR can claim helping create competitive advantage and align the function more closely with business/corporate strategy in at least three ways.

- First, e-HR can reduce HR transaction costs and headcount (e.g. supplying HR information to large numbers of people on a virtual rather than physical basis).
- Second, e-HR can substitute physical capability by leveraging the "law of digital assets" to re-use information flexibly on an infinite number of

occasions at little or no marginal cost (e.g. in delivering e-training and e-learning to large numbers of people (Martin and Reddington, 2009).

- Third, it can transform the HR "business model" by e-enabling HR to provide strategic value to the business in ways that it could not do previously. For example, HR can learn to use online learning to "feed-forward" into organizational learning and knowledge management, create virtual communities of practice, facilitate more flexible organizational structures and ways of working, and use the data generated by e-HR systems or online human capital management systems to generate new insights into employee psychological contracts to provide strategic value to their organizations (Martin and Reddington, 2009).

Martin and Reddington (2009) state that HRIS can be distinguished from e-HR for two key reasons.

- First, HRIS is focused on automating the systems used by the HR function itself: thus its main clients have been HR staff rather than employees or managers.
- Second, HRIS have not been sufficient to create the type of internal virtual value chain. For example, HRIS has concerned itself with automating systems such as payroll and personal information, usually with little or no attempt to make such data interactive or available to staff outside of HR. In contrast, e-HR is concerned with the application of Internet and web-based systems and increasingly, mobile communications technologies to change the nature of interactions among HR staff, line managers and employees from a pure face-to-face relationship to one that is increasingly mediated by such technologies (Martin and Reddington, 2009).

Many researches were curious about the integration of HRIS with other emerging technologies such as MIS, ERP, eHR, etc and contributed to enrich existing literatures. Even though they tried to distinguish eHR from HRIS it is very hard to give a clear-cut view since HRIS developed with most of the eHR features today. Recent studies on the implementation of e-HRM have shifted towards addressing the dynamic nature of HRIS implementation, and have used concepts such as innovation implementation, learning, change management and the Technology Acceptance Model (Rue¨l *et al.*, 2007).

2.3.4. Traditional HR role and HRIS sourcing decision

As organisations move to “leaner” and “flatter” organisation structures, it is clear that the establishment of a traditional personnel/HR function is no longer a seemingly inevitable consequence of increases in organisation scale (Morley *et al*., 2006). According to Morley *et al.* (2006), in evaluating the option of managing without a formal personnel/HR function, there appears to be two principal ways of carrying out the HR role, namely:

1. Devolvement of personnel/HR responsibilities to line management (internal devolution)
2. Outsourcing HR activities to external contractors (external devolution)

> Line management have always played a key role in the execution of day-to-day HR activities. However, what is different about the internal devolution argument is the suggestion that line managers should play a greater role in policy development and interpretation, in addition to their traditional role in carrying out HR activities. This theme has developed concurrently with moves towards flatter organisation structures and team working (Morley *et al.*, 2006).

A more significant threat to the existence of a formal personnel/HR function is that of outsourcing (Morley *et al.*, 2006). The transaction cost model places considerable emphasis on the so-called “make or buy” decision (Morley *et al.*, 2006). According to Morley *et al.* (2006), in transaction cost model, it is argued that if a particular unit does not make a demonstrable added-value contribution to the organisation when compared to outsourcing, then such services should be bought in.

The quality of traditional HR role has improved due to the implementation of HRIS. According to Tansley *et al.* (2001), HR professionals’ role and responsibilities exist same but HRIS improves the quality of their operational and tactical decision-making.

> “In using IT to reproduce, extend and improve on the HR process by automating HR data, HR specialists were able to add some value to the operational and tactical/decision-making activities inherent in HR work. In doing this there was an effect on the jobs of HR specialists, since the costs of the IT had to be offset by a reduction in headcount. There were

no fundamental changes to the roles and responsibilities of HR specialists, line managers or employees more generally" (Tansley *et al.*, 2001:367).

Alvarez-Suescun (2007) has analysed and tested the impact of some resource-based determinants on sourcing decisions in an IS domain in detail. According to him, firm size or technical skills do not affect outsource decision. Firm's internal factors, such as the HRIS implementation capability and the strategic contribution of the HRIS, determine whether that activity is undertaken internally or outsourced, whereas the technical skill set and the firm size do not affect that decision (Figure 2.2). Alvarez-Suescun (2007) find that the perceived performance of IS resources, unlike the strategic role of IT, is a significant determinant of IS sourcing decisions.

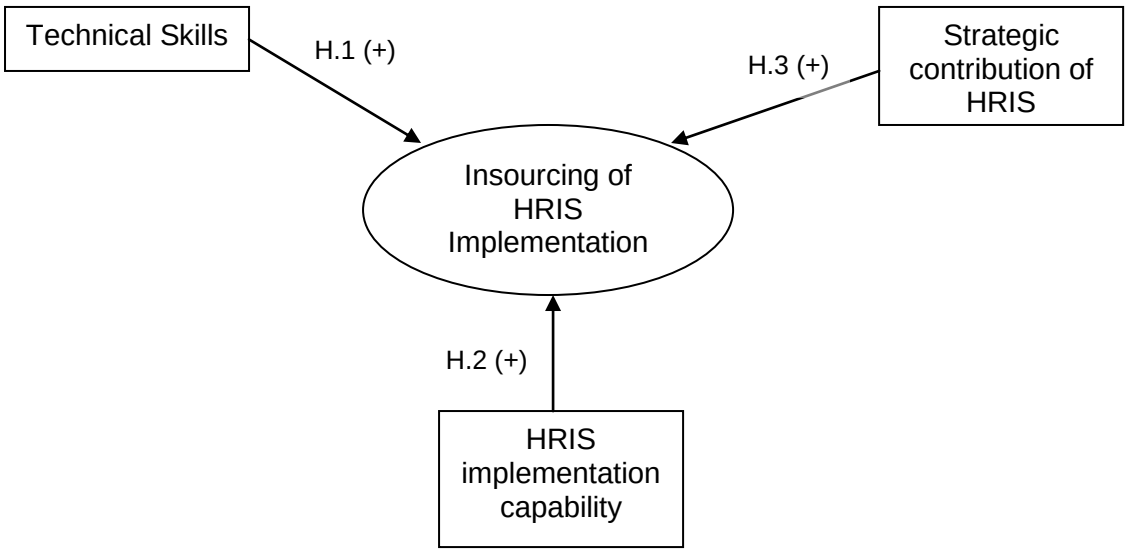

Figure 2.2: Research model

Source: Alvarez-Suescun, 2007

Alvarez-Suescun (2007) found that the HRIS implementation sourcing decision may be influenced by previous experiences in the implementation of other systems, e.g. accounting, financial, MIS, and so on, either because a capability that could be applied to different areas without significant additional effort may be developed based on that cumulative knowledge or because the HRIS is part of an ERP and its implementation is strongly conditioned by the sourcing mode chosen for other modules.

As said by Alvarez-Suescun (2007) superior IS function capabilities (relative to vendors) were positively associated with the insourcing of those functions; if a capability has not been developed or is not strategic, firms should rely on external providers in order to focus on those IS functions that yield strategic value to the organization.

Organisations gain competitive and strategic advantage if HRIS activities are undertaken internally (Alvarez-Suescun, 2007). Researchers merely highlight in which circumstances organisations outsource their HRIS than its contributes to HR planning.

2.3.5. HRIS role in HR planning

Human resource planning is about ensuring that the correct number and mix of employees is available at the right place at the right time (Parker and Caine, 1996). The success of HRP is paramount to the survival of the organization and the complexities associated with the planning process are enormous (Parker and Caine, 1996). According to Parker and Caine (1996), large organizations established HRP systems, some trying to use the emerging body of human resource techniques based on Markov chain theory. Parker and Caine (1996) were under the impression that the recent non-academic literature for practical descriptions of human resource planning yielded only 24 articles and none of these descriptions involved explicit use of the mathematical tools developed by D.J. Bartholomew and his colleagues, although several of them involved the use of computer packages based on these tools. This statement emphasised that computer packages based on mathematical tools are replacing the manual calculations, which are time consuming, and lacks expertise.

According to Parker and Caine (1996), though human resource techniques based on Markov chain theory are appropriate, they are often unusable by the average practitioner. Markov analysis is shown to be complicated, communicating little to the decision maker.

Therefore, a new approach: holonic modelling is required which combines the rich problem structuring approach of “systems thinking” with the flexible analytical power of the more traditional quantitative techniques. This is facilitated by harnessing modern spreadsheet technology to implement the previously esoteric tools of analysis.

> Holonic modelling is not merely an alternative philosophy it is also a practical recognition that modern computer power and the flexibility of software packages allow problems to be structured in a flexible manner, recognizing the richness of their context and allowing analysis to be carried out using simple formulae or built-in, analytical and graphical tools. Non-mathematical managers can now use the armoury of techniques, which were previously the preserve of the “expert” and apply them to rich descriptions of their real problem. The holonic, systems dynamics approach proves easier to build and provides a richer picture for the decision maker (Parker and Caine, 1996).

Markov type models can be easily solved using a variety of application software, such as Percom, and evidence suggests that the use of such software is increasing in popularity, especially since the later part of the 1980s (Parker and Caine, 1996). Parker and Caine (1996) discuss more complex models based on Markov illustrating how simple planning models can be developed using a spreadsheet.

> A simple, hypothetical HRP model will be used to demonstrate Markov analysis and replicate the analysis using a much simpler approach combining the principles of system dynamics flowcharting with the convenience and flexibility of spreadsheet power. This approach can achieve the same results as Markov analysis much more easily and effectively (Parker and Caine, 1996).

Though Parker and Caine (1996), studied about the software packages such as spreadsheet use most of Markov’s analysis and holonic modelling features they have not studied the HRIS features to fulfil the same requirements.

Training and development

Training and development could no longer be based on the good will of the senior employee to train his/her subordinates (Glaveli and Kufidu, 2005). The training and development intervention needed to be carefully designed and implemented and linked to organisational goals and strategy, for the training investment to pay-off (Glaveli and Kufidu, 2005). Glaveli and Kufidu (2005) said that the training and development function is essential for changing behaviour and culture and reinforcing the new behaviour and culture. Training was the tool for enhancing the knowledge of employees on the new employee role and expectations and the services and products offered through induction courses. Training was also a tool for improving the skills in need (sales skills, communication skills, service skills, etc.), the productivity and effectiveness of employees (Glaveli and Kufidu, 2005). There are differences between training and development practices relative to organisation size, and small firms face unique barriers, including access to, time for, and the cost of training (Sambrook, 2005).

According to Glaveli and Kufidu (2005) the training approach is continuous, systematic and strategy oriented. The training process consists of four phases.

1. Training needs analysis (TNA)
2. The design phase, which involves the creation of the training activity. During this phase, formulates and implements a detailed training plan, referring to: training objectives and content, staff subject to training, involved resources, methodological options, training delivery channels-media, centralisation/decentralisation of the activity, specific objectives and outcomes etc.
3. The implementation phase, which refers to the understanding of the participants' background and characteristics, the close observation of the instructor's behaviour, measurement of participants' perception level and participants' satisfaction.
4. The training evaluation. It is necessary to ensure that the training activity is progressing towards the intended objectives. The evaluation phase measures mainly participants' satisfaction with the training program.

Training resources, like other resources in the organization, are limited. To utilize training resources to the best advantage, companies must put a fair amount of effort in training needs assessment (Tao *et al.*, 2006). Tao *et al.* (2006) defined need as a gap between a current set of circumstances and some changed or desirable set of circumstances, and needs assessment as the process of measuring (as scientifically as possible) or appraising that gap. The word “circumstance” in this definition can be substituted with words such as “proficiency” (knowledge, skills, and attitudes), “performance” or “situation”.

Tao *et al.* (2006) advocated that though companies may adopt various training models or processes, they all need to establish a training information system as a reference for determining an effective training plan. HRIS consists of one of the automated training needs assessment tools.

Tao *et al.* (2006) have presented an integrated framework of a web-based training needs assessment system to effectively and efficiently assist organisations in their pursuit of competitive core competencies. It shows that HRD professionals do recognise the power of web technology in helping them become more efficient. Though Tao *et al.* (2006) presented a framework of a web-based training needs assessment system, they have not studied whether the existing HRIS TNA support for HR planning which is going to address by this research study.

According to Glaveli and Kufidu (2005), an electronic model based on skills development and the evaluation of employees sustains the training and development effort. The advantages expected are to:

1. put the right employee to the right job,
2. profile the best people in each area and create personality and skill traits,
3. make a valid and fair evaluation,
4. allow people see and understand who they are and their future training and development needs,
5. help to know at which rate each employee is capable of learning, and
6. help to build effective teams.

Training and development needs assessment model

The Al-Khayyat (1998) model (Figure 2.3) has discussed the main elements of T&D information system. The limitation of this model is that it has not depicted how the new technology contributes to T&D. The model could have been perfect if it showed the effect that comes from organisational HRIS system to enhance the each steps of Al-Khayyat's (1998) Training and Development Needs Assessment Model.

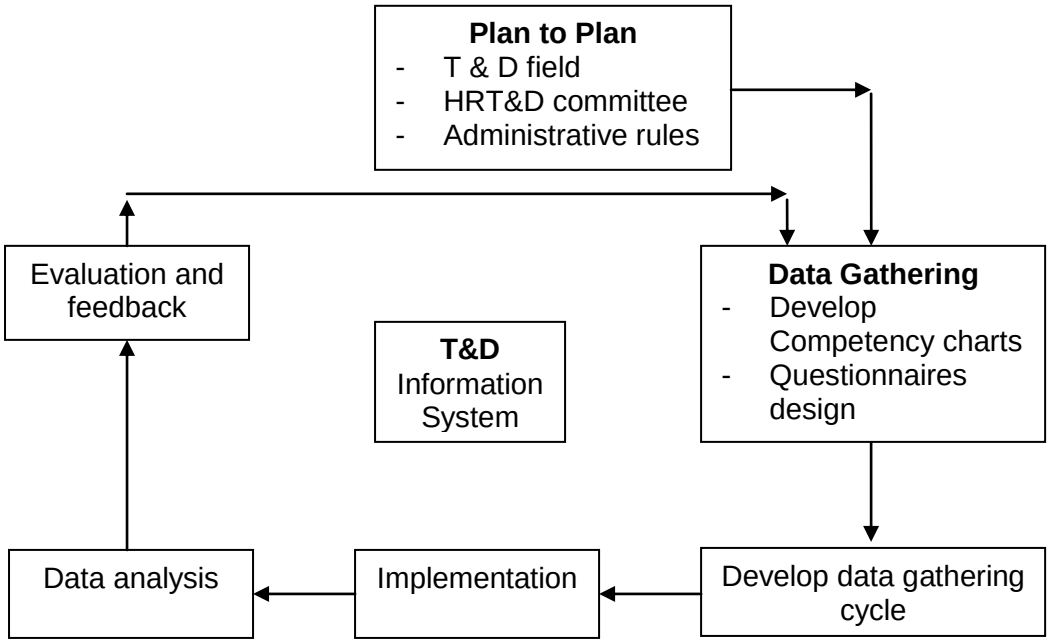

Figure 2.3: Training and development needs assessment model

Source: Al-Khayyat, 1998

However, Al-Khayyat (1998) model has identified the evaluation and feedback element as one of the most important elements in training and development, which was studied in detail by Yadapadithaya in 2001. According to Yadapadithaya (2001), evaluation of training is normally used in a broad sense to mean any attempt to obtain information (feedback) on the effects of a training program and to assess the value of the training in the light of that information. Furthermore, Yadapadithaya (2001) argued that though some experts on the evaluation of training make a distinction between validation (the assessment of whether the training has achieved its intended objectives) and evaluation (the measurement of the total effects of the training program) in practice, this distinction is not always meaningful. Since it may be almost impossible to obtain information on the total effects of training, which may be extremely complex.

Yadapadithaya (2001:265) has stated that the training needs analysis and evaluation trends as follows;

> "a sound training and development program should contain specific, measurable, achievable, relevant, timely (SMART) objectives based on a systematic training-needs analysis conducted at three levels—individual (acquisition of proper knowledge, skills, and attitudes), operational (what an employee must do to meet organisation objectives), and organisation (organisation objectives, resources, and allocation of resources). A very important aim of the evaluation process is to determine whether the predetermined objectives are being met".

Yadapadithaya (2001:266) has highlighted two basic aims of evaluation: assessing training effectiveness and using it as a training aid.

> "The primary aim of evaluation is to improve training by discovering which training processes are successful in achieving their stated objectives (to 'sort out the good training from the bad'). Since 'evaluation' affects 'learning', it can also be used as a training aid (knowledge of results facilitates good learning)".

Evaluation data can be obtained prior to training, during training, immediately after training, or at a specified time after the end of training. In most of the cases, evaluation was done immediately after the training (Yadapadithaya, 2001). As Yadapadithaya (2001) points out, the various levels of evaluation—reactions, learning, job behaviour, organisational unit, and ultimate value—act as powerful links in a chain of cause and effect. Training leads to reactions, which lead to learning, which leads to changes in job behaviour, which lead to changes in the organisational unit, which lead to changes in the achievement of the ultimate goals of the organisation (Yadapadithaya, 2001). At the same time Yadapadithaya (2001) has argued according to his finding that this chain can be broken at any link when trainees have learnt something but not going to apply them to achieve objectives of the organisation. He concluded other deficiencies in corporate training and development system as lack of a clear-cut written training and

development policy, weak interaction between the industries seeking training provision and the institutions providing training, lack of a systematic and comprehensive training needs assessment, and failure to evaluate the effectiveness of training and development programs. However, he has not focused on how new technology: HRIS can be used to increase the effectiveness of evaluation stage of training and development.

Succession planning

Succession planning can be defined as the attempt to plan for the right number and quality of managers and key-skilled employees to cover retirements, death, serious illness or promotion, and any new positions which may be created in future organisation plans (Sambrook, 2005). If forms part of the human resource plan, which should contribute to the overall business plan human resource planning (HRP) attempts to ensure there is a match between the demand and supply of labour, from the internal (ILM) and/or external (ELM) labour markets (Sambrook, 2005). A key factor influencing succession planning is the role of human resource development, which includes organisational development, career development and the learning and development of potential successors (Sambrook, 2005). However, Sambrook (2005) has not discussed how IS, especially HRIS can be used in succession planning, which is the main weak point in his research.

Recruitment and selection

Recruitment represents one of the core staffing activities that need to be efficiently and effectively planned and conducted for organizations to attain success (Darrag *et al.*, 2010). Darrag *et al.* (2010) identified recruitment as the process of discovering potential candidates for actual or anticipated organizational vacancies or, from another perspective, it is a link activity-bringing together those with jobs to fill and those seeking jobs. According to Selden *et al*. (2000) a fair number of studies focus on the performance effects of specific human resource management practices, such as

training, and selection. The different stages of the recruitment and selection process were identified by Fill and Moreland (1999) as:

- department (contextual) analysis;
- job analysis;
- job description and person specification;
- the seeking of applicants;
- attracting applicants;
- screening applicants;
- interviewing candidates;
- appointment.

According to Pattanayak (2000), planned recruitment programme has the following basic components (Figure 2.4):

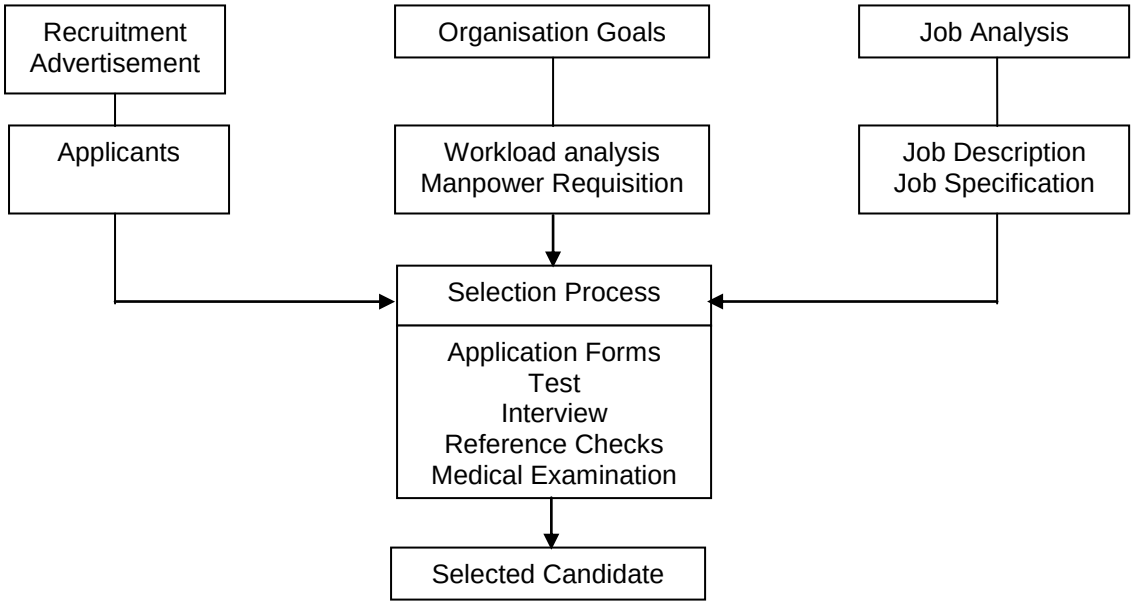

Figure 2.4: Framework of recruitment and selection

Source: Pattanayak, 2000

The process of recruitment may begin with advertising vacancies, this may be done internally or externally or both and can be achieved using a range of media, which may involve using the company web site (El-Kot and Leat, 2008). The use of the Internet for recruitment purposes has become very popular (El-Kot and Leat, 2008). However, El-

Kot and Leat (2008) has identified the different level of technical sophistication found among organisations in relation to the use of new technology in selection. Organisations may also make use of state run job centres or employment agencies or their own database of speculative enquiries.

According to El-Kot and Leat (2008), there is a range of selection practices that may be used including: applications forms, curriculum vitae, one-to-one and panel interviews, psychometric testing, assessment centres, job trials, job specific aptitude or knowledge tests, graphology, group-based activities and references. El-Kot and Leat (2008) concluded that the selection interview had probably been the single most used technique in most countries throughout the twentieth century. El-Kot and Leat (2008) draw a distinction between countries in which an empirical predictive model is the norm for selection and those in which the selection system is designed to eliminate unnecessary risk.

Though Darrag *et al.* (2010) and El-Kot and Leat (2008) have all studied recruitment and selection methods in detail they have not focused their attention on how new technology, specially HRIS could enhance and strengthen the recruitment and selection process of an organisation. Selden *et al.* (2000) in their study focused on evaluating the effectiveness of human resource management system, offering a framework and methodology filling this knowledge gap: human resource management system is often an invisible asset that creates value by enhancing government's capacity to recruit and retain employees. However, they addressed the ability to design an effective evaluation system given an existing set of criteria and constructed a survey instrument aligned with the identified criteria but they did not try to measure the effectiveness of recruitment and selection features of Human resource management system. The results of this assessment were robust to a variety of rule specifications and measurement adjustments Selden *et al.* (2000). El-Kot and Leat (2008) has discussed the online recruitment process, which is more fitting for paperless offices.

2.4. HRIS models

2.4.1. Hyde-Shafritz model

Albert C. Hyde and Jay M. Shafritz were among the first to attempt a conceptual framework for the HRIS (McLeod and Anctis, 1995). In a 1977 journal article, they identified sixteen database modules, which were integrated in that they had the capability of exchanging data (McLeod and Anctis, 1995). It was a very primary model, which listed the modules as sixteen inputs and outputs (Figure 2.5).

> Both position and person data are entered into the HRIS to enable management to perform the planning function. The HRIS produces reports organized along the lines of the modules, which facilitate accountability. A feedback loop enables the objectives to be modified to reflect actual performance. This is a typical closed-loop systems model, consisting of input, processing, output, and feedback loop (McLeod and Anctis, 1995).

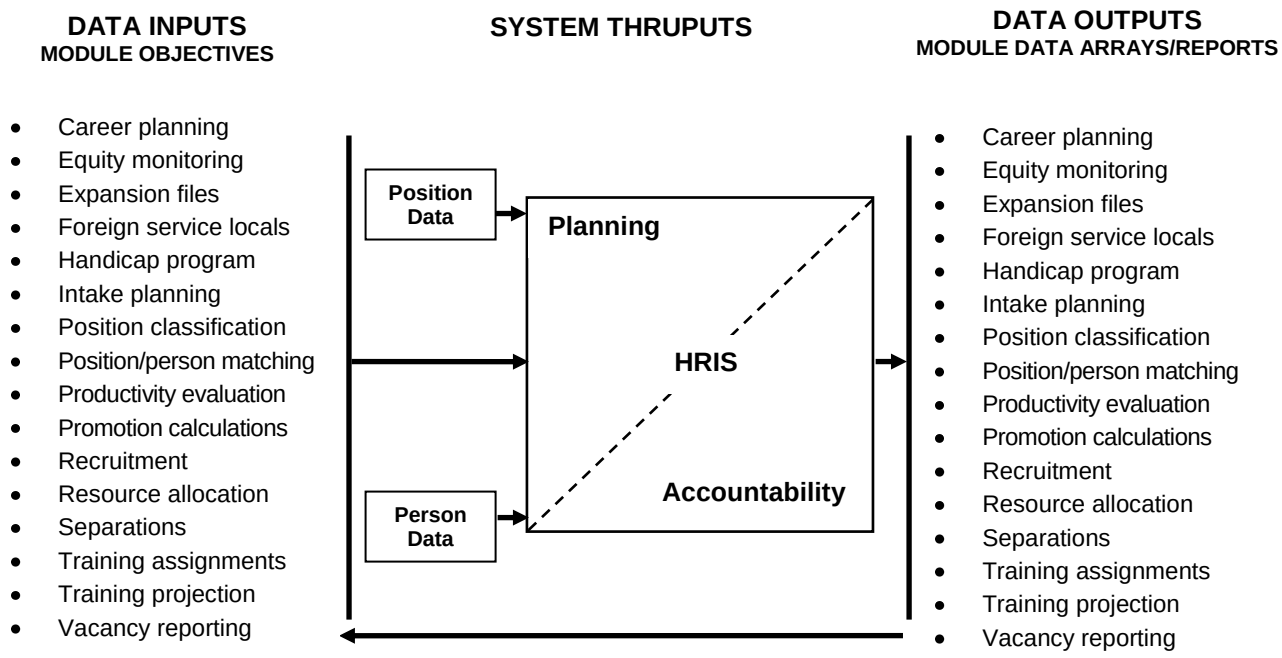

Figure 2.5: The Hyde-Shafritz HRIS model

Source: McLeod and Anctis, 1995

2.4.2. The Simon input/data maintenance/output model

In 1983, Sidney H. Simon presented a conference paper to human resources systems professionals that viewed the HRIS in terms of input, maintenance, and output functions (McLeod and Anctis, 1995). This model consisted of data validation, error correction and common database features such as adding, editing and changing records. The output function uses the database contents to produce information, primarily in the form of periodic reports.

2.4.3. The Manzini-Gridley hardware network model

Andrew Manzini and John D. Gridley viewed the HRIS in terms of interfaces with a corporate human resources database (McLeod and Anctis, 1995). According to this model, users interface with the system by means of on-line devices, such as PCs or terminals, and receive outputs in the form of hardcopy reports and responses to ad hoc queries (McLeod and Anctis, 1995). An administrative function called HRIC (for Human Resources Information Centre) exists within HR for the purpose of assisting users, providing database security, and enforcing privacy controls (McLeod and Anctis, 1995). This model was a much improved model than the earlier models since it consisted of ad hoc queries.

2.4.4. The Fisher, Schoenfeldt, and Shaw application modules

Cynthia D. Fisher, Lyle Schoenfeldt, and James B. Shaw identified nine major application areas of the HRIS in 1990 namely planning, job analysis, equal employment opportunity (EEO), recruitment, selection, training and development, performance appraisal, compensation and benefits and organizational exit.

> The first two applications deal with the planning that provides the basis for all the firm's human resources activities. The third application (equal employment opportunity) consists of the reporting that occurs during the time that employees work for the firm. The remaining six applications are concerned with activities that occur during the employment cycle,

beginning with recruitment and ending with organizational exit (McLeod and Anctis, 1995).

2.4.5. The components of a resource-flow HRIS model

The resource-flow model illustrated in Figure 2.6 consists of three subsystems devoted to data input, a HRIS database, and six subsystems devoted to transforming the data into information and making it available to users. The input data obtained from both internal and environmental sources, and the users consist of individuals and organizations both inside and outside the firm. This model was presented by HRSP (Human Resource Systems Professionals) and McLeod and Anctis in 1995.

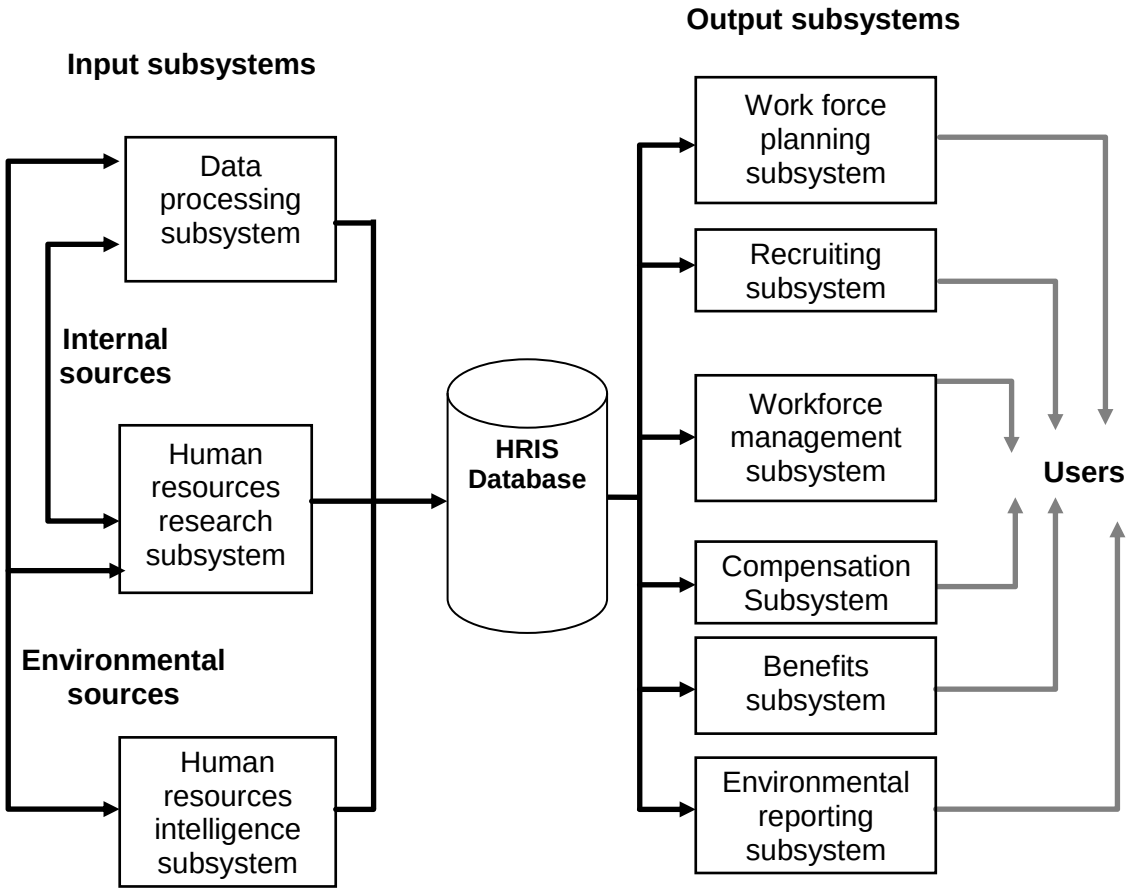

Figure 2.6: A Resource-flow HRIS model

Source: McLeod and Anctis, 1995

Input subsystems

Three input subsystems enter data into the database. They are data processing, human resources research, and human resources intelligence. In certain gasps, the input subsystems also include software that transforms input data into the required format for storage (McLeod and Anctis, 1995).

HRIS input subsystems consist of data processing subsystem, human resource research subsystem and human resource intelligence subsystem. Human resource research subsystem can generate new data for the job analyses purposes and use existing information for succession planning. Human resource intelligence subsystem is responsible for interfacing with the environmental elements of any functional area such as government, suppliers, labour unions, local community, competitors, financial community, etc.

Data processing subsystem

This subsystem consists of those systems residing both in the accounting department and HR, which process data relating to human resources (McLeod and Anctis, 1995). The data consists of personnel data describing human resources transactions that occur during the resource flow, and also payroll data. The data processing subsystem gathers the data both from internal and environmental sources (McLeod and Anctis, 1995).

Human resources research subsystem

This subsystem has the responsibility for conducting special studies to provide data on the firm's human resource-related activities (McLeod and Anctis, 1995). The human resources research subsystem is the introspective view taken by HR of its own operations (McLeod and Anctis, 1995). As with the data processing subsystem, input data can come from both inside and outside the firm (McLeod and Anctis, 1995).

Human resources intelligence subsystem

This subsystem has the responsibility for keeping current on environmental activities that are especially important to human resource activities (McLeod and Anctis, 1995). Data and information are gathered describing activities of the government, labour unions, suppliers, the local and financial communities, and even competitors (McLeod and Anctis, 1995). Employment firms function as suppliers, funnelling applicants to the firm. Applicants can also come from the local community and from competitors (McLeod and Anctis, 1995). The financial community provides data and information concerning the economic climate, which influences the human resource plans (McLeod and Anctis, 1995). Much of the intelligence data can be obtained from commercial databases (McLeod and Anctis, 1995).

The HRIS database

All of the data and information provided by the input subsystems is held in computer storage (McLeod and Anctis, 1995). The storage units can reside in IS, HR, or other locations (McLeod and Anctis, 1995). The data relates primarily to the firm's employees, but also can describe the environmental elements with which HR interfaces (McLeod and Anctis, 1995). Database management system (DBMS) software performs the maintenance processes (McLeod and Anctis, 1995).

HRIS Database consists of number of databases such as employee database, executive search firm databases, university databases, employment agency databases, public access databases, corporate job banks…etc.

Output subsystems

The output subsystems consist of various types of software that transform data in the database into information outputs. The software can include report writers, mathematical models, office automation packages such as e-mail and desktop publishing, and applications of artificial intelligence such as expert systems. According to the model, the output subsystems represent the six groups of HRSP applications.

Workforce planning subsystem is one of the output subsystems in HRIS model, which enables the manager to identify future personal needs (Figure 2.6). It facilitates organisation charting, salary forecasting, job analysis or evaluation, planning and work force modelling.

Recruiting output subsystem enables applicant tracking and internal search. Workforce Management output subsystem work on performance appraisal, training, position control that ensures headcount does not exceed budgeted limits, relocation, skills or competency measuring, succession planning and disciplinary.

Compensation output subsystem works on merit increases, payroll, executive compensation, bonus incentives and attendance. Benefits output subsystem defined contribution, benefits and claims processing.

Environmental reporting output subsystem work on reporting firm’s personnel policies and practices to the government. Reports like union increases, health records and toxic substance produce through this system.

The model (Figure 2.6) provided a good framework of HRIS components. It followed the three main concepts of system: inputs, processes, and outputs addressing the wide variety of HRIS applications as well. According to McLeod and Anctis (1995), the HRIS has provided strong support in the compensation and benefits areas, but other activities that occur during employment demand greater attention. For example, little attention has been directed at activities relating to organizational exit, or termination. Many firms have neglected applications for workforce management and recruiting. They further emphasised, if HRIS resources were aimed at building strong planning systems, up-to-date HRIS databases, and responsive information output systems, then the HRIS would support management in each of its workforce-related activities. This direct management support would contribute to the firm's strategic objectives, whatever they might be. As the HRIS does a better job of providing management with information about people and their jobs, it will solidify its position in the firm as a valued information system (McLeod and Anctis, 1995).

2.4.6. HRIS Model - McLeod and Schell

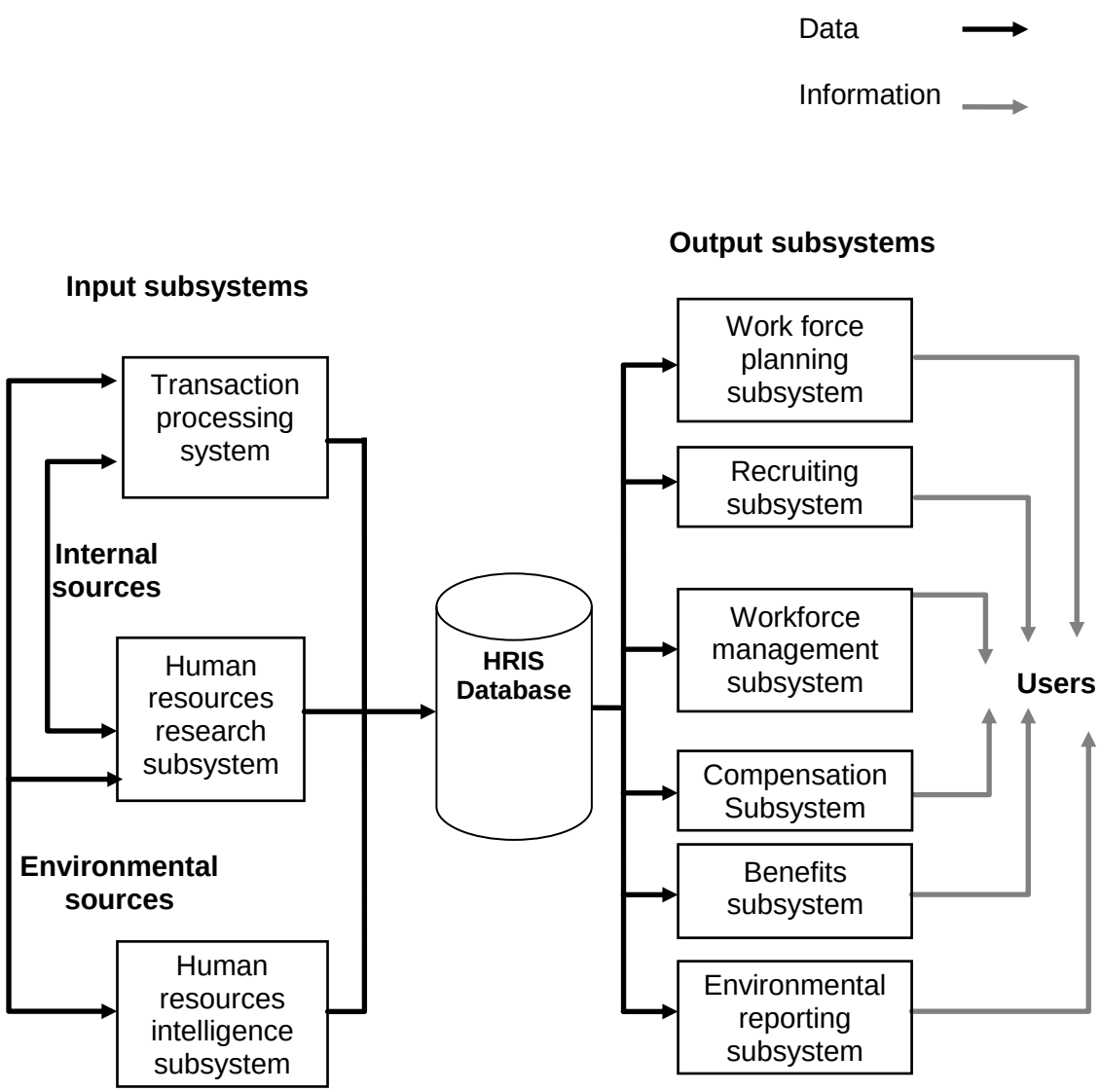

Figure 2.7: A model of a human resource information system

Source: McLeod and Schell, 2007

McLeod and Schell slightly modified the Resource-Flow HRIS Model in 2007 (Figure 2.7). The data processing sub system was named as transaction processing sub system.

2.5. Human resource strategy

Thomas (1996) defined human resources strategy as a co-ordinated set of actions aimed at integrating an organisation's culture, organisation, people and systems (Figure 2.8). He articulated human resources strategy as the cohesion and consistency of a distinctive pattern of behaviour. Its relationship to the corporate strategy determines its effectiveness and success.

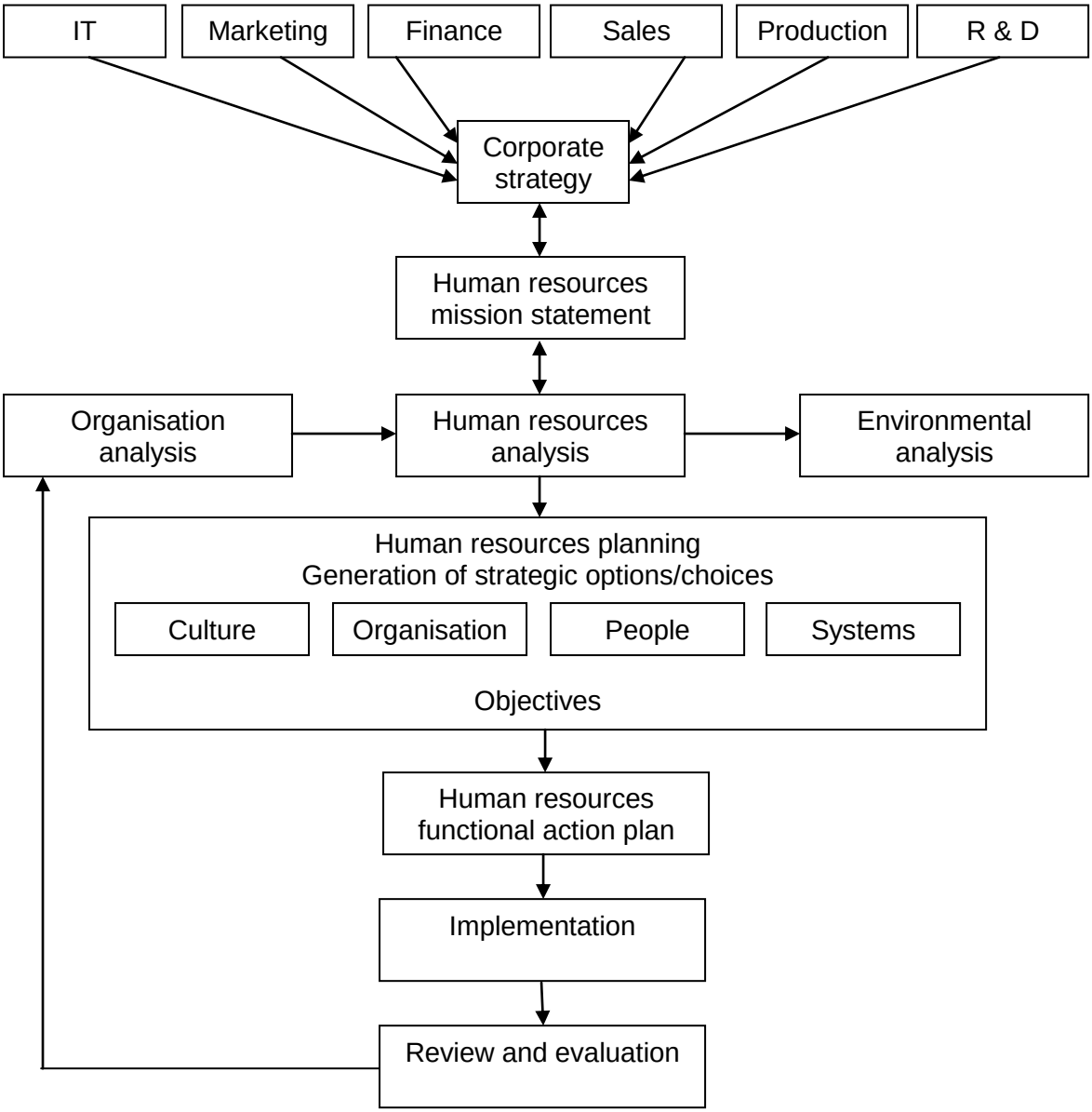

Figure 2.8: HR strategy

Source: Thomas, 1996

HR strategy aids the organisation to achieve strategic goal in the medium to long term. It should emanate clearly from corporate business strategy aligning with organisational other plans and strategies (Figure 2.8).

The human resources function in today's organisation needs to think of itself as a business-operating unit, employing exactly the same marketing, technical and quantitative skills as those, which are employed, by other functions (Thomas, 1996).

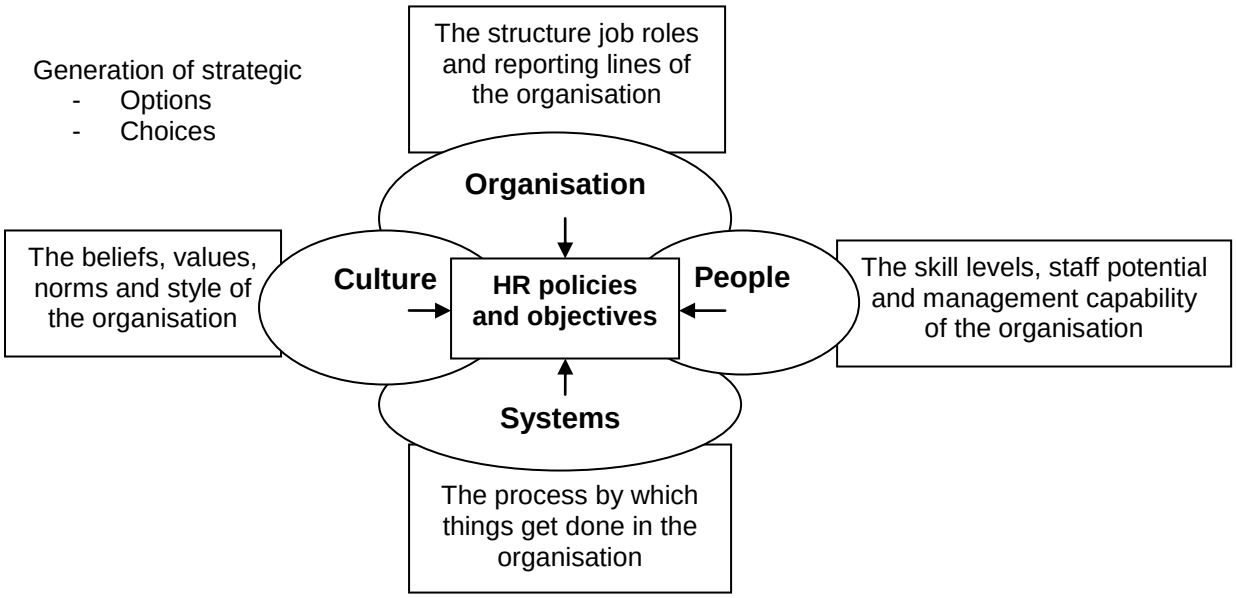

Figure 2.9: Human resources strategy planning

Source: Thomas, 1996

HR strategic plan is influenced by four dimensions: culture, organisation, people and systems (Figure 2.9). Organisation structure, job roles and reporting lines should integrate with employee skill levels, staff prospective and management capabilities. Culture, which is key aspect of the organisational, is belief, value, norms and style. Organisation culture – its measurement, monitoring and management – provides the potential to enhance organisational performance (Thomas, 1996). Systems can be manual as well as computerised processes used to carry out the tasks within the organisation. Human Resources Information Systems (HRIS) or Human Resources Management Systems (HRMS) play leading role in computerised HR Systems. Therefore, HR strategy plan should not only be inline with corporative business plan but also with organisational Information Systems strategic plan.

2.7. Conclusion

Organisations use Information Systems in all three levels of information management: strategic, tactical and operational. HRIS is one of the information systems out which transforms the role of the HR department incorporating records for employee resource, rewards, training, etc. Many studies cited HRIS benefits, such as improvements in accuracy, cost saving, timely and quick access to information through HR reports, decision-making and increased competitiveness. Lack of top management support, funds, HR knowledge of system designers and HR solutions, are the main factors keeping organisations away from HRIS.

According to literature, human resource planning, recruiting, and training are less frequent users within personnel perhaps reflecting greater use of the system for routine reporting than for decision support. HRIS is classified in to two types according to their usage: “unsophisticated” and “sophisticated”. Payroll and benefits administration, employee absence records keeping electronically are listed as “unsophisticated”. Use of IS in recruitment and selection, training and development, HR planning and performance appraisal, is classified as “sophisticated”. Many researches were curious about the integration of HRIS with other emerging technologies such as MIS, ERP, eHR…etc. Due to the advent of Internet technology and the emerging concept of business intelligence HRM systems have changed to e-HRM systems. It is very hard to give a clear-cut view to distinguish eHR from HRIS since HRIS developed with most of the eHR features today.

According to Alvarez-Suescun (2007), firm size or technical skills do not affect organisational sourcing decisions. The HRIS implementation sourcing decision may be influenced by previous experiences in the implementation of other systems and strategic contribution of the IS on the internal organization. According to some literature organisations gain competitive and strategic advantage if HRIS activities are undertaken internally.

HRIS facilitates training and development and recruitment and section processes of the organisations. The training and development function is essential for changing behaviour and culture and reinforcing the new behaviour and culture in an organisation.

The training process consists of four phases. The first phase is the training needs analysis (TNA). The second phase is the design phase. The third phase is the implementation phase and the training evaluation is the final phase. HRIS mainly facilitate TNA and training evaluation phase. Succession planning which is facilitated by HRIS helps to identify key players in the organisation and develop them for future demand. Recruitment represents one of the core staffing activities that need to be planned efficiently and effectively. Pattanayak (2000) identified four sub functions: determining the nature of the job to be filled, type of personal required, sources of recruitment and selection process. HRIS facilitates all four of those sub processes using its job analysis, skill inventory and E-recruitment features. In the Sri Lankan context, literature relevant to HRIS, training and development and recruitment and selection cannot be found. Especially, how HRIS contributes to HR panning through training and development and recruitment and selection is yet being studied.

The systematic development of HRIS models is studied through the literature review. The first conceptual framework is the Hyde-Shafritz Model, which listed the modules as sixteen inputs and outputs presented in 1977 by Albert C. Hyde and Jay M. Shafritz. The Simon Input/Data Maintenance/Output Model was submitted in 1983 by Sidney H. Simon. It represented HRIS in terms of input, maintenance, and output functions. The Manzini-Gridley Hardware Network Model was presented in 1986 by Andrew Manzini and John D. Gridley. They viewed the HRIS in terms of interfaces with a corporate human resources database. The Fisher, Schoenfeldt, and Shaw Application Modules presented in 1990 by Cynthia D. Fisher, Lyle Schoenfeldt, and James B. Shaw identifying nine major application areas of the HRIS. The most recent and comprehensive model was a resource-flow HRIS model, which was presented by HRSP (Human Resource Systems Professionals) and McLeod and Anctis in 1995. Same model was presented with some miner changes by McLeod and Schell in 2007. This was more advanced than earlier models. There was some amount of focus to embed artificial intelligence in order to facilitate more advanced decision-making capabilities.

Chapter 3

3. Research design

3.1. Introduction

This chapter lays down the research design. The discussion borders specifically on the research philosophy, approach, strategy and time horizon in order to develop methodology to address research questions. Sampling procedure too is discussed in detail. Questionnaire was developed to identify the variables and data requirements to fulfil the research objectives. Measuring instruments such as validity and reliability are discussed in detail in this chapter.

3.2. Research design and methodology

3.2.1. Research philosophy

This study shares some of positivism aspects which recognise only facts and observable phenomena and follow a deductive theory. Under positivism, theories provide the basis of explanation, permit the anticipation of phenomena, predict their occurrence and therefore allow them to be controlled (Collis and Hussey, 2009). Explanation consists of establishing causal relationships between the variables by establishing causal laws and linking them to a deductive or integrated theory (Collis and Hussey, 2009). Since it is assumed that social phenomena can be measured, study is associated with quantitative methods of analysis. Though HRIS and business environment changes to some extent the results of the study can be generalised within a specific environment. Since the study is exploratory, it did not attempt to dig into deeper layers of reality. In positivism, reality is objective and singular, separate from the researcher. Similarly, researcher is independent from what was researched.

The HRIS role is subjective and multiple as seen by the senior HR executives. Therefore biases are present. In that sense, study is closer to interpretivism philosophy. Interpretivism is underpinned by the belief that social reality is not objective but highly subjective because it is shaped by our perceptions (Collis and Hussey, 2009). The researcher interacts with that being researched because it is impossible to separate what exists in the social world from what is in the researcher's mind (Collis and Hussey, 2009).

Even though it is difficult to classify the study under positivism/realism or interpretivism philosophy, it could be argued that this study is closer to realism philosophy since it was likely to affect senior HR executives' attitude and perception towards the efficient and effective use of HRIS in HR planning in a given environment. Realism shared some philosophical aspects with positivism as well. Senior HR executives themselves did not object to this study since HRIS' influence in HR planning was independent from attitude and perception of senior HR executives as the fruitfulness of HRIS depends on its available features developed by vendors. Despite that, HRIS

usage in HR planning depends on senior HR executives since their attitude, perception and behaviours deploy the HRIS role successfully, which is not noticeable to them.

3.2.2. Research approaches

This study followed deductive research approach where theory and hypotheses are developed and a research strategy is designed to test the hypotheses. The study moved from theory to data explaining causal relationships between variables. According to the literature review, research based on HRIS has not yet been done in Sri Lanka or had not been published yet. However, sufficient literature on HRIS is available from other countries. Conceptual framework was developed based on literature and pilot survey. Research focused on senior HR executives' opinions.

The study is based on quantitative data analysis, where deductive research approach was most suitable. Quantitative data collected to quantify the organisational practice of HRIS for HR planning. The study could be generalised due to the large sample size. This is possible to some extent since organisational IS and HR strategies change from organisation to organisation. Simultaneously, HRIS functionalities evolve and reshape day by day due to increasing awareness, new technology and business requirements. The results or findings of this research can be used by organisations that are having similar contexts to enhance and shape their HRIS usage in HR planning from the initial stages of the business. Similar kind of studies could produce similar results in a similar context due to the highly structured methodology employed. Within the study, researcher was independent from what was being researched. Researcher was only involved in collecting data through questionnaire, which were either e-mailed to the participants or handed over manually. Study applied controls to ensure the validity of data. Researcher was interested in understanding what is happening rather than as to why it was happening. As such, for this research, deductive approach was more suitable.

3.2.3. Research strategy

Research strategy is developed to plan and answer the research questions. After having considered several research strategies such as experiment, case studies, etc., a survey was opted for to carry out the research, which is a popular and common strategy in business and management research. It links to the deductive approach as well. This research study was an academic research, which had to be completed with limited available resources: both time and money. Survey strategy helped to collect large amount of data using a questionnaire from a sizable population in a highly economical way. Data collected through the questionnaire provided standard data allowing easy comparison. Senior HR executives' views could be captured with minimum effort and cost. Therefore survey was the most suitable strategy for this research. Questionnaire was distributed to a sample to representing an unbiased subset of the population. Statistical methods were used to test the likelihood that the characteristics of the sample were found in the population. This effort helped to generalise the findings to some extend within similar type of private sector organisations that use HRIS or organisations, who are planning to use HRIS in Sri Lanka. Data gathered from questionnaire was used to find dependant and independent variables in the relationships and the validity of the relationships of proposed conceptual framework.

As mentioned in first chapter, pilot survey was conducted through interviews. This interview strategy could not be adopted since the number of senior HR executives was rather large and cannot be managed with finite time and cost. Case study is a good strategy, but was not selected after considering the time needed to complete research and weak possibility of generalisation. Experiment research was not selected due to its unsuitability to this research, which is not on natural science.

3.2.4. Time horizons

This study was not carried out over long period and did not investigate the same group of people several times. Therefore, it cannot be classified as a longitudinal study. According to research questions, this study is designed to obtain research data in three different contexts, but over the same period. It had studied three types of industries: financial, service, and manufacturing. One hundred and eighty seven (187) senior HR executives were selected randomly as sample size and data collected on their opinion and behaviours towards HRIS through questionnaire, which was designed base on many variables. Moreover, the study was an exploratory research since there are no previous HRIS studies relevant to HR planning in Sri Lanka. Hypotheses were generated for future research. Therefore, cross-sectional study was selected as time horizon.

3.2.5. Population and sample frame

Population frame

Organisation types	**Population**
Financial organisations	8
Manufacturing organisations	10
Service organisations	13

Table 3.1: Distribution of target population among thirty-one organisations: financial

Private sector organisations	Senior HR Executives (Who uses HRIS)
Seylan Bank	23
Sampath Bank	20
HSBC Bank	12
Commercial Bank	10
Nations Trust Bank Ltd	10
People's Leasing Co. Ltd	9
DFCC Bank	7
Central Finance	5
Total	96

Table 3.2: Distribution of target population among thirty-one organisations: manufacturing

Private sector organisations	Senior HR Executives (Who uses HRIS)
MAS Holding	26
Hayleys	25
Nestle Lanka Limited	15
Ceylon Tobacco Company	11
CIC Group	10
Holcim Group	10
Kelani Cables	10
Brandix Group	8
Richard Pieris Distributors Ltd.	8
Ansell Lanka (Pvt) Ltd	6
Total	129

Table 3.1, 3.2 and 3.3 illustrate number of senior HR executives who use HRIS in each of the organisations based on the industry type. Table 3.4 shows total number of senior HR executives in the population based on each industry.

Table 3.3: Distribution of target population among thirty-one organisations: service

Private sector organisations	Senior HR Executives (Who uses HRIS)
Sri Lanka Telecom (SLT)	32
Ceylinco Insurance	14
Dialog Telekom Plc	13
Mobitel	13
Sri Lankan Airlines	12
DIMO	9
Amba Research Lanka (Pvt) Ltd	9
Hilton Hotels	8
Hutch	8
Sumathi Trading Co Ltd.	8
Bartleet	7
Cargills Ceylon Limited	7
Union Assurance Ltd	7
Total	147

Total number of employees in the population

Table 3.4: Summary of distribution of target population among thirty-one organisations

Private sector organisations	Senior HR executives (Who uses HRIS)
Financial organisations	96
Manufacturing organisations	129
Service organisations	147
Total	**372**

Sampling methods: probability sampling: stratified random

Stratified random sampling used to select senior HR executives who use HRIS to extract information to assist the top management. Stratified random sampling is suitable for this study since the population divided in to three significant strata based on the industry type: financial, manufacturing and service. A random sample was then drawn from each of the strata which ensure that each case in the population has an equal chance of being included in the sample.

Determining the sample size

Commercial, Seylan and Sampath banks were selected as samples representing the financial organisations. These are the leading banks based in Sri Lanka. To represent the service sector Amba, SLT and Dialog were selected. Hayleys, Nestle Lanka Limited and MAS Holding were selected to represent manufacturing organisations. Initially all the selected organisations have used the system successfully for their administrative work. Sample size was based on Krejcie and Morgan table (Collis and Hussey, 2009), which is at a 95% level of certainty.

Table 3.5: Distribution of sample among financial organisations

Private sector organisations	Senior HR executives (Who uses HRIS)
Commercial Bank	10
Sampath Bank	20
Seylan Bank	23
Total	53

Table 3.6: Distribution of sample among manufacturing organisations

Private sector organisations	Senior HR executives (Who uses HRIS)
Hayleys	25
MAS Holding	26
Nestle Lanka Limited	15
Total	66

Table 3.7: Distribution of sample among service organisations

Private sector organisations	Senior HR executives (Who uses HRIS)
Amba Research Lanka (Pvt) Ltd	9
Dialog Telekom Plc	24
Sri Lanka Telecom (SLT)	35
Total	68

Organisation types	Population	Sample
Financial organisations	8	3
Manufacturing organisations	10	3
Service organisations	13	3

Table 3.5, 3.6 and 3.7 illustrate number of senior HR executives who use HRIS in selected organisations as sample based on their industry type. Table 3.8 shows total number of senior HR executives in the sample based on each industry.

Total number of employees in the sample

Table 3.8: Distribution of sample

Private sector organisations	Senior HR executives (Who uses HRIS)
Financial Organisations	53
Manufacturing Organisations	66
Service Organisations	68
Total	**187**

3.2.6. Conceptual framework

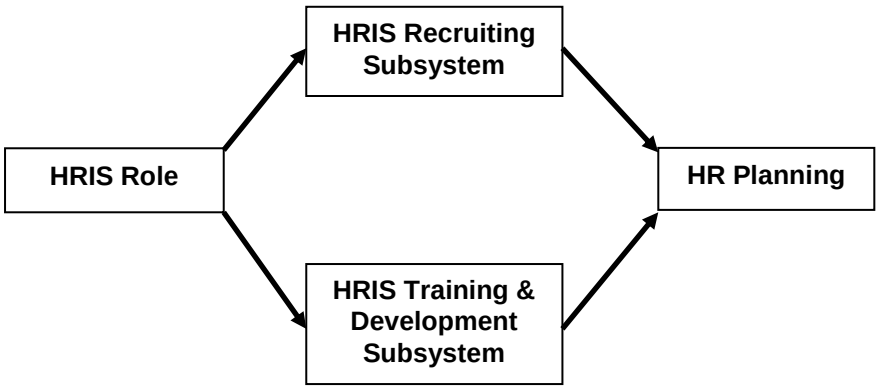

Figure 3.1: Schematic diagram for the conceptual framework

Conceptual framework (Figure 3.1) depicts HRIS contribution to HR planning through the two systems: HRIS recruiting and HRIS training and development. HRIS recruiting subsystem represents the functionalities of HRIS job analysis, e-recruiting and

skill inventory. HRIS training and development subsystem contributes the features of HRIS TNA, HRIS training program evaluation and HRIS succession planning. HRIS labour demand and supply analysis and HRIS decision-making facilities are contributed by both subsystems.

3.2.7. Variables

A conceptual framework developed to hypotheses a logical understanding of the relationships between the factors that are identified as vital to the problem.

The variables can be graphically represented as follows and the questionnaire is given in Appendix A, which was used to measure the relationships between the variables. A working model was formed as follows to test the above hypotheses and measure the relationship between variables.

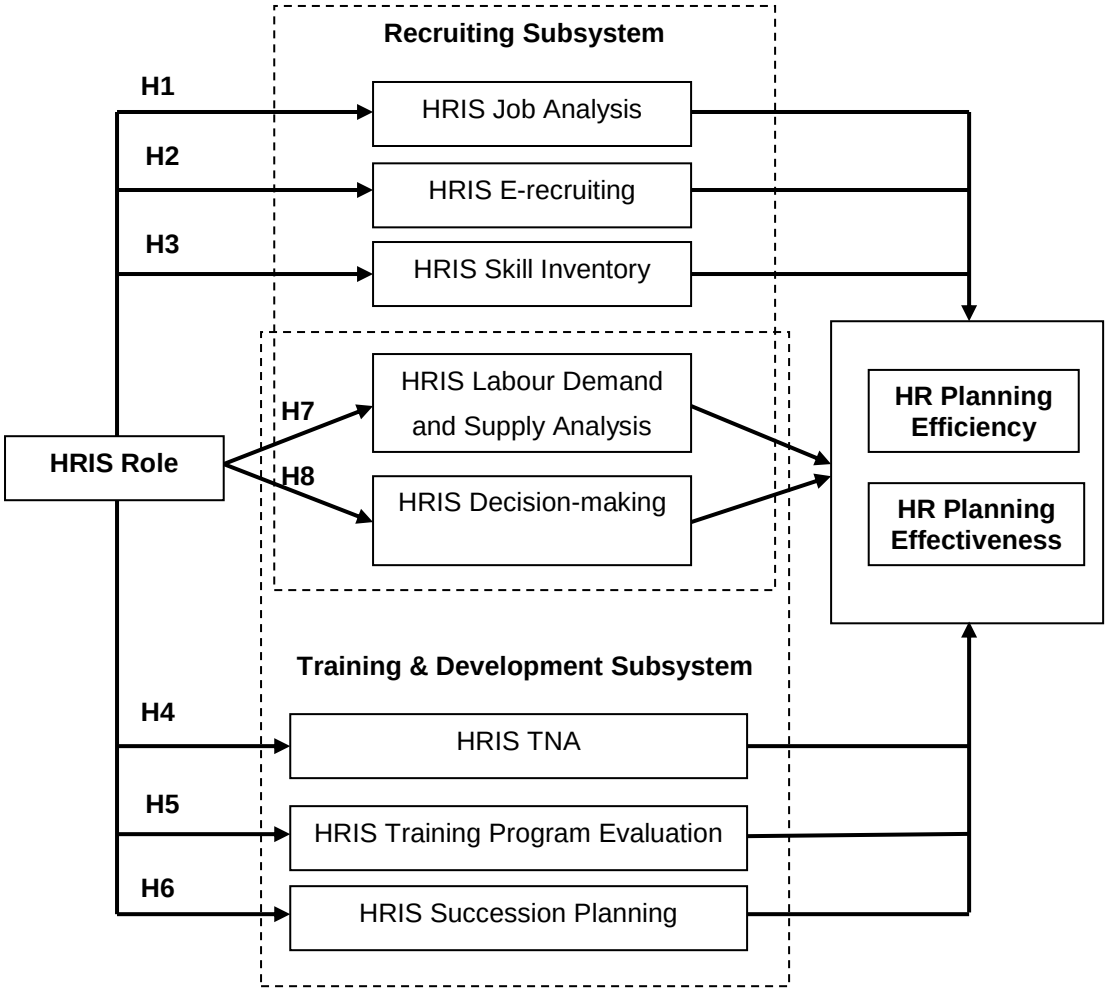

Figure 3.2: Variables in the conceptual framework

Independents Variable

Independent variable: HRIS role

HRIS role was identified from two sub systems: HRIS recruiting subsystem and HRIS training and development subsystem. From these two sub systems, mediate variables were identified considering available HRIS features. All the variables measured using a five point Likert scale ranging from strongly disagree (1) to strongly agree (5).

HRIS recruiting subsystem features facilitate for job analysis, skill inventory (Tansley *et al.,* 2001) and e-recruiting. These three features of HRIS are identified as mediate variables, which contribute to organisational recruitment and selection processes.

HRIS training and development subsystem consists of TNA (Glaveli and Kufidu, 2005), training program evaluation and succession planning (Lokhandwala, 2009) features. McLeod and Anctis (1995) named HRIS training and development subsystem as workforce management output subsystem. I named it as training and development subsystem since it is more relevant and suitable for this study.

Both HRIS recruiting and training and development subsystem consists of HRIS labour demand and supply analysis and HRIS decision-making features used Beadles *et al*. (2005), Nagi *et al*. (2006), DeSanctics (1989:17), Beulen (2009), Broderic and Boudreau (1992), Nagi and Wat (2006) features.

Dependant Variable

Dependent variable: HR planning (Nagi and Wat (2006), Panayotopoulou *et al*. (2005), Beulen (2009))

Two different mediate variables:

1. Recruiting subsystem (Nagi and Wat (2006), Reddic (2009), Nagi *et al*., (2006))
2. Training and development subsystem (Nagi and Wat (2006), Nagi *et al*., (2006))

Table 3.9: Breakdown of variables

Independent variables	Mediate variables	Dependant variables
HRIS Role	HRIS recruiting subsystem HRIS job analysis HRIS E-recruiting HRIS skill inventory (Tansley *et al.*, 2001)	HR planning Ngai and Wat (2006), Panayotopoulou *et al.* (2005), Beulen (2009),
	Training and development subsystem HRIS TNA (Glaveli and Kufidu, 2005) HRIS training program evaluation HRIS succession planning (Lokhandwala, 2009)	HR Planning effectiveness Panayotopoulou *et al.* (2005), Will and Hammond (1981), Ngai and Wat (2006)
	HRIS recruiting, training and development subsystems HRIS labour demand and supply analysis HRIS decision-making Beadles *et al.* (2005), Nagi *et al.* (2006), DeSanctics (1989), Beulen (2009), Broderic and Boudreau (1992), Ngai and Wat (2006)	HR Planning efficiency

Table 3.9 is evidence for variable break down based on the variable types: independent, mediate and dependant. Furthermore it illustrates the researchers' references that used those variables for their works.

Measurement of Variables

The following variables and the sub variables (Table 3.10) were measured as given below. Dependent, mediate and independent variables were included.

Table 3.10: Measurement scales for variables

Variable	Measurement	Variable Type
HRIS Recruiting Subsystem		
HRIS Job Analysis	Ordinal Scale	Mediate
HRIS Skill Inventory		
HRIS E-recruiting		
HRIS training and development subsystem		
HRIS TNA	Ordinal Scale	Mediate
HRIS Training Program Evaluation		
HRIS Succession Planning		
HRIS recruiting, training and development subsystems		
HRIS Labour Demand and Supply Analysis	Ordinal Scale	Mediate
Decision-making		
HR Planning Effectiveness	Ordinal Scale	Dependent
HR Planning Efficiency	Ordinal Scale	Dependent
HRIS Recruiting Subsystem Utilisation	Ordinal Scale	Independent
HRIS Training and Development Utilisation	Ordinal Scale	Independent
HRIS Role	Ordinal Scale	Independent
Organisation Type	Ordinal Scale	Independent

3.2.8. Data collection methods

Types of data requirements and data collection methods

Table 3.11 shows data requirements and relevant data collection methods according to the research questions.

Table 3.11: Types of data requirements and data collection methods

Research questions	Data requirements	Data collection methods			
		SSI	**Q**	**LR**	**DR**
RQ1: How effectively and efficiently does the HRIS recruiting subsystem contribute to workforce planning of an organisation?	Job analysis capabilities of HRIS	X	X		X
	Skill inventory facilities of HRIS	X	X	X	
	E-recruitment facilities of HRIS	X	X	X	
RQ2: How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?	HRIS training needs analysis (TNA) facility	X	X	X	
	HRIS evaluation of training programs	X	X		
	HRIS help to design career/succession plans	X	X	X	
RQ3: What is the overall contribution of the HRIS in HR planning through recruiting and training and development subsystems?	Organisational goals and objectives				X
	HRIS effectiveness in HR planning	X	X	X	
	HRIS efficiency in HR planning	X	X	X	
	HRIS labour demand and supply analysis	X	X		
	HRIS decision-making	X	X	X	
	HR Planning Efficiency	X	X		
	HR Planning Effectiveness	X	X		

SSI - Semi Structured Interviews

Q - Questionnaire

LR - Literature Review

DR - Document Review

Semi-structured interview

As mentioned earlier, the pilot survey was done with three experts using semi-structured interview to clarify the research area since there are no previous studies done in Sri Lankan on HRIS. After identifying the research area, questionnaire was designed to address research questions in order to collect primary data for further analysis. According to the view of expert, senior HR executives were chosen since they are mostly dealing with organisational HRIS.

Annual reports and web sites

Secondary data was collected using organisational annual reports and information available on websites. Annual reports helped to identify organisational strategies: IT/IS and HR organisational hierarchy, investments on IT, organisational scale: large, medium or small, etc,. Annual reports and contact details of organisations were downloaded from web sites. Information about HRIS clients were collected through the vendors sites.

Questionnaire

Questionnaire provided an efficient way of collecting responses from a large sample prior to quantitative analysis. Questionnaire was e-mailed to the participants since most users read and respond to their own mail. Respondents were senior HR executives involved in HR planning and HRIS. Questionnaire consisted of scale questions to collect opinions. Five point Likert-style rating scale (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, 5: strongly agree) was used when designing the questionnaire.

Questionnaire structure

The questionnaire was based on three main sections; namely HRIS role in recruitment and selection, HRIS role in training and development and common HRIS role in recruiting and training and development.

In the first section, twelve statements are included on the role of HRIS in recruitment and selection to find out how efficiently and effectively does the HRIS recruiting subsystem contribute to HR planning. The second section consists of twelve statements on the role of HRIS in training and development to find out how effectively and efficiently does the training and development subsystem of HRIS contribute to HR planning. Third section includes twenty statements to find out the overall contribution of HRIS in HR planning through recruitment and selection and training and development. Senior HR executives were asked to indicate their level of agreement with a set of statement using a rating scale of 1 to 5 (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, 5: strongly agree).

Questionnaire development

Questionnaire designed to collect primary data ensuring validity and reliability. Each research question and objective considered and identified the variables associated with each. Then investigate questions designed to collect most appropriate data (Table 3.12).

Table 3.12: Data requirements table

Research objective: To explore the contribution of HRIS recruiting subsystem to workforce planning of an organisation			
Research question 1: How effectively and efficiently does the HRIS recruiting subsystem contribute to workforce planning of an organisation?			
Type of research: Exploratory			
Investigate questions	**Variable(s) required**	**Details in which data measured**	**Check included in questionnaire**
HRIS identifies unfilled positions accurately.	Opinion of employees on HRIS vacancy definition	1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree	X
HRIS analyses each job position and its job title.	Opinion of HRIS identification on employee position		X
HRIS analyses the employees in each position.	Opinion of job position identification on HRIS		X
HRIS supports development of recruiting plan.	Opinion of recruiting plan development support on HRIS		X
HRIS maintains skill inventory.	Opinion of HRIS skill inventory facility		X
HRIS performs comprehensive reporting and tracking of applicants efficiently.	Opinion of HRIS reporting and applicants tracking		X
Candidates are recruited through HRIS e-recruiting.	Behaviour of employee recruiting		X
HRIS maintains relationships with individuals who register in a talent warehouse.	Behaviour of candidate registration using HRIS		X
HRIS reduces recruiting costs.	Opinion of HRIS cost reduction ability		X
HRIS eliminates unsuitable applicants early and focuses on promising candidates.	Opinion of HRIS short-listing		X
HRIS leverages employee's talent in the right place at the right time.	Opinion of HRIS success of recruiting right candidate		X
HRIS evaluates the recruiting processes effectively.	Opinion of HRIS evaluating ability of recruiting processes		X

Table 3.12: Data requirements table….continuation

Research objective: To investigate the contribution of HRIS training and development subsystem to workforce planning of an organisation			
Research question 2: How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?			
Type of research: Exploratory			
Investigate questions	**Variable(s) required**	**Details in which data measured**	**Check included in questionnaire**
HRIS provides insight into organisational training needs.	Opinion of HRIS TNA	1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree	X
The outcome of HRIS training needs analysis (TNA) is accurate.	Opinion of HRIS TNA accuracy		
Managers find HRIS detailed training plan relevant to their needs.	Opinion of HRIS training plan relevancy to its need		X
HRIS evaluates the effectiveness of training programs.	Opinion of HRIS evaluating ability of training program		X
Employees find HRIS training programs relevant to their needs.	Opinion of HRIS training programs relevancy by employees		X
HRIS selects right persons to be trained at right time.	Opinion of HRIS training programs relevancy by Executives		X
HRIS eliminates skill gaps across the organisation.	Opinion of HRIS human capital management success		X
HRIS plays a vital role administrating training programs.	Opinion of HRIS training program administration		X
HRIS assesses the budget of training and development programs.	Opinion of HRIS budget assessment ability of T & D program		X
HRIS makes better and faster decisions about successor rankings.	Opinion of HRIS successor rankings		X
HRIS identifies specific key positions and targets specific employees as potential successors.	Opinion of HRIS succession planning		X
HRIS minimises costs associated with succession planning or applicant tracking.	Opinion of HRIS cost reduction in succession planning		X

Table 3.12: Data requirements table….continuation

Research objective: To identify the overall contribution of HRIS in HR planning through recruiting and training and development subsystems of an organisation			
Research question 3: What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?			
Type of research: Exploratory			
Investigate questions	**Variable(s) required**	**Details in which data measured**	**Check included in questionnaire**
HRIS manages internal information within the organisation	Opinion of HRIS internal data management	1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree	X
HRIS manages external information outside the organisation	Opinion of HRIS external data management		X
HRIS constantly analyses and matches the demand for human resources.	Opinion of HRIS ability to analyse demand		
HRIS forecasts supply of human resources.	Opinion of HRIS ability to analyse supply		X
HRIS estimates future human resources requirement of the organisation.	Opinion of HRIS forecasting ability		X
HRIS connects employee to required position and keep track of their movements.	Opinion of HRIS tracking ability of employee movements		X
HRIS identifies a logical progression path and the steps required for advancements.	Opinion of HRIS path identification for advancement		X
HRIS ensures organisation has right kind and numbers of employees at right place at right time.	Opinion of HRIS accuracy in HR planning		X
HRIS identifies human resources need to achieve organisational goals.	Opinion of HRIS organisational goals achievements		X
HRIS provides an opportunity to become strategic partner with top management.	Opinion of HRIS strategic partner role		X
Role of HRIS aligns with the organisation's HR strategy.	Opinion of HRIS with HR strategy		X
Role of HRIS aligns with the organisation's Information System strategy.	Opinion of HRIS with Information System strategy		X

Table 3.12: Data requirements table….continuation

Investigate questions	Variable(s) required	Details in which data measured	Check included in questionnaire
HRIS has improved the quality of my decisions.	Opinion of HRIS decisions quality	1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree	X
I can better set my HR decision-making priorities using HRIS.	Opinion of HRIS decisions priorities		X
Through HRIS more relevant information has become available to me for decision making.	Opinion of HRIS information relevancy for decision making		X
Through HRIS, the speed at which I analyse decisions has increased.	Opinion of HRIS decision analysis speed		X
HRIS focuses on decisions made at the higher level by senior management and executives.	Opinion of HRIS focus group for decision-making		X
Future supply and demand of labour can be forecast using what-if analysis function of HRIS.	Opinion of HRIS what-if analysis function		X
HRIS simulation models support HR decision making.	Opinion of HRIS simulation models		X
Goal-seeking method empowers HRIS decision making.	Opinion of HRIS goal-seeking		X
Organisation's HR planning is highly effective	Opinion of HR planning effectiveness		X
Organisation's HR planning is highly efficient	Opinion of HR planning is highly efficiency		X

Multi-item indicators of independent variables

The independent variables identified in the research model measured using multi-item indicators (Table 3.13).

Table 3.13: Multi-item indicators of independent variables

Variables	Items	Description
HRIS Job Analysis (JA)	JA1	Identification of unfilled positions accurately.
	JA2	HRIS analyses each job position and its job title.
	JA3	HRIS analyses the employees in each position.
	JA4	HRIS supports development of recruiting plan.
HRIS Skill Inventory (SI)	SI1	HRIS maintains skill inventory.
	SI2	HRIS performs comprehensive reporting and tracking of applicants efficiently.
HRIS E-recruiting (ER)	ER1	Candidates are recruited through HRIS e-recruiting.
	ER2	HRIS maintains relationships with individuals who register in a talent warehouse.
	ER3	HRIS reduces recruiting costs.
	ER4	HRIS eliminates unsuitable applicants early and focus on promising candidates.
	ER5	HRIS leverages employee's talent in the right place at the right time.
	ER6	HRIS evaluates the recruiting processes effectively.
HRIS TNA	TNA1	HRIS provides insight into organisational training needs.
	TNA2	The out come of HRIS training needs analysis (TNA) is accurate.
HRIS Training Process Evaluation (TE)	TE1	Managers find HRIS detailed training plan relevant to their needs.
	TE2	HRIS evaluates the effectiveness of training programs.
	TE3	Employees find HRIS training programs relevant to their needs.
	TE4	HRIS selects right person to be trained at right time.
	TE5	HRIS eliminates skill gaps across the organisation.
	TE6	HRIS plays a vital role administrating training programs.
	TE7	HRIS assesses the budget of training and development programs.
HRIS Succession Planning (SP)	SP1	HRIS makes better and faster decisions about successor rankings.
	SP2	HRIS identifies specific key positions and target specific employees as potential successors.
	SP3	HRIS minimises costs associated with succession planning or applicant tracking.

Table 3.13: Multi-item indicators of independent variables ….. continuation

Variables	Items	Description
HRIS Labour Demand Analysis (LD)	LD1	HRIS manages internal information within the organisation.
	LD2	HRIS manages external information outside the organisation.
	LD3	HRIS constantly analyses and matches the demand for human resources.
HRIS Labour Supply Analysis (LS)	LS1	HRIS forecasts supply of human resources.
	LS2	HRIS estimates future human resources requirement of the organisation.
	LS3	HRIS ensures organisation has right kind and numbers of employees at right place at right time.
	LS4	HRIS identifies human resources need to achieve organisational goals.
HRIS Path Identification (PI)	PI1	HRIS connects employee to required position and keep track of their movements.
	PI2	HRIS identifies a logical progression path and the steps required for advancements.
HRIS as Strategic Partner (ASP)	ASP1	HRIS provides an opportunity to become strategic partner with top management.
	ASP2	Role of HRIS align with the organisation's HR Strategy.
	ASP3	Role of HRIS with the organisation's Information System strategy.
HRIS Decisions-making (DM)	DM1	HRIS has improved the quality of my decisions.
	DM2	As a result of HRIS, I can better set my HR decision-making priorities.
	DM3	Through HRIS, information that is more relevant has become available to me for decision-making.
	DM4	Through HRIS, the speed at which I analyse decisions has increased.
	DM5	HRIS focuses on decisions made at the higher level by senior management and executives.
	DM6	Future supply and demand of labour can forecast using What-If analysis function of HRIS.
	DM7	HRIS simulation models support of HR decision making.
	DM8	Goal-seeking method empowers HRIS decision making
HRP Effectiveness	HRPEff	Organisation's HR planning is highly effective
HRP Efficiency	HRPEffi	Organisation's HR planning is highly efficient
Organisation Type	OT	Organisation Type

Table 3.13: Multi-item indicators of independent variables …..continuation

Variables	Items	Description
HRIS recruiting subsystem utilisation	RU	Organisation uses HRIS recruitment subsystem in optimum level
HRIS training and development subsystem utilisation	TDU	Organisation uses HRIS training and development subsystem in optimum level

HRIS job analysis variable (JA) mainly used to collect the data on the accuracy and efficiency of HRIS role to fill unfilled positions and its - analytical capability to identify each job position and employees in each position. Further, it gathered data on HRIS support to the development of recruiting plan. Based on JA variable first hypothesis was developed to find whether or not the higher utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.

HRIS skill inventory (SI) variable was used to identify whether organisations maintain database for skill inventory using HRIS and utilise it for reporting and tracking the applicants' efficiently and effectively. SI variable was used for second hypothesis to find whether higher utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning or not.

HRIS e-recruiting (ER) variable was used to recognize the e-recruiting facilities gain to organisation through HRIS. Mainly ER variables used to collect the data to find whether the organisation maintains a talent warehouse allowing the candidates to register with them directly and if it reduced the cost. Can an organisation short list the candidate using HRIS features efficiently and effectively? Furthermore, to find the information provided by HRIS help to utilise employee's talent in the right place at the right time evaluating the recruiting processes effectively. Third hypothesis based on ER variable is to recognise whether higher employment of HRIS e-recruitment process in an organisation increases the efficiency and effectiveness of HR planning. All the three

variables: JA, SI and ER are used to identify the HRIS role through HRIS recruiting subsystem to HR planning.

HRIS training need analysis (TNA) variable used to identify whether HRIS can analyze the training needs of the organisation identifying the employees accurately. Fourth hypothesis based on TNA variable is to recognise whether HRIS training need analysis (TNA) process increases the efficiency and effectiveness of HR planning of an organisation or not.

HRIS training process evaluation (TE) variable used to find the relevance of detailed training plan to employees and managers produced by HRIS and whether HRIS helps to eliminate skill gaps within the organisation. Simultaneously, does HRIS facilitate to calculate the budget of training and development programs? Fifth hypothesis based on TE variable is to identify whether training process evaluation of HRIS increases the efficiency and effectiveness of HR planning of an organisation or not.

HRIS succession planning (SP) variable is used to collect information about successor ranking capabilities of HRIS. Sixth hypothesis based on SP variable is used to find out whether succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation or not. All the three variables: TNA, TE and SP used to identify the HRIS role through HRIS training and development subsystem to HR planning.

HRIS labour demand and supply analysis consisted of three variables: HRIS labour demand analysis (LD), HRIS labour supply analysis (LS) and HRIS path identification (PI). LD variable used to identify whether HRIS features manage internal as well as external information of the organisation and analyses information to match the organisational labour demand. LS variable utilised to find whether HRIS forecast labour supply and estimate future human resource requirements. Further, LS variable used to find out the ability of HRIS to place right person at right place at right time achieving organisational goals. Same data collected through ER variable to ensure reliability. PI variable used to identify whether HRIS keep track of employees' movements recognizing requirements for advancements. Seventh hypothesis based on all three variables: LD,

LS and PI to identify whether labour demand and supply analysis of HRIS increase the efficiency and effectiveness of HR planning of an organisation through both recruiting and training and development systems.

HRIS decisions-making consisted of two variables: HRIS as strategic partner (ASP) and HRIS decisions-making (DM). ASP variable used to recognise HRIS alliance with top management, HR strategy and information system strategy. DM variable used to find out whether HRIS improve the quality and speed of decision making providing relevant information to management. Furthermore, DM variable verifies whether HRIS consist of what-if analysis, simulation and goal-seeking functionalities. Eighth hypothesis is based on both ASP and DM variables to check whether decision-making process of HRIS increases the efficiency and effectiveness of HR planning of an organisation through both recruiting and training and development systems.

3.2.9. Research hypotheses and second level research questions

Variables categorised according to research questions and hypotheses as follows (Table 3.14).

Table 3.14: Hypotheses and second level research questions

Research question	Mediate variable	Hypotheses	Second level research questions
1. How effectively and efficiently does HRIS recruiting subsystem contribute to workforce planning of an organisation?	HRIS job analysis	**$H_0$1**: higher utilisation of HRIS job analysis process in an organisation does not increase the efficiency and effectiveness of HR planning. **H_a1**: higher utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.	1. HRIS identifies unfilled positions accurately. 2. HRIS analyses each job position and its job title. 3. HRIS analyses the employees in each position. 4. HRIS supports development of recruiting plan.
	HRIS skill inventory	**$H_0$2**: higher utilisation of HRIS skill inventory process in an organisation does not increase the efficiency and effectiveness of HR planning. **H_a2**: higher utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning.	5. HRIS maintains skill inventory. 6. HRIS performs comprehensive reporting and tracking of applicants efficiently.

Table 3.14: Hypotheses and second level research questions …..continuation

Research question	Mediate variable	Hypotheses	Second level research questions
1. How effectively and efficiently does HRIS recruiting subsystem contribute to workforce planning of an organisation?	HRIS E-recruiting	**$H_0$3**: higher employment of HRIS E-recruitment process in an organisation does not increase the efficiency and effectiveness of HR planning. **H_a3**: higher employment of HRIS E-recruitment process in an organisation increases the efficiency and effectiveness of HR planning.	7. Candidates recruit through HRIS E-recruiting. 8. HRIS maintains relationships with individuals who register in a talent warehouse. 9. HRIS reduces recruiting costs. 10. HRIS eliminates unsuitable applicants early and focus on promising candidates. 11. HRIS leverages employee's talent in the right place at the right time. 12. HRIS evaluates the recruiting processes effectively.
2. How effectively and efficiently does training and development subsystem of HRIS contribute to workforce planning of an organisation?	HRIS TNA	**$H_0$4**: HRIS training need analysis (TNA) process does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a4**: HRIS training need analysis (TNA) process increases the efficiency and effectiveness of HR planning of an organisation.	13. HRIS provides insight into organisational training needs. 14. The out come of HRIS training needs analysis (TNA) are accurate.
	HRIS training process evaluation	**$H_0$5**: Training process evaluation of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a5**: Training process evaluation of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	15. Managers find HRIS detailed training plan relevant to their needs. 16. HRIS evaluates the effectiveness of training programs. 17. Employees find HRIS training programs relevant to their needs. 18. HRIS selects right person to be trained at right time.

Table 3.14: Hypotheses and second level research questions…..continuation

Research question	Mediate variable	Hypotheses	Second level research questions
2. How effectively and efficiently does training and development subsystem of HRIS contribute to workforce planning of an organisation?	HRIS training process evaluation	**$H_0$5**: Training process evaluation of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a5**: Training process evaluation of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	19. HRIS eliminates skill gaps across the organisation. 20. HRIS plays vital role administrating training programs. 21. HRIS assesses the budget of training and development programs.
	HRIS succession planning	**$H_0$6:** Succession planning of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a6**: Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	22. HRIS make better and faster decisions about successor rankings. 23. HRIS identifies specific key positions and target specific employees as potential successors. 24. HRIS minimises costs associated with succession planning or applicant tracking.
3. What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?	HRIS labour demand and supply analysis	**$H_0$7**: Labour demand and supply analysis of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a7**: Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	25. HRIS manages internal information within the organisation. 26. HRIS manages external information outside the organisation. 27. HRIS constantly analyses and matches the demand for human resources. 28. HRIS forecasts supply of human resources. 29. HRIS estimates future human resources requirement of the organisation.

Table 3.14: Hypotheses and second level research questions…..continuation

Research question	Mediate variable	Hypotheses	Second level research questions
3. What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?	HRIS labour demand and supply analysis	**$H_0$7**: Labour demand and supply analysis of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a7**: Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	30. HRIS ensures organisation has right kind and numbers of employees at right place at right time. 31. HRIS identifies human resources need to achieve organisational goals. 32. HRIS connects employee to required position and keep track of their movements. 33. HRIS identifies a logical progression path and the steps required for advancements.
	HRIS decisions -making	**$H_0$8:** Decision-making process of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation. **H_a8**: Decision-making process of HRIS increases the efficiency and effectiveness of HR planning of an organisation.	34. HRIS provides an opportunity to become strategic partner with top management. 35. Role of HRIS aligns with the organisation's HR Strategy. 36. Role of HRIS aligns with the organisation's Information System strategy. 37. HRIS has improved the quality of my decisions. 38. As a result of HRIS, I can better set my HR decision-making priorities. 39. Through HRIS, information that is more relevant has become available to me for decision-making. 40. Through HRIS, the speed at which I analyse decisions has increased. 41. HRIS focuses on decisions made at the higher level by senior management and executives. 42. Future supply and demand of labour can forecast using What-If analysis function of HRIS. 43. HRIS simulation models support of HR decision making. 44. Goal-seeking method empowers HRIS decision making.

3.3. Reliability and Validity of finding

3.3.1. Reliability

An alternative method was used to protect the reliability of answers by comparing responses to alternative questions. For example, to reveal the labour supply analysis capabilities of HRIS, four (groups of) questions were included in the questionnaire as follows.

1. HRIS forecasts supply of human resources.
2. HRIS estimates future human resources requirement of the organisation.
3. HRIS ensures organisation has right kind and numbers of employees at right place at right time.
4. HRIS identifies human resources need to achieve organisational goals.

Though not all four questions are same, they focus on one single capability of HRIS. If the respondent agreed with the first question definitely, he/she need to agree to the second similar question. If the response to the second question is totally different from the first one, it means that respondent has not understood the questions and that the collected data may be erroneous, which should be cleaned.

Questionnaire was emailed on a Wednesday which was neither on a 'high', looking forward to the weekend, nor on a 'low' with the working week expecting to reduce participant error. Participant bias is reduced since respondent has to select only one response, which ranked. The researcher expects the same result to be produced under similar circumstances since reliability was high.

3.3.2. Validity

As mentioned earlier, a pilot survey was done with three HR experts using semi-structured interview. Here I considered the quality of their contribution over quantity within limited time and resources. According to their answers, the questionnaire was fine-tuned. Questionnaire was further tested using friends. Therefore, respondents had no problems in answering the questions enabling to obtain some assessment of the questions' validity and likely reliability of the data. There was a remark column in order to add respondent's comment if they want.

3.4. Ethical considerations

As I have mentioned in first chapter, during the pilot survey stage I conducted three interviews with three experts of HR. I explained the purpose of my research to them clearly and took the appointments. During the interview time, I requested the permission to record the interview. One expert allowed recording the interview. The other two organisations did not give permission to take the electronic devices due to security reasons. Therefore, I could not record those two interviews. I took prior permission to use the data which I gathered for the research. At the same time I got permission to mention the organisation names and interviewee's post in the thesis to prove the validity of data. All three-interview answers were taken down with the consent of interviewees. I sent thanking cards to all three experts for spending their valuable time for me and for their cooperation and commitment.

I e-mailed the questionnaire to the selected senior HR executives. With the questionnaire, I sent a letter clearly mentioning my purpose and specifically the following statement.

"Please note that your responses and ideas would be highly confidential and I assure you that the given data would only be used for academic purpose. (You are free to skip any question without answering.)"

As promised, I did not use any individual name or organisation names when I analysed the data. The entire group of respondents highly appreciated it by sending thanking e-mail.

All the quoted statements of other authors are cited using Harvard referencing method. In acknowledgement, I thanked everybody who gave enormous support to complete the thesis.

3.5. Data analysis

Data analysis techniques

Senior HR executives were involved in the research study. The study was based on three different industries: financial, manufacture and service. Percentage frequency in frequency distribution, median and mode through measure of central tendency were used to analyse data. Spearman's correlation coefficient was used to assess the strength of relationships between two variables. Correlation values were graded roughly (Collis and Hussey, 2009):

0.90 to 0.99 (very high positive correlation)

0.70 to 0.89 (high positive correlation)

0.40 to 0.69 (medium positive correlation)

0.00 to 0.39 (low positive correlation)

0.00 to -0.39 (low negative correlation)

-0.40 to -0.69 (medium negative correlation)

-0.70 to -0.89 (high negative correlation)

-0.90 to -0.99 (very high negative correlation)

Data analysis tool

SPSS (Statistical Package for Social Sciences) version 16 was used to analyse the data set. Bar charts were used wherever possible. Ms Excel was used to create bar charts expecting more flexibility and clear graphs.

3.6. Conclusion

The study which sought to understand the reality of HRIS functionality towards HR planning was closer to realism philosophy. Hypotheses were tested following deductive research approach (Table 3.15). Study is based on quantitative data analysis, where deductive research approach was most suitable. Quantitative data was collected to quantify the organisational practice of HRIS for HR planning using questionnaire. The study could be generalised to some extent due the sample size.

This study was designed to obtain research data in three different contexts: financial, service, and manufacturing organisations, over the same period. Cross-sectional study was selected as time horizon. One hundred and eighty seven (187) senior HR executives selected using stratified random sampling technique and data collected on their opinion and behaviours. Independent, dependant and moderate variables identified to answer the research questions. Multi-item indicators were also specified.

Table 3.15: Summary of the study

No	Research Objective	Research Questions	Hypotheses	Methodology	Analysis Technique
1.	To explore the contribution of HRIS recruiting subsystem to workforce planning of an organisation	How efficiently and effectively does the HRIS recruiting subsystem contribute to workforce planning of an organisation?	The greater utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.	Research philosophy: Realism Research approach: Deductive Research strategy: Pilot survey and survey using questionnaire Time horizons: Cross-sectional study Population frame: 372 Sample frame: 187	SPSS version 16 used to find frequencies and Spearman's correlation
			The greater utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning.		
			The greater employment of HRIS e-recruitment process in an organisation increases the efficiency and effectiveness of HR planning.		
2.	To investigate the contribution of HRIS training and development subsystem to workforce planning of an organisation	How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?	HRIS training need analysis (TNA) process increases the efficiency and effectiveness HR planning of an organisation.		
			HRIS training process evaluation increases the efficiency and effectiveness of HR planning of an organisation.		
			Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation.		

Table 3.15: Summary of the study….continuation

No	Research Objective	Research Questions	Hypotheses	Methodology	Analysis Technique
3.	To identify the overall contribution of HRIS in HR planning through HRIS recruiting and training and development subsystems of an organisation	What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?	Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation. HRIS decision-making process increases the efficiency and effectiveness of HR planning of an organisation		

Chapter 4

4. Data analysis

4.1. Introduction

This research is exploratory and primarily descriptive in nature. Senior HR executives' perceptions on the role of HRIS in HR planning were gathered. As this kind of previous research is non-existent in Sri Lanka, relevant secondary data could not be found in the Sri Lankan context. As such, frequency tables are used to measure the percentage of favourable responses to a series of questions on the role of HRIS. Hypotheses were tested using and Spearman's correlation.

4.2. Findings and discussions

4.2.1. Response rate

Three types of organisations: financial, manufacturing and service selected and the questionnaire sent by email to 187 senior HR executives who use HRIS. The response rate was very poor, and could collect only eighty-nine (89) usable feedbacks after several reminders through e-mails and telephone calls (Table 4.1).

Table 4.1: Response rate from the organisations

Private sector organisations	No of e-mails persons contacted	Feedback received	Response rate (%)
Financial organisations	53	29	54.72
Manufacturing organisations	66	28	42.42
Service organisations	68	32	47.06
Total	187	89	48.06

4.2.2. Presentation of variables

Industry type

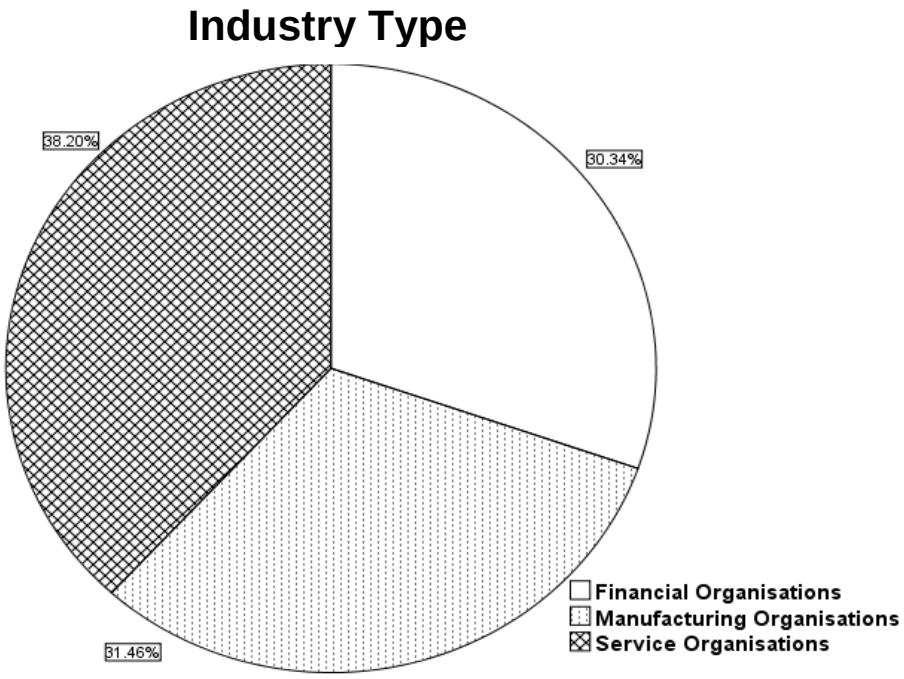

Figure 4.1: Industry to which respondents belong

In the sample of 89 respondents (Figure 4.1), more than 38.20% were from the service sector while the remaining respondents belonged to financial (30.34%) and manufacturing sectors (31.46%). The selected sample had responded fairly equally representing all three sectors.

Industry type and usage of HRIS recruiting subsystem

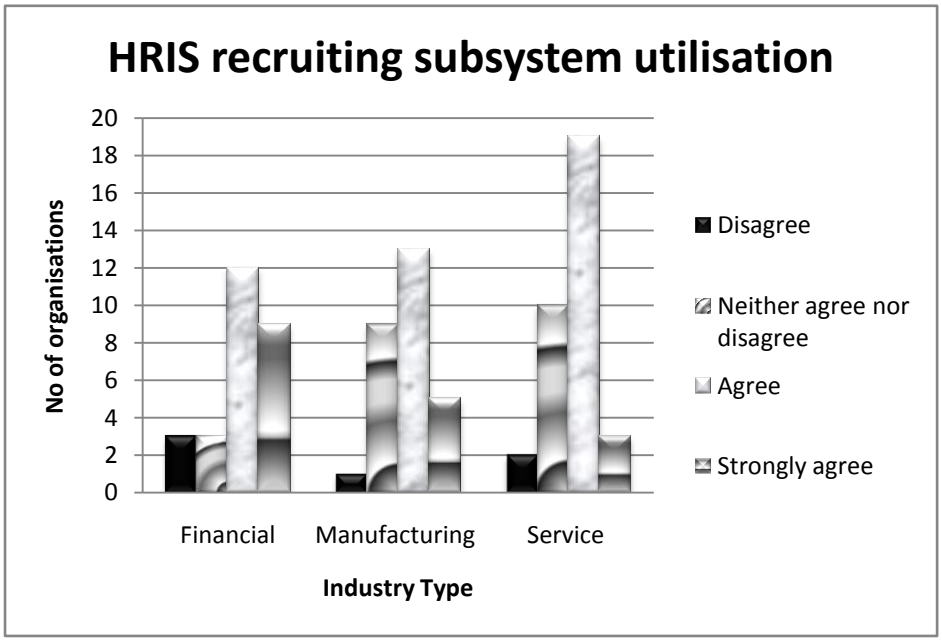

Figure 4.2: HRIS recruiting subsystem utilisation

In the sample of 89 respondents (Figure 4.2), twenty-one (21) from financial organisations reported high utilisation of HRIS recruiting subsystem while six respondents (6) from financial organisations reported low utilisation. Likewise, eighteen (18) from manufacturing organisations report high utilisation of HRIS recruiting subsystem while ten (10) reported low utilisation. Twenty-one respondents (21) from service organisations reported high utilisation of HRIS recruiting subsystem while twelve respondents (12) reported low utilisation.

Industry type and usage of training and development subsystem

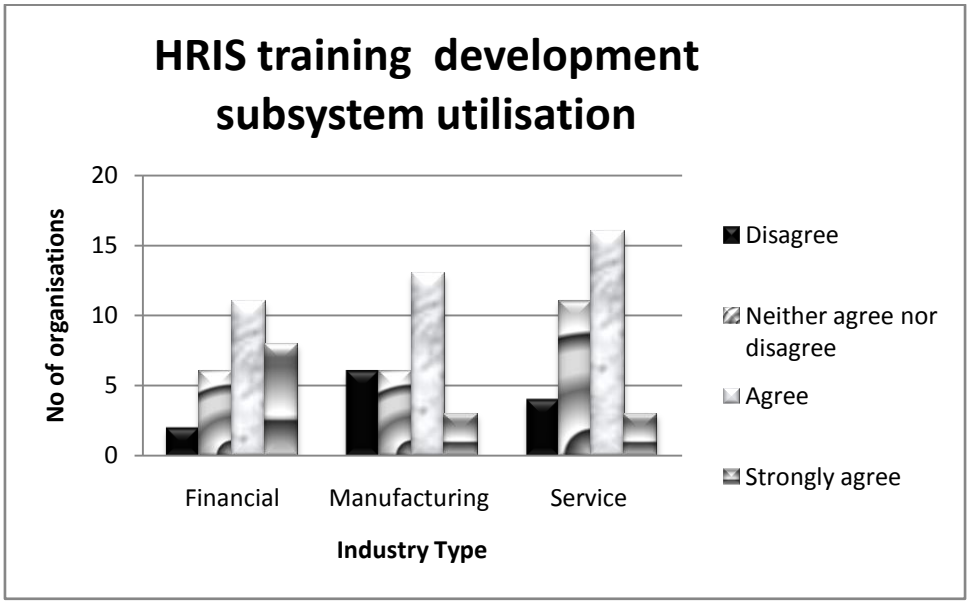

Figure 4.3: HRIS training and development subsystem utilisation

In the sample of 89 respondents (Figure 4.3), nineteen (19) from financial organisations reported high utilisation of HRIS training and development subsystem while eight respondents (8) reported low utilisation. Likewise, sixteen (16) from manufacturing organisations reported high utilisation of HRIS training and development subsystem while twelve (12) reported low utilisation. Nineteen respondents (19) from service organisations reported high utilisation of HRIS training and development subsystem while sixteen respondents (16) reported low utilisation.

HRIS recruitment subsystem

HRIS job analysis

Table 4.2: HRIS job analysis processing summary

		JA1	JA2	JA3	JA4
N	Valid	89	89	89	89
	Missing	0	0	0	0
Median		4.00	4.00	4.00	4.00
Mode		4	4	4	4

HRIS job analysis process efficiency and effectiveness was measured using four factors (Table 4.2). All the respondents have responded to all factors. Most respondents agree with the factors, where mode and median indicate four.

Table 4.3: Favourable responses in HRIS job analysis

Item	% Agree
HRIS identifies unfilled positions accurately.	51.70%
HRIS analyses each job position and its job title in an organisation.	56.20%
HRIS analyses the employees in each position.	56.20%
HRIS supports development of recruiting plan.	55.00%

The favourable results of the survey are contained in Table 4.3. The favourable percentage represents either agreed or strongly agreed with the statement by the respondents for each item in job analysis. The most favourable response rate of 56.20% is given for the second and third statements. All other percentage rates are below 55%.

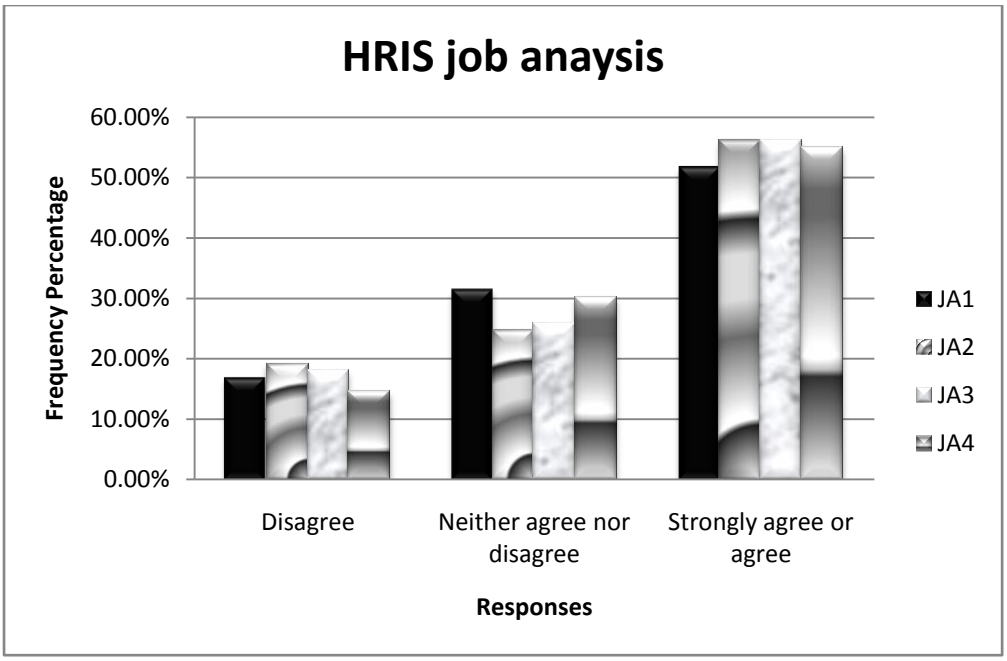

Figure 4.4: HRIS job analysis

Figure 4.4 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement. None of the respondents strongly disagreed with the statements.

HRIS skill inventory

Table 4.4: HRIS skill inventory processing summary

		SI1	SI2
N	Valid	89	89
	Missing	0	0
Median		4.00	4.00
Mode		4	4

HRIS skill inventory process efficiency and effectiveness was measured using two factors (Table 4.4). All the respondents responded to both factors. Most respondents agree with the two factors, where mode and median indicate four.

Table 4.5: Favourable responses in HRIS skill inventory

Item	% Agree
HRIS maintains skill inventory	84.30%
HRIS performs comprehensive reporting and tracking of applicants efficiently	66.30%

The favourable results of the survey are contained in Table 4.5. The favourable percentage represents either agreed or strongly agreed with the statement by the respondent for each item in skill inventory. The most favourable response rate of 84.3% is given for the first statement. The other percentage rate is 66.3%.

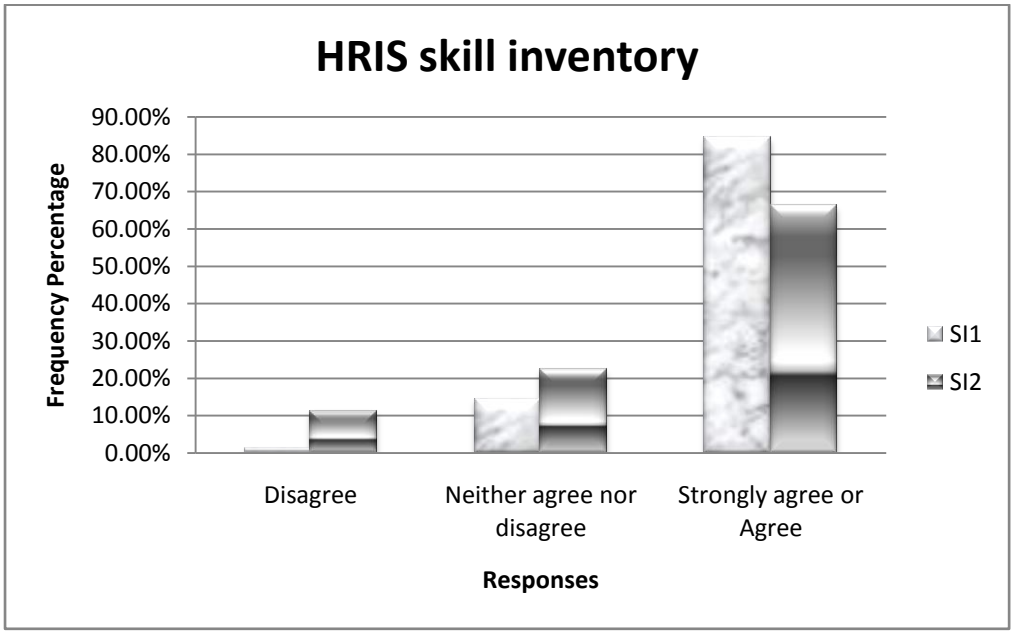

Figure 4.5: HRIS skill inventory

Figure 4.5 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement. None of the respondents strongly disagreed with the statements.

HRIS E-recruiting

Table 4.6: HRIS e-recruiting processing summary

		ER1	ER2	ER3	ER4	ER5	ER6
N	Valid	89	89	89	89	89	89
	Missing	0	0	0	0	0	0
Median		3.00	4.00	4.00	4.00	3.00	4.00
Mode		4	4	4	4	3	4

HRIS e-recruiting process efficiency and effectiveness was measured using six factors (Table 4.6). All the respondents have responded to all six factors. Most agree with the factors since mode indicates three or four. Median also lies between three and four for all statements.

Table 4.7: Favourable responses in HRIS e-recruiting

Item	% Agree
Candidates are recruited through HRIS e-recruiting	49.40%
HRIS reduces recruiting costs	60.70%
HRIS maintains relationships with individuals who register in a talent warehouse	71.90%
HRIS eliminates unsuitable applicants early and focuses on promising candidates	71.90%
HRIS leverages employee's talent in the right place at the right time	39.40%
HRIS evaluates the recruiting processes effectively	80.90%

The favourable results of the survey are contained in Table 4.7. The favourable percentage represents either agreed or strongly agreed with the statement by the respondents for each item in e-recruiting. The most favourable response rate of 80.90% is given for the sixth statement. All the other percentage rates are below 72%.

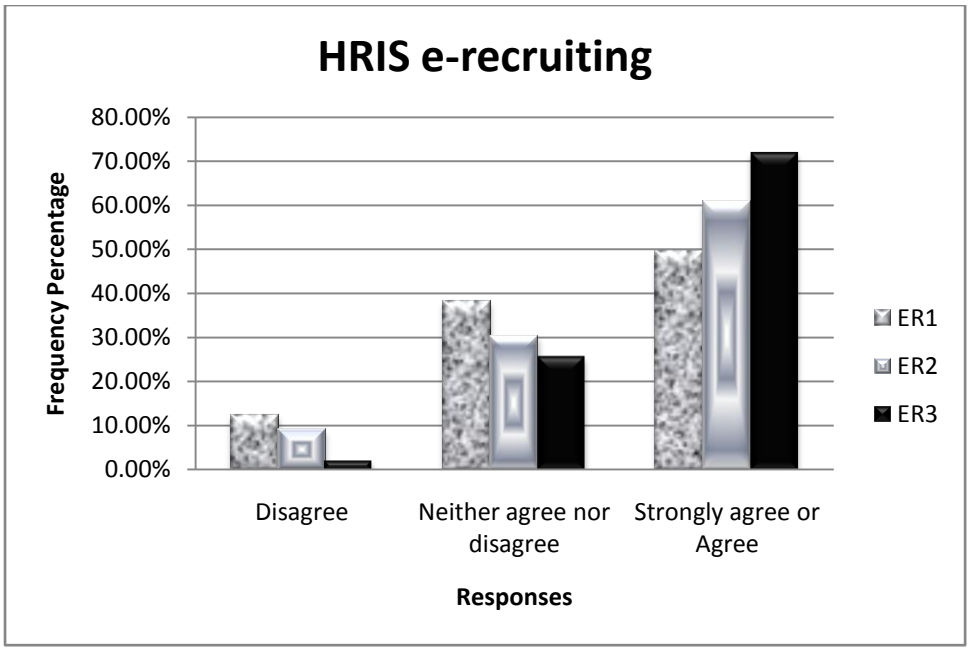

Figure 4.6: HRIS e-recruiting

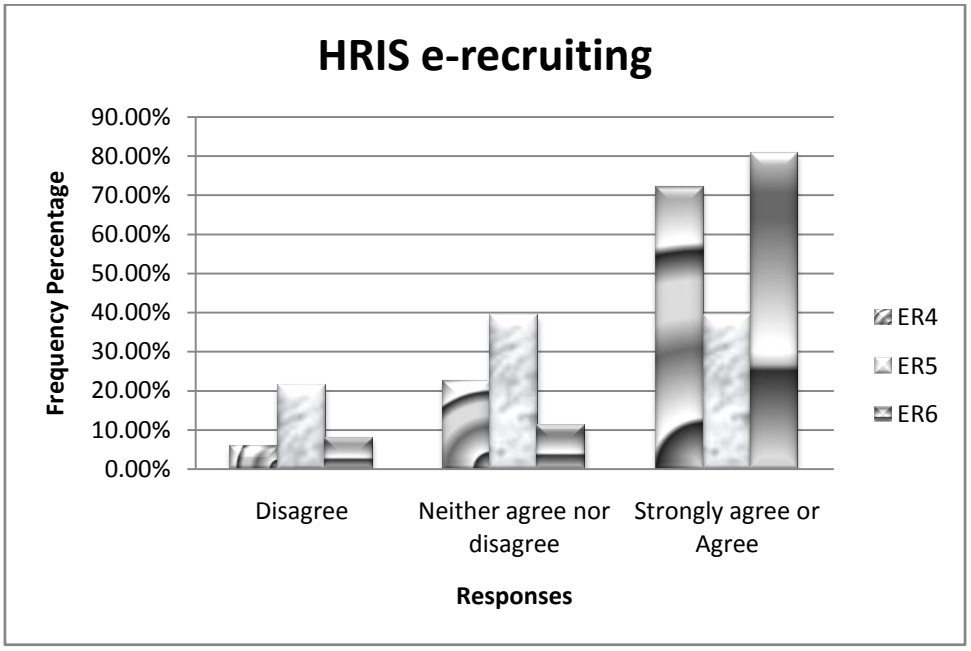

Figure 4.7: HRIS e-recruiting

Figure 4.6 and 4.7 show the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement. None of the respondents strongly disagreed with the statements.

HRIS training and development subsystem

HRIS TNA

Table 4.8: HRIS TNA processing summary

		TNA1	TNA2
N	Valid	89	89
	Missing	0	0
Median		4.00	4.00
Mode		4	4

HRIS TNA process efficiency and effectiveness was measured using two factors (Table 4.8). All the respondents have responded to both factors. Most respondents agree with the factors, where mode and median indicate four.

Table 4.9: Favourable responses in HRIS TNA

Item	% Agree
HRIS provides insight into organisational training needs.	83.10%
The out come of HRIS training needs analysis (TNA) is accurate	82.00%

The favourable results of the survey are contained in Table 4.9. The favourable percentage represents either agreed or strongly agreed with the statement by the responded for each item in TNA. The most favourable response rate of 83.10% is given for the first statement. The other rate shown as 82% is given for the second statement.

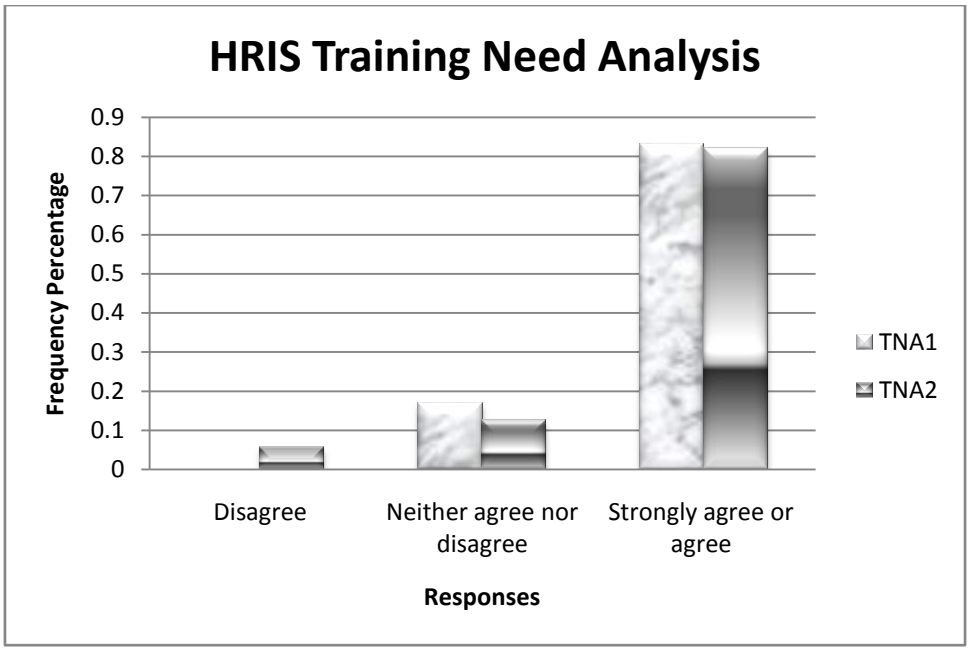

Figure 4.8: HRIS TNA

Figure 4.8 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement of TNA. None of the respondents strongly disagreed with the statements.

HRIS training process evaluation

Table 4.10: HRIS training process evaluation summary

		TE1	TE2	TE3	TE4	TE5	TE6	TE7
N	Valid	89	89	89	89	89	89	89
	Missing	0	0	0	0	0	0	0
Median		4.00	4.00	3.00	4.00	3.00	4.00	4.00
Mode		4	4	3	4	3	4	4

HRIS training process evaluation was measured using seven factors (Table 4.10). All the respondents have responded to all seven factors. Most respondents agree with the factors, where mode and median indicate four (4) for most of the statements. Third factor mode and median is three (3).

Table 4.11: Favourable responses in HRIS training process evaluation

Item	% Agree
Managers find HRIS detailed training plan relevant to their needs	57.30%
HRIS evaluates the effectiveness of training programs	52.80%
Employees find HRIS training programs relevant to their needs	31.40%
HRIS selects right person to be trained at right time	53.90%
HRIS eliminates skill gaps across the organisation	44.90%
HRIS plays a vital role administrating training programs	59.60%
HRIS assesses the budget of training and development programs	77.60%

The favourable results of the survey are contained in Table 4.11. The favourable percentage represents either agreed or strongly agreed with the statement by the respondents for each item in HRIS training process evaluation. The most favourable response rate of 77.60% is given for the seventh statement. The next favourable highest rate is 32.6%, given for sixth statement. All the other percentage rates are below 25%.

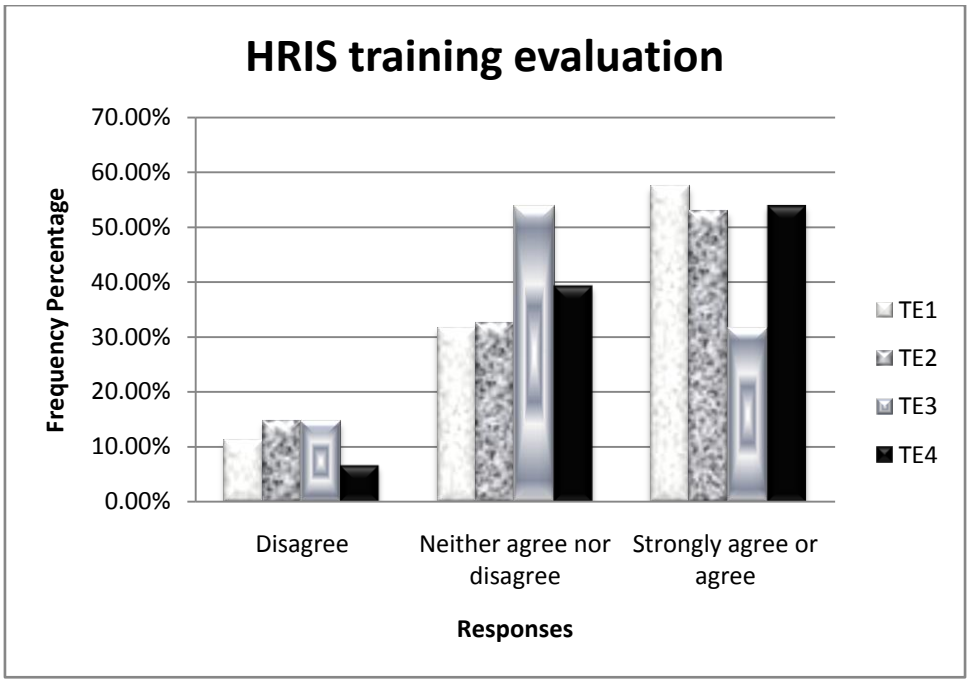

Figure 4.9: HRIS training process evaluation

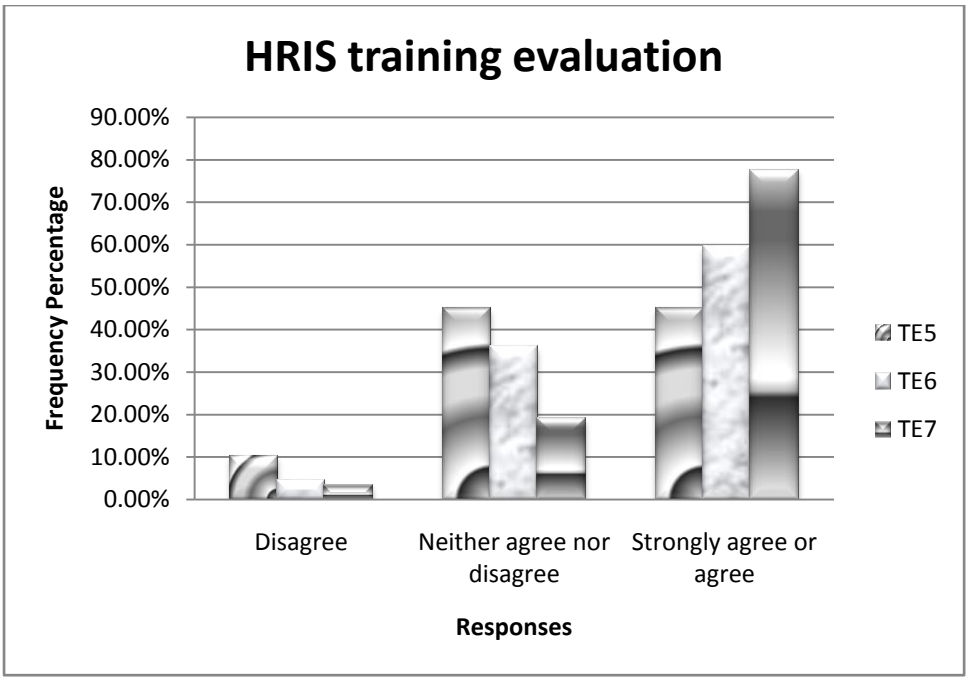

Figure 4.10: HRIS training process evaluation

Figure 4.9 and 4.10 depict the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement of training process evaluation. None of the respondents strongly disagreed with the statements.

HRIS succession planning

Table 4.12: HRIS succession planning summary

		SP1	SP2	SP3
N	Valid	89	89	89
	Missing	0	0	0
Median		4.00	4.00	4.00
Mode		4	4	4

HRIS succession planning process efficiency was measured using three factors (Table 4.12). All the respondents have responded to all three factors. Most respondents agree with the factors, where mode and median indicate four (4) for all four factors.

Table 4.13: Favourable responses in HRIS succession planning

Item	% Agree
HRIS makes better and faster decisions about successor rankings	76.40%
HRIS identifies specific key positions and target specific employees as potential successors	56.20%
HRIS minimises costs associated with succession planning or applicant tracking	71.90%

The favourable results of the survey are contained in Table 4.13. The favourable percentage represents either agreed or strongly agreed with the statement by the respondents for each item in succession planning. The most favourable response rate of 76.40% is given for the first statement. The second most favourable response rate of 71.90% is given for the third statement. Other percentage rate is 56.20%, given for the second statement.

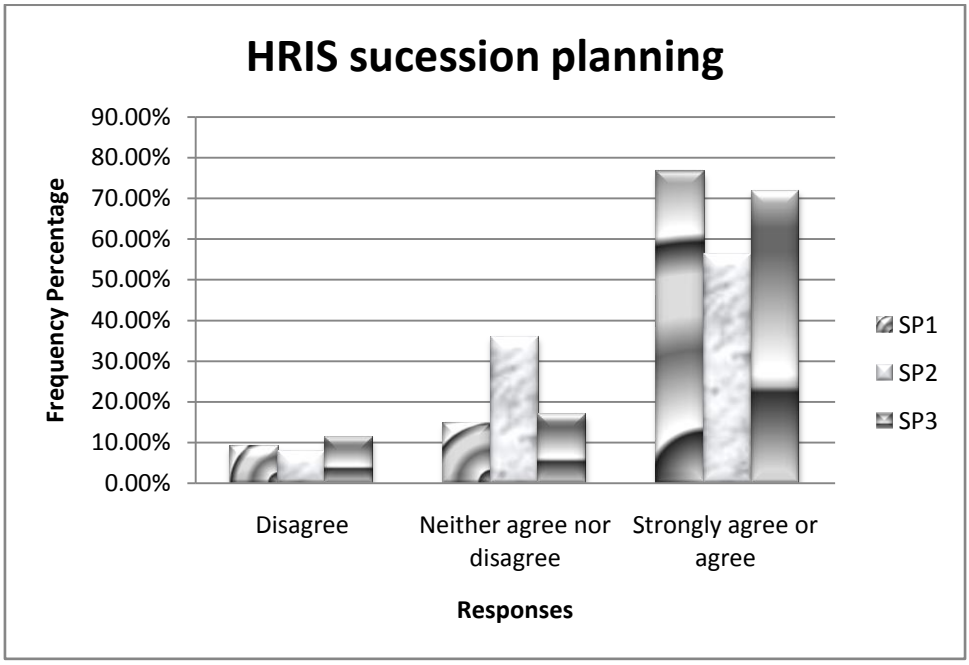

Figure 4.11: HRIS in succession planning

Figure 4.11 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS succession planning. None of the respondent strongly disagreed with the statements.

HRIS recruiting, training and development subsystem

HRIS labour demand and supply analysis

Table 4.14: HRIS labour demand and supply analysis summary

		LD1	LD2	LD3	LS1	LS2	LS3	LS4	PI1	PI2
N	Valid	89	89	89	89	89	89	89	89	89
	Missing	0	0	0	0	0	0	0	0	0
Median		4.00	3.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00
Mode		4	4	4	4	4	4	4	4	4

HRIS labour demand analysis process effectiveness was measured using nine factors (Table 4.14). All the respondents have responded to all nine factors. Most respondents agree with the factors where mode and median indicate 4 (four).

Table 4.15: Favourable responses in HRIS labour demand and supply analysis

Item	% Agree
HRIS manages internal information within the organisation	77.50%
HRIS manages external information outside the organisation	43.80%
HRIS constantly analyses and match the demand for human resources	75.30%
HRIS forecasts supply of human resources	74.10%
HRIS estimates future human resources requirement of the organisation	43.80%
HRIS ensures organisation has right kind and numbers of employees at right place at right time	62.90%
HRIS identifies human resources need to achieve organisational goals	67.40%
HRIS connects employees to required positions and keep track of their movements	67.40%
HRIS identifies a logical progression path and the steps required for advancements	62.90%

The favourable results of the survey are contained in Table 4.15. The favourable percentage represents either agreed or strongly agreed with the statement by the respondents for each item in HRIS labour demand analysis effectiveness. The most favourable response rate of 77.5% is given for the first statement. The second most favourable response rate of 75.3% is given for the third statement.

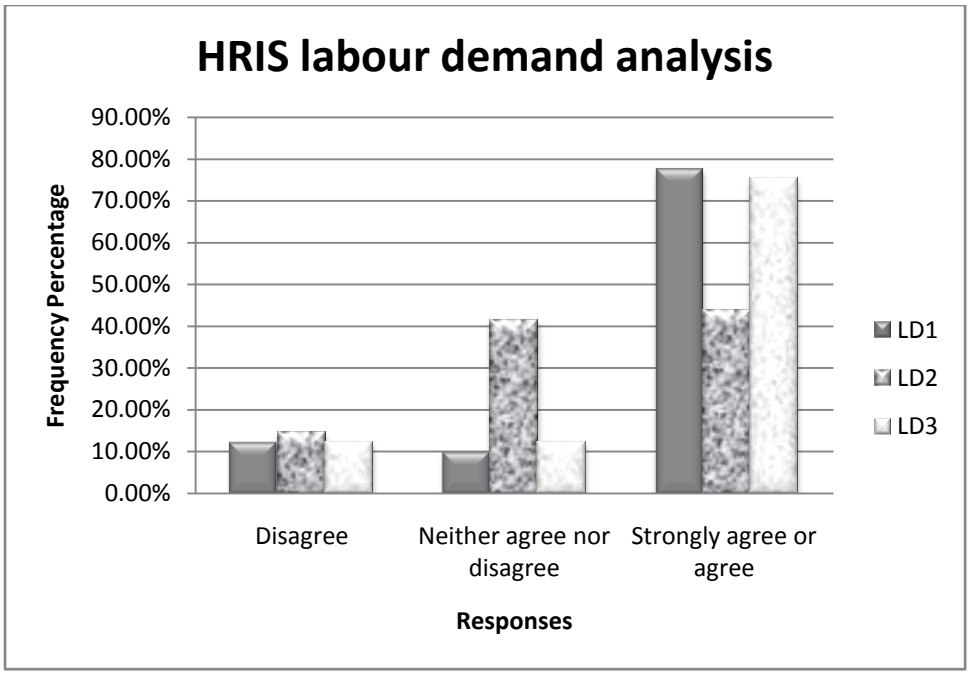

Figure 4.12: HRIS labour demand analysis

Figure 4.12 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS labour demand analysis. None of the respondents strongly disagreed with the statements.

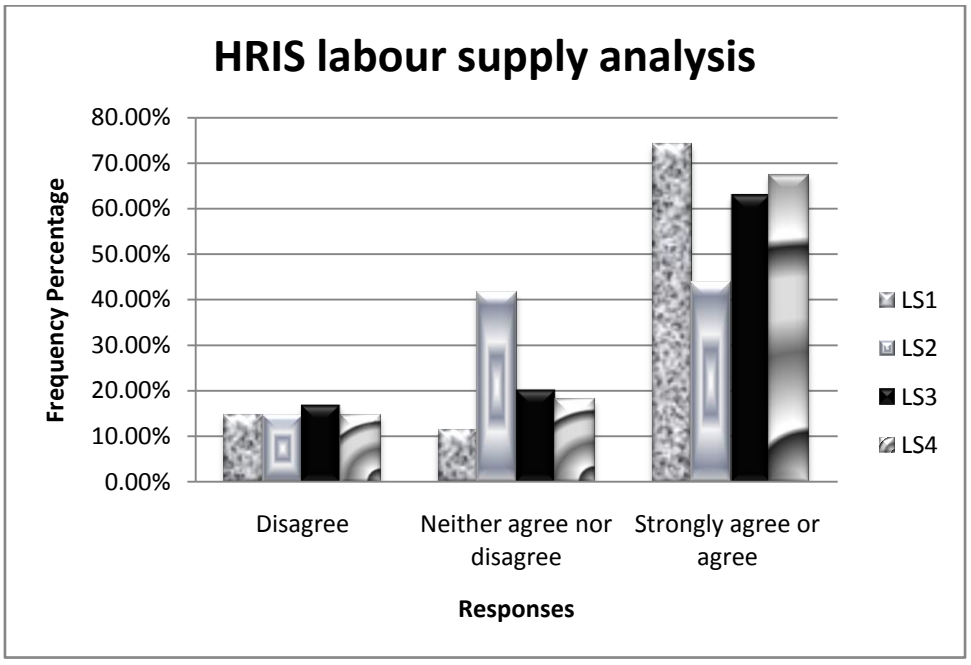

Figure 4.13: HRIS labour supply analysis

Figure 4.13 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS labour supply analysis. None of the respondents strongly disagreed with the statements.

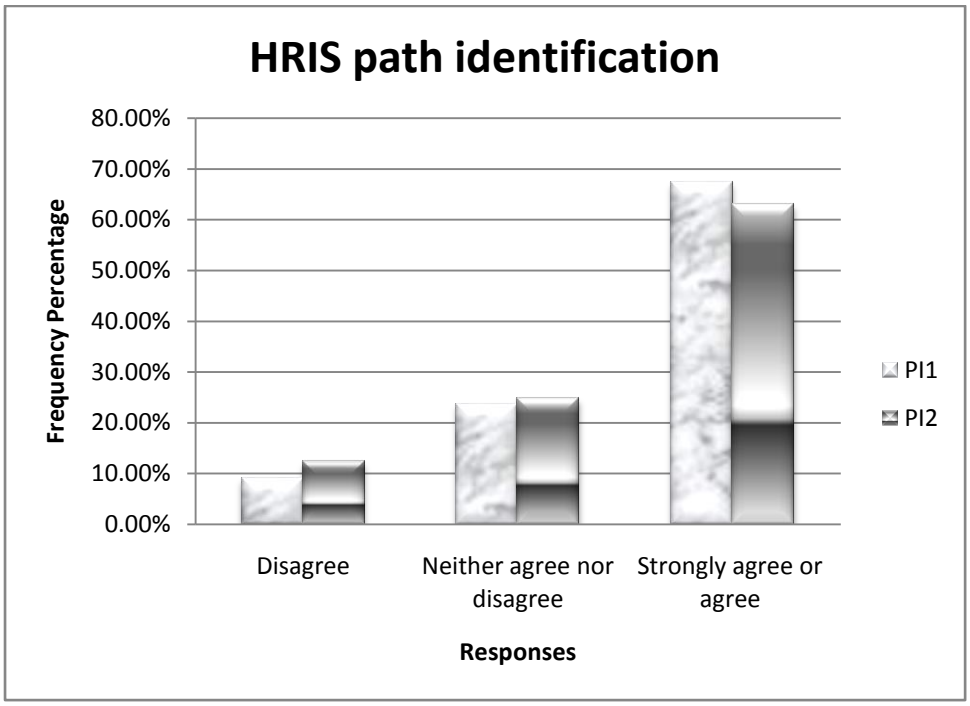

Figure 4.14: HRIS path identification

Figure 4.14 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS path identification. None of the respondents strongly disagreed with the statements.

HRIS decision-making

Table 4.16: HRIS decision-making summary

		ASP1	ASP2	ASP3	DM1	DM2	DM3	DM4	DM5	DM6	DM7	DM8
N	Valid	89	89	89	89	89	89	89	89	89	89	89
	Missing	0	0	0	0	0	0	0	0	0	0	0
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00
Mode		4	4	4	4	4	4	4	4	4	4	4

HRIS decision-making process was measured using eleven factors (Table 4.16). All the respondents have responded to all eleven factors. Most respondents agree with the factors, where mode and median indicate four (4).

Table 4.17: Favourable responses in HRIS decision-making

Item	% Agree
HRIS provides an opportunity to become a strategic partner with top management	65.20%
Role of HRIS aligns with the organisation's HR strategy	65.10%
Role of HRIS aligns with the organisation's Information System strategy	67.40%
HRIS has improved the quality of my decisions	61.80%
Because of HRIS, I can better set my HR decision-making priorities better	62.90%
Through HRIS, more relevant information has become available to me for decision-making	66.30%
Through HRIS, the speed at which I analyse decisions has increased	61.80%
HRIS focuses on decisions made at a higher level by senior management and executives	67.40%
Future supply and demand of labour can be forecast using what-If analysis function of HRIS.	65.20%
HRIS simulation models support HR decision making.	55.10%
Goal-seeking method empowers HRIS decision making.	40.40%

The favourable results of the survey are contained in Table 4.17. The favourable percentage represents either agreed or strongly agreed with the statement by the responded for each item in decision-making. The most favourable response rate of 67.40% is given for the third and eighth statements. All other rates for the statements are also greater than 40%.

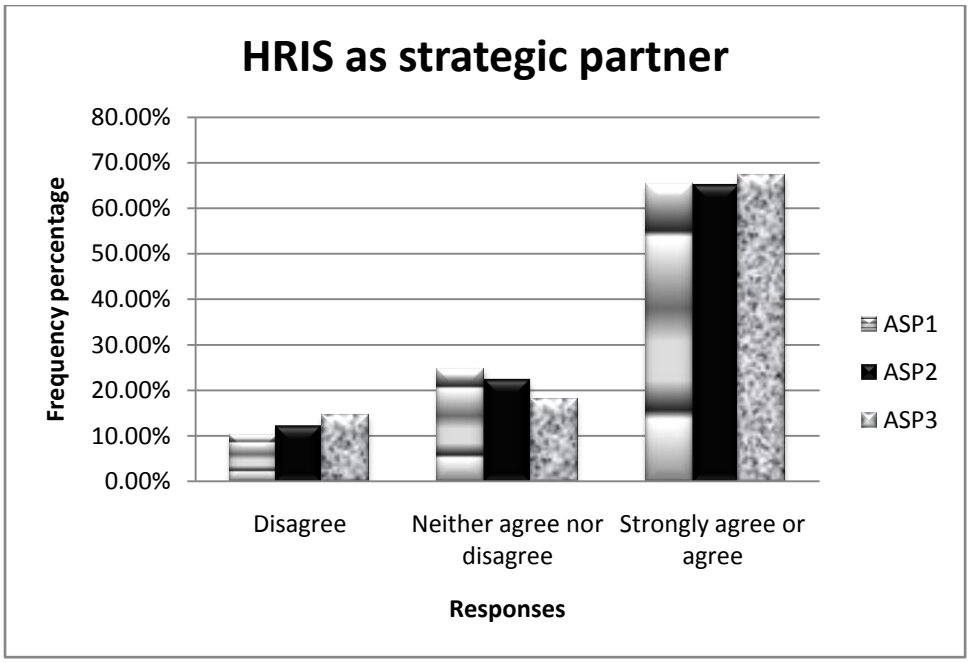

Figure 4.15: HRIS as strategic partner

Figure 4.15 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS as strategic partner. None of the respondents strongly disagreed with the statements.

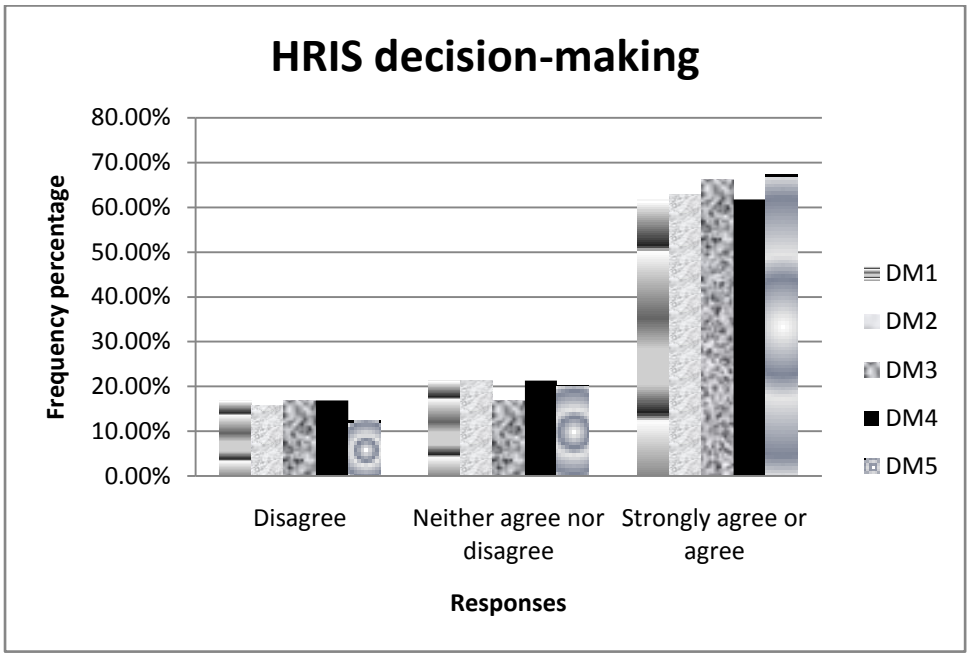

Figure 4.16: HRIS decision-making

Figure 4.16 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS decision-maker. None of the respondents strongly disagreed with the statements.

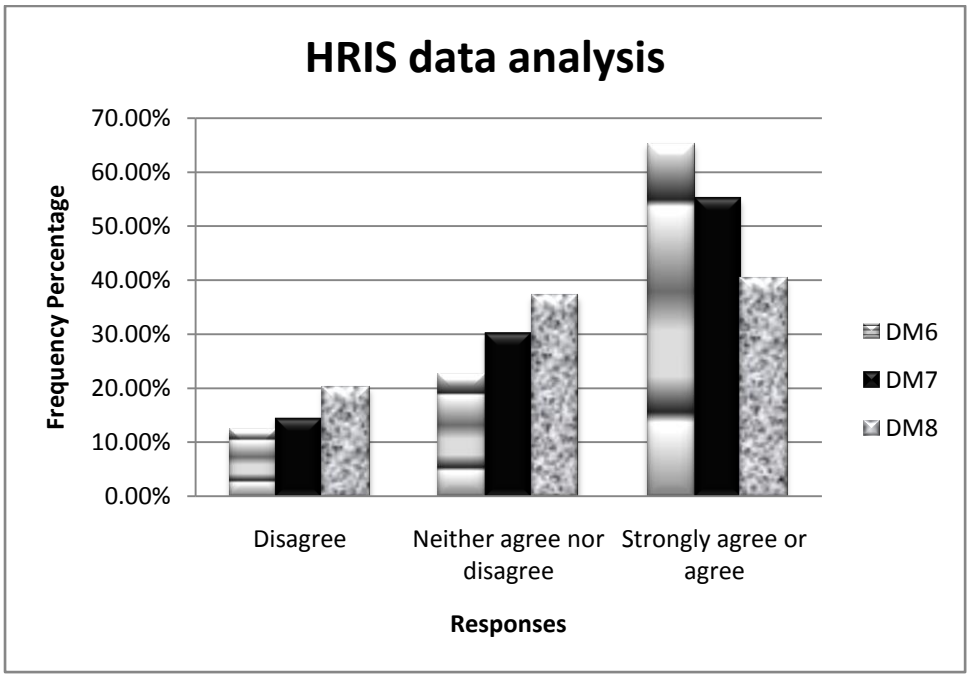

Figure 4.17: HRIS data analysis

Figure 4.17 depicts the frequency percentage rates representing the unfavourable, neutral and favourable responses for each statement for HRIS what-if analysis, HRIS simulation models and HRIS goal-seeking. None of the respondents strongly disagreed with the statements.

Sample distribution analysis

Table 4.18: Variables statistics

Descriptive Statistics

	N	Mean	Std. Deviation
JA1	89	3.43	.865
JA2	89	3.55	1.000
JA3	89	3.44	.852
JA4	89	3.52	.881
SI1	89	4.17	.711
SI2	89	3.56	.706
ER1	89	3.43	.782
ER2	89	3.60	.765
ER3	89	3.89	.730
ER4	89	3.85	.791
ER5	89	3.30	.946
ER6	89	3.94	.803
TNA1	89	4.18	.700
TNA1	89	3.76	.544
ER1	89	3.57	.838
ER2	89	3.42	.781
ER3	89	3.22	.765
ER4	89	3.53	.709
ER5	89	3.35	.659
ER6	89	3.60	.652
ER7	89	3.87	.660
SP1	89	3.98	.904
SP2	89	3.54	.724
SP3	89	3.80	.881
LD1	89	3.87	.894
LD2	89	3.30	.729
LD 3	89	3.76	.840
LS1	89	3.89	.994
LS2	89	3.30	.729
LS3	89	3.51	.827
LS4	89	3.63	.858
PI1	89	3.78	.863
PI2	89	3.62	.846
ASP1	89	3.70	.845
ASP2	89	3.64	.843
ASP3	89	3.64	.869
DM1	89	3.53	.867
DM2	89	3.56	.865
DM3	89	3.60	.888
DM4	89	3.57	.916
DM5	89	3.69	.861
DM6	89	3.61	.806
DM7	89	3.45	.798
DM8	89	3.25	.802

Mean values and standard deviation of each and every variable contains in Table 4.18. Standard deviations of all the variables position between 1 and 0.544. Symmetrically distributed frequency distribution curve shows the frequency of occurrences of variables (Figure 4.18) indicating normal distribution of sample data.

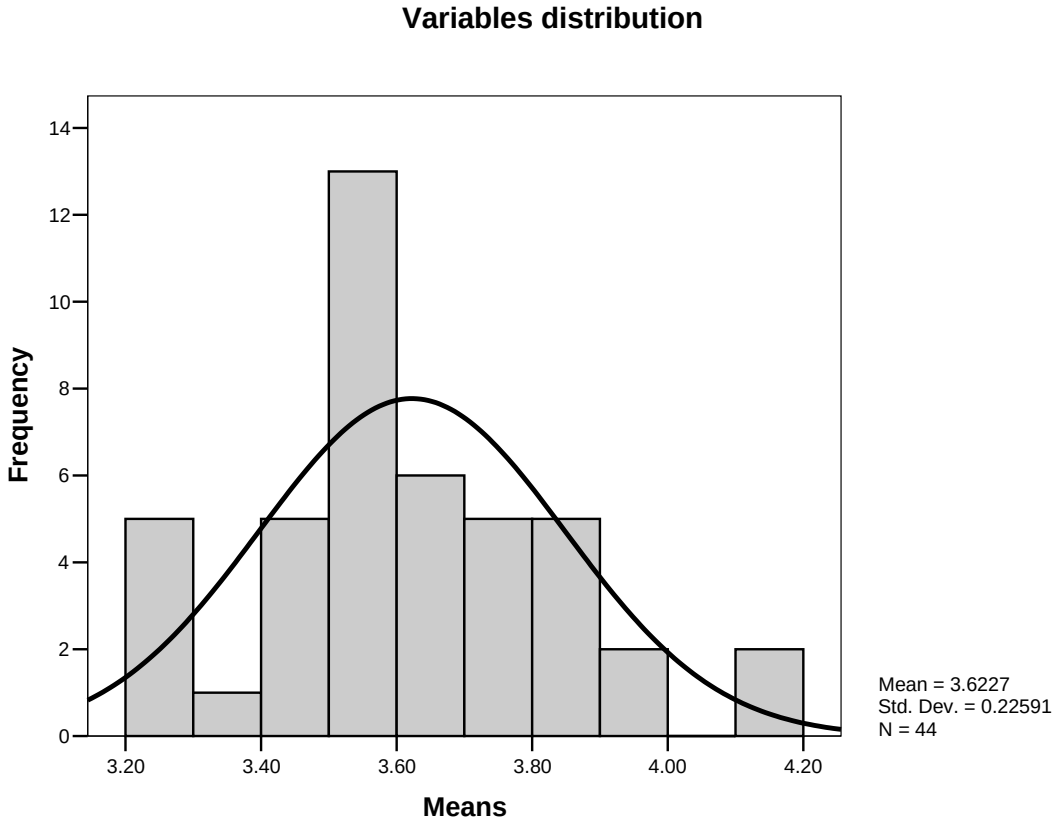

Figure 4.18: Variables distribution

4.2.3. Hypotheses Test

The validity of the list of hypotheses defined under chapter 3 is tested as follows.

Relationship between HRIS job analysis and HR planning

$H_0$1: higher utilisation of HRIS job analysis process in an organisation does not increase the efficiency and effectiveness of HR planning.

H_a1: higher utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning.

Table 4.19: Spearman's correlation of HRIS job analysis and HR planning efficiency

Correlations

			HRIS job analysis	HR planning efficiency
Spearman's rho	HRIS job analysis	Correlation Coefficient	1.000	.480**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.480**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.19, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, HRIS job analysis process as per the sample for analysis does not have a significant relationship with the efficiency of HR planning since the correlation between the variable HRIS job analysis process and efficiency of HR planning is 0.480 ($r = 0.480$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (0.480) which indicates a medium positive relationship. This would mean that HRIS job analysis process does not increase the efficiency of HR planning drastically.

Table 4.20: Spearman's correlation of HRIS job analysis and HR planning effectiveness

Correlations

			HRIS job analysis	HR planning effectiveness
Spearman's rho	HRIS job analysis	Correlation Coefficient	1.000	.748**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.748**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.20, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The correlation between the variable HRIS job analysis process utilisation and effectiveness of HR planning is 0.748 ($r = 0.\ 0.748$, $p<0.01$). Thus the HRIS job analysis process utilisation as per the sample for analysis has a significant relationship with the effectiveness of HR planning.

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.748) which indicates a high positive relationship. This would mean that the increase in one variable may increase the other variable and thus, higher utilisation of HRIS job analysis process increases the effectiveness of HR planning.

Overall interpretation H1:

According to the results, higher utilisation of HRIS job analysis process in an organisation increases the effectiveness of HR planning but does not increase the efficiency of HR planning drastically.

Relationship between HRIS skill inventory process and HR planning

$H_0$2: higher utilisation of HRIS skill inventory process in an organisation does not increase the efficiency and effectiveness of HR planning.

H_a2: higher utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning.

Table 4.21: Spearman's correlation for HRIS skill inventory process and efficiency of HR planning

Correlations

			HRIS skill inventory	HR planning efficiency
Spearman's rho	HRIS skill inventory	Correlation Coefficient	1.000	.722**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.722**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.21, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. The correlation between the variable HRIS skill inventory process and efficiency of HR planning is 0.722 ($r = 0.722$, $p<0.01$). Thus the HRIS skill inventory process utilisation as per the sample for analysis has a significant relationship with efficiency of HR planning.

Interpretation: The correlation coefficient value in the coefficients table gives a high positive value (0.722) which indicates a high positive relationship. This would mean that the increase in one variable may increase the other variable and thus, higher utilisation of HRIS skill inventory process increases the efficiency of HR planning.

Table 4.22: Spearman's correlation for HRIS skill inventory process and HR planning effectiveness

Correlations

			HRIS skill inventory	HR planning effectiveness
Spearman's rho	HRIS skill inventory	Correlation Coefficient	1.000	.533**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.533**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.22, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, HRIS skill inventory process as per the sample for analysis does not have a significant relationship with effectiveness of HR planning since the correlation between the variable HRIS skill inventory process utilisation and effectiveness of HR planning is 0.533 ($r = 0.533$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (0.533) which indicates a medium positive relationship. This would mean that HRIS skill inventory process does not increase the effectiveness of HR planning drastically.

Overall interpretation H2:

According to the results, higher utilisation of HRIS skill inventory process in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning drastically.

Relationship between HRIS e-recruitment process and HR planning

$H_0$3: higher employment of HRIS e-recruitment process in an organisation does not increase the efficiency and effectiveness of HR planning.

H_a3: higher employment of HRIS e-recruitment process in an organisation increases the efficiency and effectiveness of HR planning.

Table 4.23: Spearman's correlation for HRIS e-recruitment process and efficiency of HR planning

Correlations

			HRIS e-recruiting process	HR planning efficiency
Spearman's rho	HRIS e-recruiting process	Correlation Coefficient	1.000	.515**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.515**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.23, the significance value in is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, the HRIS employment of e-recruitment process as per the sample for analysis does not have a significant relationship with HR planning efficiency since the correlation between the variable HRIS employment of e-recruitment process and efficiency of HR planning is 0.515 ($r = 0.515$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (0.515) which indicates a medium positive relationship. This would mean that the increase in one variable may not increase the other variable and thus, higher employment of HRIS e-recruitment process does not increase the efficiency of HR planning drastically.

Table 4.24: Spearman's correlation for HRIS e-recruitment process and HR planning effectiveness

Correlations

			HRIS e-recruiting Process	HR planning effectiveness
Spearman's rho	HRIS e-recruiting process	Correlation Coefficient	1.000	.470**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.470**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In the above Table 4.24, the significance value in is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, the HRIS employment of e-recruitment process as per the sample for analysis does not have a significant relationship with HR planning effectiveness since the correlation between the variable HRIS employment of e-recruitment process and effectiveness of HR planning is 0.470 ($r = 0.470$, $p<0.01$).

Interpretation: In interpreting this finding, the correlation coefficient value in the coefficients table gives a medium positive value (0.470) which indicates a medium positive relationship. This would mean that the increase in one variable may not increase the other variable and thus, higher employment of HRIS e-recruitment process does not increase the effectiveness of HR planning drastically.

Overall interpretation H3:

According to the results, higher utilisation of HRIS e-recruitment process in an organisation does not increases either efficiency or effectiveness of HR planning considerably.

Relationship between HRIS TNA process and HR planning

$H_0$4: HRIS training need analysis (TNA) process does not increase the efficiency and effectiveness of HR planning of an organisation.

Ha4: HRIS training need analysis (TNA) process increases the efficiency and effectiveness of HR planning of an organisation.

Table 4.25: Spearman's correlation for training need analysis (TNA) and efficiency of HR planning

Correlations

			HRIS TNA	HR planning efficiency
Spearman's rho	HRIS TNA	Correlation Coefficient	1.000	.920**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.920**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.25, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Thus the HRIS TNA process as per the sample for analysis has a significant relationship with efficiency of HR planning. The correlation between the variable HRIS TNA process and efficiency of HR planning is 0.920 ($r = 0.920$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a very high positive value (0.920) which indicates a very high positive relationship. This would mean that the increase in one variable may increase the other variable and thus, higher utilisation of HRIS TNA increases the efficiency of HR planning.

Table 4.26: Spearman's correlation for training need analysis (TNA) and effectiveness of HR planning

Correlations

			HR planning effectiveness	HRIS TNA
Spearman's rho	HR planning effectiveness	Correlation Coefficient	1.000	.496**
		Sig. (2-tailed)	.	.000
		N	89	89
	HRIS TNA	Correlation Coefficient	.496**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.26, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, HRIS training need analysis (TNA) process as per the sample for analysis does not have a significant relationship with effectiveness of HR planning since the correlation between the variable HRIS training need analysis (TNA) process and HR planning is 0.496 ($r = 0.496$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (.496) which indicates a medium positive relationship. This would mean that the utilisation HRIS training need analysis (TNA) process does not increase the HR planning effectiveness drastically.

Overall interpretation H4:

According to the results, higher utilisation of HRIS TNA process in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning considerably.

Relationship between HRIS training process evaluation and HR planning

$H_0$5: Training process evaluation of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

H_a5: Training process evaluation of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

Table 4.27: Spearman's correlation for HRIS training process evaluation and efficiency of HR planning

Correlations

			HR planning efficiency	HRIS training evaluation
Spearman's rho	HR planning efficiency	Correlation Coefficient	1.000	.837**
		Sig. (2-tailed)	.	.000
		N	89	89
	HRIS training evaluation	Correlation Coefficient	.837**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.27, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Thus the HRIS training process evaluation as per the sample for analysis has a significant relationship with the efficiency of HR planning. The correlation between the variable HRIS training process evaluation and efficiency of HR planning is 0.837 ($r = 0.837$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.837) which indicates a high positive relationship. This would mean that HRIS training process evaluation increases the HR planning efficiency.

Table 4.28: Spearman's correlation for HRIS training process evaluation and effectiveness of HR planning

Correlations

			HRIS training evaluation	HR planning effectiveness
Spearman's rho	HRIS training evaluation	Correlation Coefficient	1.000	.483**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.483**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.28, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, HRIS training evaluation process as per the sample for analysis does not have a significant relationship with effectiveness of HR planning since the correlation between the variable HRIS training evaluation process and HR planning is 0.483 ($r = 0.483$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (.483) which indicates a medium positive relationship. This would mean that the utilisation of HRIS training evaluation process does not increase the effectiveness of HR planning drastically.

Overall interpretation H5:

According to the results, higher utilisation of HRIS TNA process in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning considerably.

Relationship between HRIS succession planning and HR planning

$H_0$6: Succession planning of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

H_a6: Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

Table 4.29: Spearman's correlation for HRIS succession planning and efficiency of HR planning

Correlations

			HRIS succession planning	HR planning efficiency
Spearman's rho	HRIS succession planning	Correlation Coefficient	1.000	.753**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.753**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.29, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Thus the HRIS succession planning as per the sample for analysis has a significant relationship with the efficiency of HR planning. The correlation between the variable HRIS succession planning and efficiency of HR planning is 0.753 ($r = 0.756$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (.753) which indicates a high positive relationship. This would mean that the HRIS succession planning increases the efficiency of HR planning of an organisation.

Table 4.30: Spearman's correlation for HRIS succession planning and effectiveness of HR planning

Correlations

			HRIS succession planning	HR planning effectiveness
Spearman's rho	HRIS succession planning	Correlation Coefficient	1.000	.475**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.475**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.30, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted since HRIS succession planning as per the sample for analysis does not have a significant relationship with the effectiveness of HR planning. The correlation between the variable HRIS succession planning and HR planning is 0.483 ($r = 0.475$, $p<0.01$).

Interpretation: In interpreting this finding, the correlation coefficient value in the coefficients table gives a medium positive value (.475) which indicates a medium positive relationship. This would mean that the utilisation of HRIS succession planning process does not increase the effectiveness of HR planning drastically.

Overall interpretation H6:

According to the results, higher utilisation of HRIS succession planning in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning considerably.

Relationship between HRIS labour supply and demand analysis and HR planning

$H_0$7: Labour demand and supply analysis of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

H_a7: Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

Table 4.31: Spearman's correlation for labour demand and supply analysis of HRIS and efficiency of HR planning

Correlations

			HRIS labour demand and supply analysis	HR planning efficiency
Spearman's rho	HRIS labour supply and demand analysis	Correlation Coefficient	1.000	.727**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.727**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.31, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Thus the HRIS labour demand and supply analysis as per the sample has a significant relationship with the efficiency of HR planning. The correlation between the variable HRIS labour demand and supply analysis and efficiency of HR planning is 0.727 ($r = 0.727$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (.727) which indicates a high positive relationship. This would mean that the HRIS labour demand and supply analysis increases the efficiency of HR planning of an organisation.

Table 4.32: Spearman's correlation for labour demand and supply analysis of HRIS and effectiveness of HR planning

Correlations

			HRIS labour demand and supply analysis	HR planning effectiveness
Spearman's rho	HRIS labour supply and demand analysis	Correlation Coefficient	1.000	.546**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.546**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.32, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The null hypothesis is rejected and the alternative hypothesis is accepted. However, the labour demand and supply analysis of HRIS as per the sample does not have a significant relationship with the effectiveness HR planning since the correlation between the variable labour demand and supply analysis of HRIS and the effectiveness of HR planning is 0.546 ($r = 0.546$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (0.546) which indicates a medium positive relationship. This would mean that the labour demand and supply analysis of HRIS does not increase the effectiveness of HR planning of an organisation drastically.

Overall Interpretation H7:

According to the results, higher utilisation of HRIS labour demand and supply analysis in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning considerably.

Relationship between HRIS decision-making process and HR planning

$H_0$8: Decision-making process of HRIS does not increase the efficiency and effectiveness of HR planning of an organisation.

H_a8: Decision-making process of HRIS increases the efficiency and effectiveness of HR planning of an organisation.

Table 4.33: Spearman's correlation for HRIS decision-making process and efficiency of HR planning

Correlations

			HRIS decision-making	HR planning efficiency
Spearman's rho	HRIS decision-making	Correlation Coefficient	1.000	.743**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning efficiency	Correlation Coefficient	.743**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.33, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Thus the HRIS decision-making process as per the sample has a significant relationship with efficiency of HR planning. The correlation between the variable HRIS decision-making process and efficiency of HR planning is 0.743 ($r = 0.743$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.743) which indicates a high positive relationship. This would mean that the HRIS decision-making process increases the efficiency of HR planning of an organisation.

Table 4.34: Spearman's correlation for HRIS decision-making process and effectiveness HR planning

Correlations

			HRIS decision-making	HR planning effectiveness
Spearman's rho	HRIS decision-making	Correlation Coefficient	1.000	.584**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning effectiveness	Correlation Coefficient	.584**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.34, the significance value in is 0.000 which is less than the chosen significance level of 5% (0.05). But the null hypothesis is rejected and the alternative hypothesis is accepted. However, HRIS decision-making process as per the sample for analysis does not have a significant relationship with the effectiveness of HR planning since the correlation between the variable HRIS decision-making process and efficiency HR planning is 0.584 ($r = 0.584$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a medium positive value (0.584) which indicates a medium positive relationship. This would mean that the HRIS decision-making process does not increase the effectiveness of HR planning of an organisation.

Overall interpretation H8:

According to the results, higher utilisation of HRIS decision-making process in an organisation increases the efficiency of HR planning but does not increase the effectiveness of HR planning considerably.

4.2.4. Objective test

HRIS recruiting subsystem contribution to HR planning

Table 4.35: Spearman's correlation for HRIS recruiting subsystem contribution and HR planning

Correlations

			HRIS recruiting subsystem	HR planning
Spearman's rho	HRIS recruiting subsystem	Correlation Coefficient	1.000	.722**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning	Correlation Coefficient	.722**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.35, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The HRIS recruiting subsystem as per the sample has a significant relationship with HR planning. The correlation between the variable HRIS recruiting subsystem and HR planning is 0.722 ($r = 0.722$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.722) which indicates a high positive relationship. This would mean that the HRIS recruiting subsystem positively contribute to HR planning of an organisation.

HRIS recruiting subsystem contribution to HR planning

Table 4.36: Spearman's correlation for HRIS training and development subsystem contribution and HR planning

Correlations

			HRIS training and development subsystem	HR planning
Spearman's rho	HRIS training and development subsystem	Correlation Coefficient	1.000	.776**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR Planning	Correlation Coefficient	.776**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.36, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The HRIS training and development subsystem as per the sample has a significant relationship with HR planning. The correlation between the variable HRIS training and development and HR planning is 0.776 ($r = 0.776$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.776) which indicates a high positive relationship. This would mean that the HRIS training and development subsystem positively contribute to HR planning of an organisation.

HRIS contribution to HR planning

Table 4.37: Spearman's correlation for HRIS role and HR planning

Correlations

			HRIS role	HR planning
Spearman's rho	HRIS role	Correlation Coefficient	1.000	.805**
		Sig. (2-tailed)	.	.000
		N	89	89
	HR planning	Correlation Coefficient	.805**	1.000
		Sig. (2-tailed)	.000	.
		N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Conclusion: In Table 4.37, the significance value is 0.000 which is less than the chosen significance level of 5% (0.05). The HRIS as per the sample has a significant relationship with HR planning. The correlation between the variable HRIS and HR planning is 0.805 ($r = 0.805$, $p<0.01$).

Interpretation: The correlation coefficient value in the coefficients table gives a high positive correlation value (0.805) which indicates a high positive relationship. This would mean that the HRIS positively contributes to HR planning of an organisation.

4.3. Conclusions about each research question

The contribution of HRIS recruiting subsystem to workforce planning of an organisation

The HRIS recruiting subsystem in workforce planning was tested using three variables: HRIS job analysis, HRIS skill inventory process and HRIS e-recruitment.

Hypothesis 1: "The greater utilisation of HRIS job analysis process in an organisation increases the efficiency and effectiveness of HR planning"

There was a medium positive relationship (r = 0.480) between HRIS job analysis process usage and the efficiency of HR planning activities. There was a high positive relationship (r = 0.748) between HRIS job analysis process usage and effectiveness of HR planning activities. Findings show that higher use of HRIS job analysis process increases the effectiveness of HR planning activities in private sector organisations in Sri Lanka. HRIS recruiting subsystem's job analysis process increases the effectiveness of HR planning by identifying unfilled positions, developing recruiting plan, analysing each job position, its job title and employees' performance in each position.

Hypothesis 2: "The greater utilisation of HRIS skill inventory process in an organisation increases the efficiency and effectiveness of HR planning"

There was a high positive relationship (r = 0.722) between HRIS skill inventory process usage and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.533) between HRIS skill inventory process usage and the effectiveness of HR planning activities. Findings show strong evidence that higher use of HRIS skill inventory process increases the efficiency of HR planning activities in private sector organisations in Sri Lanka. HRIS recruiting subsystem's skill inventory process increases the efficiency of HR planning by maintaining skill inventory, performing comprehensive reporting and tracking of applicants.

Hypothesis 3: "The greater employment of HRIS E-recruitment process in an organisation increases the efficiency and effectiveness of HR planning"

There was a medium positive relationship (r = 0.515) between HRIS e-recruitment process usage and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.470) between HRIS e-recruitment process usage and the effectiveness of HR planning activities. There was no strong evidence to show that higher use of HRIS e-recruitment process increases either the efficiency or the effectiveness of HR planning activities in private sector organisations in Sri Lanka.

Research question 1: How effectively and efficiently does the HRIS recruiting subsystem contribute to workforce planning of an organisation?

There was a high positive relationship (r = 0.722) between HRIS recruiting subsystem and HR planning activities. Findings suggest strong evidence to the effect that higher use of HRIS recruiting subsystem increases the efficiency and effectiveness of HR planning activities in private sector organisations in Sri Lanka.

The contribution of HRIS training and development subsystem to workforce planning of an organisation

HRIS training and development subsystem in workforce planning was tested using three variables: HRIS TNA, HRIS training process evaluation and HRIS succession planning.

Hypothesis 4: "HRIS training need analysis (TNA) process increases the efficiency and effectiveness HR planning of an organisation"

There was a very high positive relationship (r = 0.920) between HRIS TNA process and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.496) between HRIS TNA process and the effectiveness of HR planning activities. Findings show strong evidence that HRIS TNA process increases the efficiency of HR planning activities in private sector organisations in Sri Lanka. HRIS training and development subsystem's TNA process increases the efficiency of HR planning by providing insight into organisational training needs and producing accurate out come of HRIS training needs analysis.

Hypothesis 5: "HRIS training process evaluation increases the efficiency and effectiveness of HR planning of an organisation"

There was a very high positive relationship (r = 0.837) between HRIS training process evaluation and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.483) between HRIS training process evaluation process and the effectiveness of HR planning activities. Findings show strong evidence that HRIS training process evaluation process increases the efficiency of HR planning activities in private sector organisations in Sri Lanka. HRIS training and development subsystem's

training process evaluation process increases the efficiency of HR planning by administrating training programs and assessing their budget.

Hypothesis 6: "Succession planning of HRIS increases the efficiency and effectiveness of HR planning of an organisation"

There was a very high positive relationship (r = 0.753) between HRIS succession planning and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.475) between HRIS succession planning and the effectiveness of HR planning activities. Findings show strong evidence that HRIS succession planning increases the efficiency of HR planning activities in private sector organisations in Sri Lanka. HRIS training and development subsystem's succession planning increases the efficiency of HR planning by making better and faster decisions about successor rankings, identifying specific key positions and targeting specific employees as potential successors and minimising costs associated with succession planning or applicant tracking.

Research question 2: How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?

There was a high positive relationship (r = 0.776) between HRIS training and development subsystem and HR planning activities. Evidence suggests that higher use of HRIS training and development subsystem increases the efficiency and effectiveness of HR planning activities in private sector organisations in Sri Lanka.

Contribution of the HRIS recruiting and training and development subsystems to HR planning

HRIS recruiting, training and development subsystem in workforce planning was tested using two variables: HRIS labour demand and supply analysis and HRIS decision-making.

Hypothesis 7: "Labour demand and supply analysis of HRIS increases the efficiency and effectiveness of HR planning of an organisation"

There was a very high positive relationship (r = 0.727) between HRIS labour demand and supply analysis and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.546) between HRIS labour demand and supply analysis and the effectiveness of HR planning activities. Findings show strong evidence that HRIS labour demand and supply analysis increases the efficiency of HR planning activities in private sector organisations in Sri Lanka. HRIS recruiting, training and development subsystems' labour demand and supply analysis increases the efficiency of HR planning.

Hypothesis 8: "HRIS decision-making process increases the efficiency and effectiveness of HR planning of an organisation"

There was a very high positive relationship (r = 0.743) between HRIS decision-making and the efficiency of HR planning activities. There was a medium positive relationship (r = 0.584) between HRIS decision-making and the effectiveness of HR planning activities. Findings show strong evidence that HRIS decision-making increases the efficiency of HR planning activities in private sector organisations in Sri Lanka.

Research question 3: What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?

There was a high positive relationship (r = 0.805) between HRIS recruiting, training and development subsystems and HR planning activities. Findings show strong evidence that higher use of HRIS recruiting, training and development subsystems increase the efficiency and the effectiveness of HR planning activities in private sector organisations in Sri Lanka.

4.4. Conclusion about the research problem

Sri Lankan private sector organisations agreed (65.34%) that HRIS recruiting and training and development subsystems contribute to HR planning (Table 4.38). Collected evidence proved that the available HRIS functionalities adequately support the efficiency of organisational HR planning but not its effectiveness. The senior HR executives acknowledged that HRIS fully contribute to HR planning as MIS and DSS since they use HRIS for decision making purposes (61.69%). This finding is in line with the findings by Beadles *et al.* (2005), Nagi *et al.* (2006), DeSanctics (1989:17), Beulen (2009), Broderic and Boudreau (1992), and Ngai and Wat (2006). Most organisations use HRIS for TNA and skill inventory enabling the efficiency of HR planning.

This finding indicates that senior HR executives believe HRIS help them to do the things right but not to do the right thing. It seems that they do not like to depend on the HRIS outcomes more than they depend on their experience and knowledge. Vendors need to train the users explaining how HRIS features can be used to gain increased effectiveness of HR planning.

Table 4.38: Organisation HRIS usage

HRIS Features	Agreed Percentage for each factor
HRIS job analysis	54.78%
HRIS skill inventory	75.30%
HRIS e-recruiting	62.37%
HRIS TNA	82.55%
HRIS training process evaluation	53.93%
HRIS succession planning	68.17%
HRIS labour demand and supply analysis	63.90%
HRIS decision-making	61.69%
Agreed Average Percentage	65.34%

4.5. Conclusion

Table 4.39: Summary of the results

Factor	Variables		Spearman's correlation	Significance (2-tailed)	Hypotheses Test
	Mediate	Dependant			
HRIS recruiting subsystem contribution	HRIS job analysis	Efficiency of HR planning	.480	.000	H01 : Efficiency Accepted
		Effectiveness of HR planning	.748	.000	H01 : Effectiveness Rejected
	HRIS skill inventory	Efficiency of HR planning	.722	.000	H02 : Efficiency Rejected
		Effectiveness of HR planning	.533	.000	H02 : Effectiveness Accepted
	HRIS e-recruiting	Efficiency of HR planning	.515	.000	H03 : Efficiency Accepted
		Effectiveness of HR planning	.470	.000	H03 : Effectiveness Accepted
HRIS training and development subsystem contribution	HRIS TNA	Efficiency of HR planning	.920	.000	H04 : Efficiency Rejected
		Effectiveness of HR planning	.496	.000	H04 : Effectiveness Accepted
	HRIS training program evaluation	Efficiency of HR planning	.837	.000	H05 : Efficiency Rejected
		Effectiveness of HR planning	.483	.000	H05 : Effectiveness Accepted
	HRIS succession planning	Efficiency of HR planning	.753	.000	H06 : Efficiency Rejected
		Effectiveness of HR planning	.475	.000	H06 : Effectiveness Accepted
HRIS recruiting and training and development subsystem contribution	HRIS labour demand and supply analysis	Efficiency of HR planning	.727	.000	H07 : Efficiency Rejected
		Effectiveness of HR planning	.546	.000	H07 : Effectiveness Accepted
	Decision-making	Efficiency of HR planning	.743	.000	H08 : Efficiency Rejected
		Effectiveness of HR planning	.584	.000	H08 : Effectiveness Accepted

In conclusion, the correlation coefficient values in the coefficients tables (Table 4.39) give a high positive correlation value for the following relationships.

1. HRIS job analysis and HR planning effectiveness
2. HRIS skill inventory and HR planning efficiency
3. HRIS training program evaluation and HR planning efficiency
4. HRIS succession planning and HR planning efficiency
5. HRIS labour demand and supply analysis and HR planning efficiency
6. HRIS decision-making and HR planning efficiency

Furthermore, the correlation coefficient value in the coefficients table (Table 4.38) gives a very high positive correlation value for HRIS TNA and HR planning efficiency. This means that HRIS positively contributes to HR planning of an organisation in above mentioned situations. The lowest correlation coefficient value in the coefficients table is 0.470. All other correlation coefficient values are between 0.470 and 0.584. This indicates a medium positive correlation. Even though this means that HRIS positively contributes to HR planning of an organisation, it is not strong enough to be interpreted as a considerable contribution.

Table 4.40: Conclusion of the objectives

Factor	Variables		Spearman's correlation	Significance (2-tailed)	Objectives
	Mediate	Dependant			
HRIS recruiting subsystem contribution	HRIS job analysis HRIS skill inventory HRIS e-recruiting	HR planning	.722	.000	HRIS recruiting subsystem has efficient and effective contribution to workforce planning of an organisation.
HRIS training and development subsystem contribution	HRIS TNA HRIS training program evaluation HRIS succession planning		.776	.000	HRIS training and development subsystem has efficient and effective contribution to workforce planning of an organisation
HRIS role	HRIS job analysis HRIS skill inventory HRIS e-recruiting HRIS TNA HRIS training program evaluation HRIS succession planning HRIS labour demand and supply analysis Decision-making		.805	.000	HRIS has a contribution to HR planning through recruiting and training and development subsystems

The correlation coefficient value in the coefficients tables (Table 4.40) gives a high positive correlation values for all three objectives.

Chapter 5

5. Summary, conclusion and recommendations

5.1. Introduction

This chapter depicts the proven model based on the results of chapter four. Summary of all the chapters are discussed here. The research questions are answered through mapping the findings with the research questions and objectives. Conclusion, recommendations, limitations and implication for further research are also discussed in detail.

5.2. Implications for theory

Based on the findings of the previous chapter, I suggest the following model (Figure 5.1.) for improving the contribution of the recruiting and training and development subsystems for HR planning. This model ignores the HRIS recruiting subsystem's e-recruiting factor since the findings could not prove a credible relationship between the recruiting subsystem e-recruiting and the efficiency and the effectiveness of HR planning. Only the HRIS job analysis factor was proved to have contributed towards the effectiveness of HR planning. All other factors were proved to have contributed towards the efficiency of HR planning.

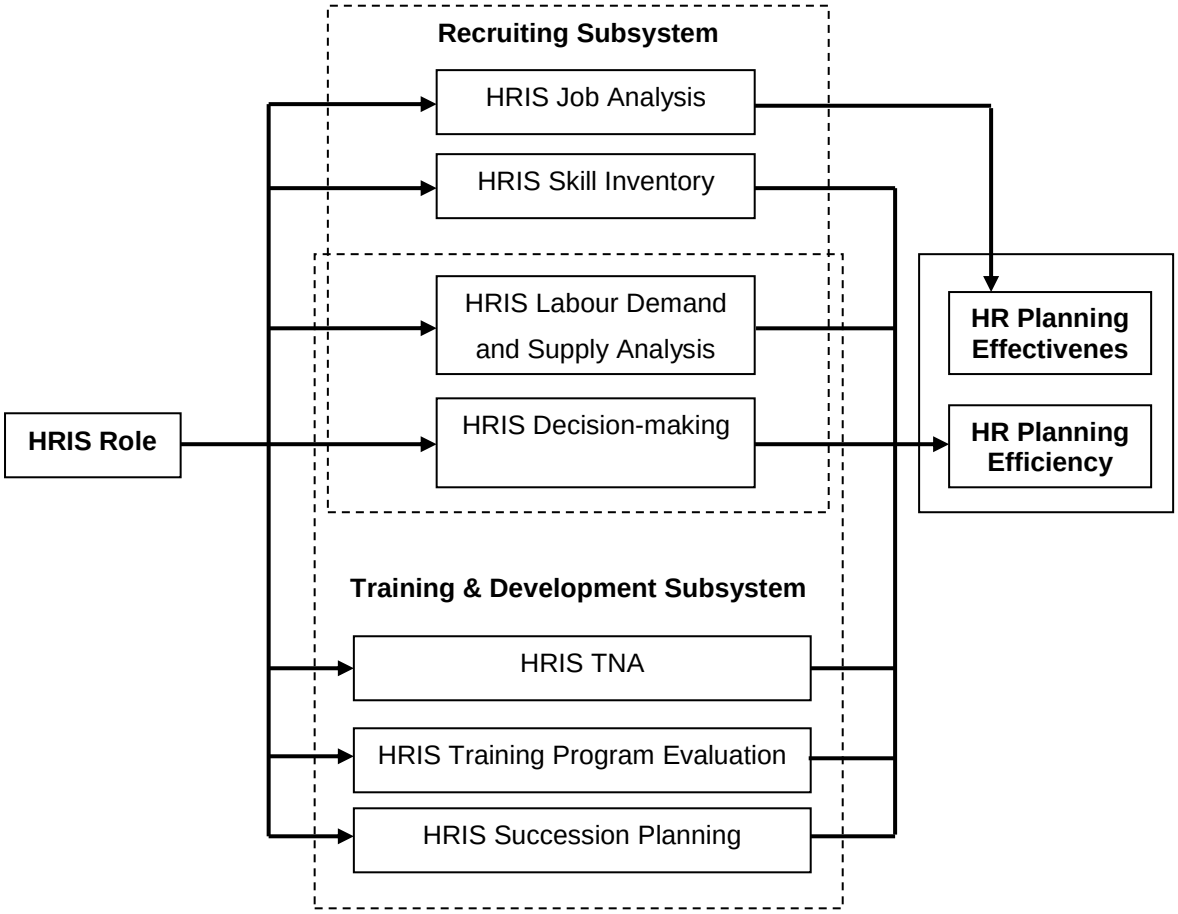

Figure 5.1: Proven model of the research

5.3. Summary

HRIS has become one of the most essential information systems. Therefore, this study focused on the role of HRIS in human resource planning in private sector organisations in Sri Lanka. Study has expected to explore the functionality and contribution of HRIS in HR planning through HRIS recruiting and training and development subsystems based on the perception of selected senior HR executives in Sri Lankan private sector organisations.

Previous studies relevant to the Sri Lankan context could not be found in this subject area. Therefore, a pilot survey was done using structured interviews with Heads of HR of three selected private sector companies. A conceptual framework was developed and senior HR executives were selected to gather data to find the validity of the conceptual framework, based on the feedback of pilot survey. The conceptual framework broke down into variables identifying the independent, mediate and dependant variables to find the correlations to each other. A structured questionnaire was used to collect data from selected private sector companies in Sri Lanka. Out of 187 e-mail contacts, answers were received from 89 respondents. The overall response rate was 48 percent. The results showed that HRIS job analysis process of the HRIS recruiting subsystem does not increase the efficiency of HR planning drastically but it does increase the effectiveness of HR planning. HRIS skill inventory and e-recruiting process of recruiting subsystem increase the efficiency of HR planning but does not increase the effectiveness of HR planning considerably. According to analysed data, HRIS TNA, training evaluation and succession planning of training and development subsystem increase the efficiency of HR planning but do not increase the effectiveness of HR planning considerably. Furthermore, results showed that HRIS labour demand and supply analysis and decision-making of recruiting and training and development subsystem increase the efficiency of HR planning but do not increase the effectiveness of HR planning significantly.

Analysed data indicate a strong positive correlation between the recruiting subsystem and HR planning as well as the training and development subsystem and HR planning. HRIS role and HR planning shows a strong positive correlation.

In the previous chapter, HRIS factors effectual to HR planning efficiency and effectiveness were identified. The purpose of this chapter is to suggest solutions and recommendations to improve the usage of HRIS in HR planning efficiency and emphasise the importance of HRIS in HR planning effectiveness.

5.4. Research questions and objectives

How effectively and efficiently does the HRIS recruiting subsystem contribute to workforce planning of an organisation?

The objective of the first research question was to explore the contribution of HRIS recruiting subsystem to workforce planning of an organisation. Based on the finding in chapter four (Table 4.40) there was a high positive relationship (r = 0.722) between HRIS recruiting subsystem and HR planning. Therefore, HRIS recruiting subsystem makes an efficient and effective contribution to workforce planning of an organisation.

How effectively and efficiently does the training and development subsystem of HRIS contribute to workforce planning of an organisation?

The objective of the second research question was to investigate the contribution of HRIS training and development subsystem to workforce planning of an organisation. There was a high positive relationship (r = 0.776) between HRIS training and development subsystem of HRIS and HR planning (Table 4.40). Consequently, HRIS training and development subsystem makes an efficient and effective contribution to workforce planning of an organisation.

What is the overall contribution of HRIS in HR planning through recruiting and training and development subsystems?

Third research question's objective was to identify the overall contribution of HRIS in HR planning through HRIS recruiting and training and development subsystems of an organisation. There was a high positive relationship (r = 0.805) between HRIS' role and HR planning (Table 4.40). Therefore, HRIS recruiting subsystem and training and development subsystem make an efficient and effective contribution to workforce planning of an organisation.

Consequently, higher use of HRIS recruiting, training and development subsystems increase the efficiency and the effectiveness of HR planning activities in private sector organisations in Sri Lanka.

5.5. Conclusion

The results show that training needs analysis (TNA) is the most frequently accepted HRIS feature. There is a high positive correlation between HRIS job analysis and the effectiveness of HR planning. Most Sri Lankan private sector organisations observed the HRIS contribution to efficiency of HR planning through HRIS skill inventory, HRIS TNA, HRIS training program evaluation, HRIS succession planning, HRIS labour demand and supply analysis and decision-making, as the greatest contribution of HRIS. This study highlighted the need to offer more intelligent capabilities of HRIS to increase the effectiveness of HR planning.

5.6. Recommendations

Application of HRIS

Research findings clearly show that senior HR executives are well aware that they can increase the efficiency of HR planning through HRIS, saving time and cost. However, findings do not support the premise that HRIS increases the efficiency of HR planning other than in functional work such as job analysis. Organisations should identify the strategic value and competitive advantage that they can gain through HRIS in HR planning.

HRIS outcomes can be applied wherever possible as deemed fit by the HR professionals, going by their experiences. Contradicting situations need to be documented and discussed with the vendors. For example, even though 57.30% of senior HR executives believe that managers find HRIS detailed training plan relevant to their needs, just 31.40% of them (senior HR executives) are convinced that employees find HRIS training programs relevant to their (employees') needs. Most organisations have e-recruiting facility but they do not use it fully since they have more faith in traditional methods of recruiting. HRIS e-recruiting facility is used by only 49.40% of senior HR executives to recruit employees.

Clarifying HRIS features

I would like to advice the organisations to come to an agreement with the vendor on HRIS features when they invest on HRIS. Required subsystems need to be planed and ordered beforehand to avoid malfunctions due to incompatible infrastructure and higher upgrading cost. Organisations would record good HR planning efficiency and effectiveness if HRIS aligns with information system strategy (65.20%) and HR strategy (65.10%). Organisations need to integrate HRIS functions with other business functions.

Enhancing the HRIS model using artificial intelligence

According to the findings, HRIS decision making functions do not increase the effectiveness of HR planning. I propose to merge the McLeod and Schell (2007) model of HRIS with the expert system enabling the user to take decisions more effectively. HR knowledge acquisition subsystem acquires the HR expert's knowledge as facts and proceeds to design a knowledge base. The knowledge base contains essential information about the problem domain. The inference engine has a mechanism to originate / generate new knowledge from the HRIS database, knowledge base and users' information, based on rules. User interface creates the interaction with end users. Each sub system is attached to a user interface where the user can enter information to the relevant sub system and view information, provided by subsystems based on rules and facts. This model is shown below (Figure 5.2).

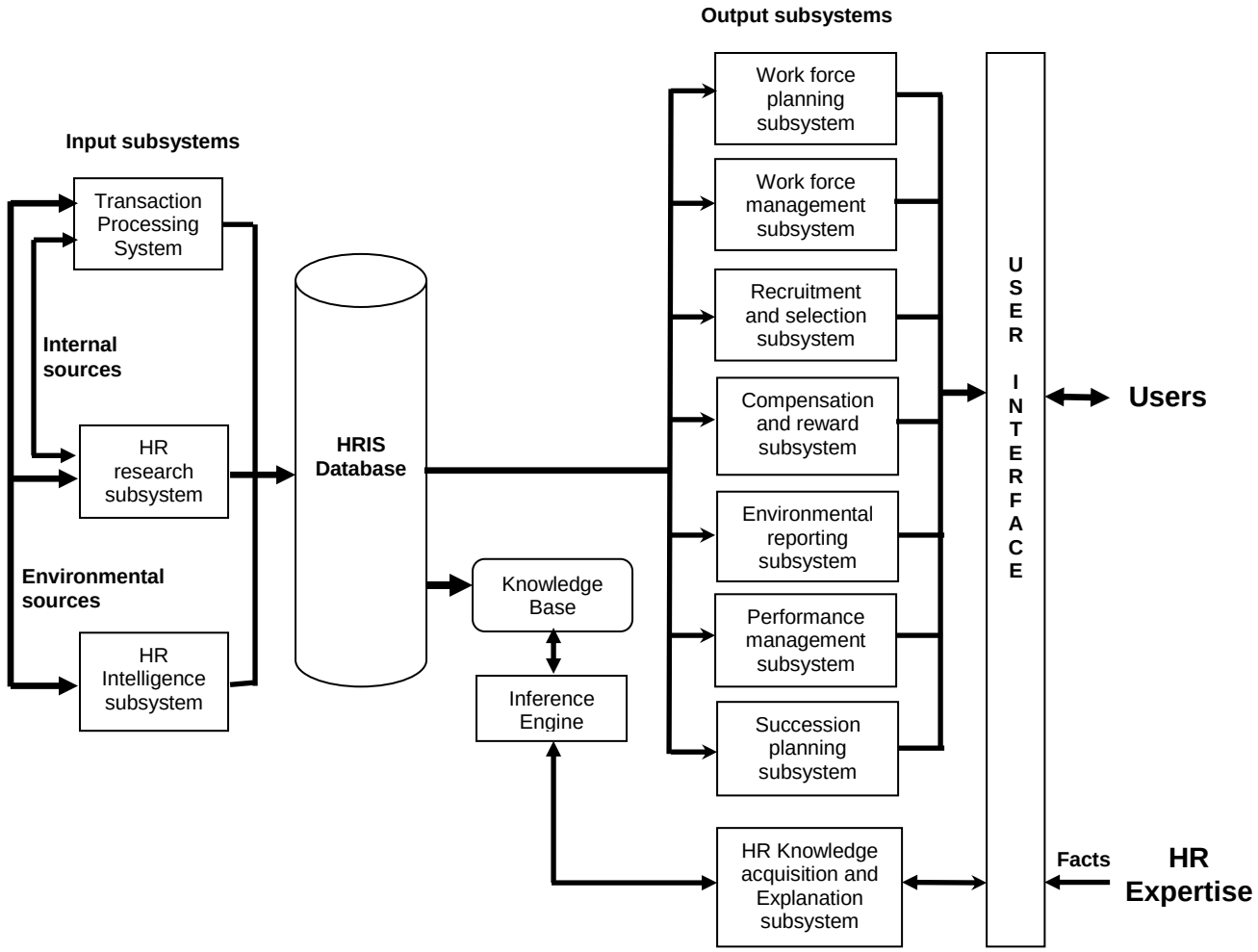

Figure 5.2: Proposed model of a HRIS

5.7. Implication for further research

This study was an exploratory research providing a platform for future work in this area. A detailed study can be carried out with the participation of HR department heads, senior HR executives, HR executives, IT executives and vendors. Organisation size and its investment decisions is another research area that has to be studied in the Sri Lankan context. HRIS user population is small in Sri Lanka due to its cost. Especially small organisations could not use integrated HRIS with ERP within an affordable cost. A future researcher can find a solution for small and medium scale organisations' HRIS requirements. Solutions can be in the form of outsourcing or in the form of cloud computing which is a new concept to Sri Lankan industries.

Though organisational planning consists of marketing, financial, production planning, this study was based on the HR planning aspect. A future researcher can find the contribution of HRIS to cooperate planning in order to gain a broader understanding. This research was mainly based on recruiting and training and development subsystems. Future research may be based on other subsystems as well. How well HRIS reengineer the organisation, what sort of data security HRIS users can expect and what is the contribution of eHRM to HR planning would be interesting areas for another study. A future researcher can enhance an existing HRIS models enriching their intelligence.

Glossary

Basic research purpose

Research done chiefly to enhance the understanding of certain problems that commonly occur in organisational settings, and seek methods of solving them, is called basic or fundamental research. It is also known as pure research. The findings of such research contribute to the building of knowledge in the various functional areas of business. Such knowledge generated is usually later applied in organisational setting for problem solving (Sekaran, 2003).

Business-level strategy

Business-level strategy identifies how to build and strengthen the business's long-term competitive position in the marketplace (Dessler, 2005).

Core values

Core Values is the strong and enduring beliefs and principles that the company uses as a foundation for its decisions (Bohlander and Snell, 2007).

Correlational analysis

Correlational analysis is done to trace the mutual influence of variable on one another" (Sekaran, 2003:417). Whereas the correlation coefficient r indicates the strength of relationship between two variables, it gives no idea of how much of the variance in the dependent or criterion variable will be explained when several independent variables are theorised to simultaneous influence it (Sekaran, 2003).

Corporate planning

Corporate planning is the process of drawing up detailed action plans to achieve an organisation's goals and objectives, taking into account the resource of the organisation and the environment within which it operates. Corporate planning represents a formal,

structured approach to achieving objectives and to implementing the corporate strategy of an organisation (BNET, 2010a).

Corporate planning should assess, monitor, and prioritise liabilities, focus on profitable opportunities, and involve regular reassessment of the company's business practices. It also helps to locate all of a company's concerns, such as money, products, employees, systems, and customers, under one roof (qfinance, 2009).

Corporate-level strategy

The challenge of corporate-level strategy is to ensure that value is being added to every business in the company's portfolio. That value must, of course, exceed its cost. Corporations with good corporate strategies do even better: they add more value than other companies in the same businesses (Sadtler, 2009).

Corporate-level strategy identifies the portfolio of businesses that, in total, comprise the company and the ways in which these businesses relate to each other (Dessler, 2005).

Cross-sectional study

A cross-sectional study is a methodology used to investigate variables or a group of subjects in different contexts over the same period of time (Collis and Hussey, 2009).

A cross-sectional research is the study of a particular phenomenon (or phenomena) at a particular time, i.e. a 'snapshot' (Saunders *et al*., 2003).

Databank

Maintaining a computerized skills databank of existing employees and on projected staff is imperative nowadays. The aim is to develop an employment and human resources information system. Such a system houses data on training, turnover, recruitment,

educational skills, work experience, performance evaluation and promotability, payroll, establishment, length of service, benefits, sabbatical, safety and accidents (Thapisa, 1994).

Decision support systems (DSS)

Decision support systems (DSS) refer to computer systems used by managers in the decision-making process. Finally distinguished between data-oriented and management-oriented approaches. The data-oriented systems include data retrieval systems and data analysis systems involving accessing and analysing historic and current data held on files and small databases. Model oriented systems distinguish between simulation models that permit the consequences of a range of actions to be explored and suggestion or option models that offer the user a solution to a specific problem within clearly defined constraints (Collier and Dixon, 1995).

Deduction

Deduction is the process by which we arrive at a reasoned conclusion by logical generalisation of known facts (Sekaran, 2003).

In deduction, the theoretical model is first developed, testable hypotheses are then formulated, data collected, and then the hypotheses are tested (Sekaran, 2003).

Deductive research approach

Deductive research approach involving the testing of a theoretical proposition by the employment of a research strategy specifically designed for the purpose of its testing (Saunders *et al*., 2003).

According to Collis and Hussey (2009), in deductive research approach a conceptual and theoretical structure is developed and then tested by empirical observation; thus, particular instances are deduced from general inferences.

Employee empowerment

Employee empowerment gives employees responsibility and authority to make decisions regarding all aspects of product development or customer service (Noe *et al*., 2007).

ERP system

ERP system is software that provides computer system integration and support to all units and functions across an organisation in a single system, thus eliminating the need for individual unit databases or systems (Babey, 2006).

Executive information systems (EIS)

Executive information systems (EIS) are user-friendly computerized systems designed specifically to provide selected and summarized information from diverse sources in a form that permits access, analysis and presentation to assist top level management (Collier and Dixon, 1995).

Expert system (ES)

An expert system (ES) is a computer system which has the knowledge-based component of an expert skill held in a form that enables the computer to offer intelligent advice or take an intelligent decision (Collier and Dixon, 1995)

Goal

A goal is a measurable and challenging objective of the business, which is attainable at some specific future date through planned actions.

Human capital

An organisation's employees, described in terms of their training, experience, judgment, intelligence, relationships, and insight (Noe *et al*, 2007).

Human resource information systems (HRIS)

HRIS allows the organisation to combine personnel data (i.e. Employee age, sex, education, pay rates) into a single information database. The HRIS not only produces timely and accurate information about the workforce, but also serves as a control mechanism, as an aid in personnel planning, forecasting, recruiting, and selection, as well as providing the firm a global view of its human resources (Lederrer, 1984).

The HRIS is designed to support the planning, administration, decision-making, and control activities of human resources management. Applications such as employee selection and placement, payroll, pension and benefits management, intake and training projections, career pathing, equity monitoring, and productivity evaluation are supported by this information system (DeSanctis, 1986).

HRIS is the composite of databases, computer applications, and hardware and software necessary to collect/record, store, manage, deliver, present, and manipulate data for human resources (Ngai and Wat, 2006).

A human resource information system (HRIS) is a functional database accessed on site or remotely, designed to hold data on employees and to support HR activities such as recruitment, selection, performance management, training and development (Tansley and Newell, 2006).

HRIS may be defined as the system used to acquire, store, manipulate, analyze, retrieve and distribute pertinent information regarding an organization's human resources (Beulen, 2009)

Human resource planning

Human resource planning as the process by which management determines how the organisation should move from its current manpower position to its desired position. Through planning, management strives to have the right number and the right kinds of people, at the right places, at the right time, doing things, which result in both the organisation and the individual receiving maximum long-run benefits (Vetter, 1967).

Human resource planning is the process of forecasting employment needs. It involves assessing current employment levels, predicting future needs, planning for internal movement, and predicting external hiring needs (Stewart and Brown, 2009).

Hypothesis

A hypothesis can be defined as a logically conjectured relationship between two or more variables expressed in the form of a testable statement. Relationships are conjectured on the basis of the network associations established in the theoretical framework formulated for the research study. By testing the hypothesis and confirming the conjectured relationship, it is expected that solutions can be found to correct the problem encountered (Sekaran, 2003).

Inductive process

In induction we logically establish a general proposition based on observed facts (Sekaran, 2003).

Induction emphasises gaining an understanding of the meanings human attach to events (Saunders *et al*., 2003).

IT governance

IT Governance is the rules and regulations under which an IT department functions. It is a mechanism, put in place to ensure compliance with those rules and regulations (Project perfect, 2005).

Inductive research approach

Inductive research approach involving the development of a theory as a result of the observation of empirical data (Saunders *et al*., 2003). Therefore, general inferences induced from particular instances.

Information systems (IS)

Information systems are a basic infrastructure of the modern business organization; they co-ordinate the resources and activities of the input, process and output subsystems of the organization, thus monitoring and ensuring internal efficiency. In addition, information systems can be used to scan the external environment and internal operations continuously to ensure that organizational effectiveness is achieved (Yasin and Quigley, 1994).

Information systems (IS) outsourcing

Information systems (IS) outsourcing is the significant contribution made by external providers of physical and/or human resources, associated either with all components or with IT infrastructure specific components in the user's organisation (Gonzalez, 2005).

Information systems strategy

The Information Systems Strategy is one part of the business strategy. It will inevitably require resources and it may require a change in working practices within the organisation. The IT strategy is concerned with the planning, introduction and use of IT resources for the benefit of the whole organisation (KJS, n/d).

Strategic Information System is an information system established with the goal of creating competitive advantage and improving the competitive position of an organisation. A strategic information system supports and shapes the corporate strategy of an organisation, often leading to innovation in the way the organisation conducts its business, the creation of new business opportunities, or the development of products and services based on information technology (BNET, 2010).

Information technology (IT)

The scientific, technological, and engineering disciplines and the management technologies used in information handling, communication, and processing; the fields of electronic data processing, telecommunications, networks, and their convergence in systems; applications and associated software and equipment together with their interaction with humans and machines (Glossary, 2006).

Interpretivism

Interpretivism is underpinned by the belief that social reality is not objective but highly subjective because it is shaped by our perceptions. Interpretivism focuses on exploring the complexity of social phenomena with a view to gaining interpretive understanding (Collis and Hussey, 2009). Interpretive research is any type of research where the findings are not derived from the statistical analysis of quantitative data (Collis and Hussey, 2009).

Interpretivism research philosophy requires the researcher to seek to understand the subjective reality and meanings of participants (Saunders *et al*., 2003).

Job enlargement

A Job enlargement is addition to new content involving greater variety (functions) thus making it structurally bigger (Pattanayak, 2009).

Job enrichment

Job enrichment is addition of new context involving greater stimulation and creativity (Pattanayak, 2009).

Job rotation

Job rotation is the changing the nature of the job, though of similar level (Pattanayak, 2009).

Judgment sampling

Judgment sampling involves the choice of subjects who are most advantageously placed or in the best position to provide the information required (Sekaran, 2003).

Judgment sampling may curtail the generalisability of the finding, due to the fact that we are using a sample of experts who are conveniently available to us. However, it is the only viable sampling method for obtaining the type of information that is required from very specific pockets of people who alone possess the needed facts and can give the information sought (Sekaran, 2003).

Longitudinal study

A Longitudinal study is a methodology used to investigate variables or a group of subjects over a long period of time (Collis and Hussey, 2009).

A Longitudinal study is the study of a particular phenomenon (or phenomena) over an extended period of time (Saunders *et al*., 2003).

Management information systems (MIS)

MIS is a system using formalized procedures to provide management at all levels in all functions with appropriate information based on data from both internal and external

sources, to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible (Adeoti-Adekeye, 1997).

MIS is an integrated, user machine system for providing information to support operations, management, and decision making functions in an organisation. The system uses computer software and hardware; manual procedures; models for analysis, planning control and decision making; and a database (Collier and Dixon, 1995).

Management information systems are integrated, user-machine systems for providing information to support operations, management and decision making functions in an organization (Williams, 1997).

Mission

Mission spells out who the company is, what it does, and where it's headed (Dessler, 2005).

Bohlander and Snell (2007) define the mission as the basic purpose of the organisation as well as its scope of operations.

Multiple regression analysis

Multiple regression analysis is a statistical technique to predict the variance in the dependant variable by regressing the independent variable against it (Sekaran, 2003).

Multiple regression analysis aids in understanding how much of the variance in the dependant variable is explained by a set of predictors. If we want to know which among the set of predictor is the most important in explaining the variance, which the next, and so on, a stepwise multiple regression analysis can be done (Sekaran, 2003).

Non-probability Sampling

In non-probability sampling designs, the elements in the population do not have any probability attached to their being chosen as sample subjects (Sekaran, 2003).

Null and alternative hypothesis

The null statement is expressed as no (significant) relationship between two variables or no (significant) difference between two groups. The alternative hypothesis, which is the opposite of the null, is a statement expressing a relationship between two variables or indicating differences between groups (Sekaran, 2003).

Organisational objective

Organisational objective is a long-range purpose, which does not quantify and not limit to a period. The strategies are the rules and guidelines by which the mission, objectives, etc may achieve (Planware, n/d).

Organisational vision

Organisational vision is a general statement of its intended direction that evokes emotional feelings in organisation members (Dessler, 2005).

Planning

Planning is generally regarded as a process of determining organisational objectives and selecting a future course of action to accomplish them. Its primary purpose is to offset future uncertainties by reducing the risk surrounding organisational operations (Thapisa, 1994).

Population

Population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate (Sekaran, 2003).

Population frame

The population frame is a listing of all the element in the population from which the sample is drawn (Sekaran, 2003).

Positivism

Positivism is underpinned by the belief that reality is independent of us and the goal is the discovery of theories, based on empirical research (observation and experiment) (Collis and Hussey, 2009).

Knowledge is derived from 'positive information' because "every rationally justifiable assertion can be scientifically verified or is capable of logical or mathematical proof" (Collis and Hussey, 2009). Positivism focuses on measuring social phenomena (Collis and Hussey, 2009).

Probability sampling design

When elements in the population have a known chance of being chosen as subjects in the sample, we resort to a probability sampling design (Sekaran, 2003).

Purposive sampling

The sampling here is confined to specific types of people who can provide the desired information, either because they are the only ones who have it, or conform to some criteria set by the researcher. This type of sampling design is called purposive sampling (Sekaran, 2003).

Positivism

Positivism is a paradigm that originated in the natural sciences. It rests on the assumption that social reality is singular and objective, and is not affected by the act of investigating it (Collis and Hussey, 2009).

Positivism research philosophy involves working with an observable social reality. The emphasis is on highly structured methodology to facilitate replication, and the end product can be law-like generalisations similar to those produced by the physical and natural science (Saunders *et al*., 2003).

Qualitative and quantitative method

In new or underdeveloped areas, it is common to apply qualitative methods in a preliminary stage, thus enabling the researcher to develop a conceptual framework, to generate hypothesis, or to establish the necessary tools (particularly instruments for measurement) for the quantitative study (Morgan and Smircich, 1980).

Questionnaire

A questionnaire is a method for collecting primary data in which a sample of respondents are asked a list of carefully structured questions chosen after considerable testing, with a view to eliciting reliable responses (Collis and Hussey, 2009).

Realism

Realism research philosophy believes in, and seeks to understand, the existence of an external and objective reality that influences people's social interpretations and behaviours but which may not be perceptible to them. It recognises that people themselves are not objects to be studied in the style of natural science (Saunders *et al*., 2003).

Recruitment

Recruitment is the process of searching for prospective employees and stimulating them to apply for the job in the organisation (Pattanayak, 2009).

Reengineering

Reengineering is to meet the new growing demands of the market; the organisation should have a continuous process of re-engineering the business. This needs a complete re-thinking, re-designing and re-structuring of the business processes to increase efficiency, quality, innovation and responsiveness to customer sensitivity (Pattanayak, 2009).

Sample

A sample is a subset of the population (Sekaran, 2003).

Sampling

Sampling is the process of selecting a sufficient number of elements from the population, so that a study of the sample and an understanding of its properties or characteristics would make it possible for us to generalise such properties or characteristics to the population elements (Sekaran, 2003).

Selection

Selection is the process of discovering the qualifications and characteristics of the job applicant in order to establish their likely suitability for the job position (Pattanayak, 2009).

Skill inventory

An inventory of the various skills that are already available should be taken. This will help to indicate the magnitude of the gaps that exist between the available skills and those that are needed but are not yet available (Thapisa 1994).

Strategy

Strategy can be viewed as a set of coordinated choices and actions (Stewart and Brown, 2009). Dessler (2005) defines strategy as company's long-tem plan for how it will balance its internal strengths and weaknesses with its external opportunities and threats to maintain a competitive advantage. Multi business organisations formulate their strategies in three levels: corporate level, business-level competitive strategy and functional level.

Strategic goal

Strategic goal is the overall goal of an organisation in terms of its market position in the medium or long-term. A strategic goal forms part of an organisation's corporate strategy, and should act as a motivating force as well as a measure of performance and achievement for those working in an organisation (BNET, 2010b).

Strategic vision

Strategic vision of an organisation is a statement about where the company is going and what it can become in the future; clarifies the long-term direction of the company and its strategic intent (Bohlander and Snell, 2007).

Strategic Information System

Strategic Information System is an information system established with the goal of creating competitive advantage and improving the competitive position of an organisation. A strategic information system supports and shapes the corporate strategy of an organisation, often leading to innovation in the way the organisation conducts its business, the creation of new business opportunities, or the development of products and services based on information technology (BNET, 2010).

Succession planning

Organisational survival and growth are the most important responsibilities which can best be fulfilled by planning management succession to ensure the availability of the right number and right kind of management staff at the right time and in the right position (Pattanayak, 2009).

Survey research strategy

Survey research strategy involves the structured collection of data from a sizeable population (Saunders *et al*., 2003).

Training

A planned programme designed to improve performance and to bring about measurable changes in knowledge, skills, attitude and social behaviour of employees for doing a particular job (Pattanayak, 2009).

Transaction processing systems (TPS)

A TPS is a type of information system that collects, stores, modifies and retrieves the data transactions of an enterprise (Best Price Computers, 2005).

List of references

Alvarez-Suescun, Emilio (2007) Testing resource-based propositions about IS sourcing decisions. *Industrial Management and Data Systems*. 107 (6), 762-779. Full-text [online]. Emerald [Accessed on 21st August 2010].

Al-Khayyat, Ridha (1998) Training and development needs assessment: a practical model for partner institutes. *European Industrial Training*. 22(1), 18-27. Full-text [online]. Emerald [Accessed on 14th November 2010].

Babey Evelyn R. (2006) Costs of Enterprise Resource Planning System Implementation - and Then Some. *New Directions for Higher Education.* 136, 21-33. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 21st January 2010].

Ball, K. S. (2001) The use of human resource information systems: a survey. *Personnel Review*. 30, 677–693. Full-text [online]. Emerald [Accessed on 21st January 2010].

Beadles, Nicholas, Lowery, Christopher M. and Johns, Kim (2005) The Impact of Human Resource Information Systems: An Exploratory Study in the Public Sector. 5(4), 39-46. [Online], Available from www.iima.org/CIIMA/11%205.4_Beadles_39-46.pdf [Accessed on 3rd June 2010].

Beulen, Erik (2009) The contribution of a global service provider's Human Resources Information System (HRIS) to staff retention in emerging markets: Comparing issues and implications in six developing countries. *Human Resources Information System*. 22(3), 270-288. Full-text [online]. Emerald [Accessed on 12th June 2010].

BNET (2010a) Business Definition for: Corporate Planning, [online], Available from http://dictionary.bnet.com/definition/corporate+planning.html [Accessed on 24th April 2010].

BNET (2010b) Business Definition for: Strategic Goal, [online], Available from http://dictionary.bnet.com/definition/strategic+goal.html [Accessed on 24th April 2010].

BNET (2010c) Business Definition for: Strategic Information Systems, [online], Available from http://dictionary.bnet.com/definition/strategic+information+systems.html [Accessed on 3rd May 2010].

Best price computers (2005). Glossary: TPS (Transaction Processing Systems), [online], Available from http://www.bestpricecomputers.co.uk/glossary/transaction-processing-systems.htm [Accessed on 3rd January 2010].

Bohlander, George W. and Snell Scott A. (2007) *Managing Human Resources: Strategy and Human Resources Panning*. 14th edition. South-Western, Thomson.

Collier, Paul and Dixon, Rob (1995) The evaluation and audit of management information systems. *Managerial Auditing.* 10(7), 25-32. Full-text [online]. Emerald [Accessed on 21st June 2010].

Collis, Jill and Hussey, Roger (2009) *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. 3rd Edition. India, Palgrave Macmillan.

Darrag, Menatallah, Mohamed, Ahmed and Aziz, Hadia Abdel (2010) Investigating recruitment practices and problems of multinational companies (MNCs) operating in Egypt. *Practices and problems of MNCs*. 3(2), 99-116. Full-text [online]. Emerald [Accessed on 9th November 2010].

Deloitte Touche Tohmatsu (2006) *Global HR Transformation. 0706 7M HC117 DD. Canada, Deloitte Inc.* [Online], Available from www.deloitte.com/assets/Dcom-China/.../HRT_White_Paper(1).pdf [Accessed on 3rd June 2010].

DeSanctis, Gerardlne (1986) Human Resource Information Systems: A Current Assessment. *Human Resource Systems*. 15-27. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 21st January 2010].

Dessler, Gary (2005) *Human Resource Management: Strategic Human Resource Management and the HR Scorecard*, 10th edition. India, Prentice Hall.

Eighteen, Robert 1999 Training needs analysis for IT training. *Industrial and Commercial Training.* 31(4), 149-152. Full-text [online]. MCB University Press [Accessed on 29th August 2010].

El-Kot, Ghada and Leat, Mike (2008) A survey of recruitment and selection practices in Egypt Education. *EBS*. 1(3), 200-212. Full-text [online]. Emerald [Accessed on 9th November 2010].

Glaveli, Niki and Kufidu, Stella (2005) The old, the young and the restless: A comparative analysis of the impact of environmental change on training in four Greek banks. *European Business Review.* 17(5), 441-459. Full-text [online]. Emerald [Accessed on 9th November 2010].

Hagood and Friedman (2002) Using the Balanced Scorecard to Measure the Performance of our HR Information System. *Public Personnel Management.* 31(4), 543-557. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 3rd January 2010].

Hayleys (2008), *Configuring a new*, annual report 2008-2009, Sri Lanka: Smart Media.

Hayleys (2009), *Diversified in to one*, annual report 2009-2010, Sri Lanka: Smart Media.

KJS (n.d). ICT4 - Information Systems Strategy, [Online], Available from www.thekjs.essex.sch.uk [Accessed on 10th May 2010].

Kovach, K.A. and Cathcart, C.E. Jr (1999) Human resource information systems (HRIS): providing business with rapid data access, information exchange and strategic advantage. *Public Personnel Management*. 28(2), 275-281. Full-text [online]. *Academic Search Premier*, EBSCOhost [Accessed on 04th January 2010].

LankaTopTen (2010). Company list, [online], Available from http://www.lankatopten.com/sri-lanka-companies.phphttp://www.lankatopten.com/sri-lanka-companies.php [Accessed on 3rd January 2010].

Lokhandwala, Shafiq (2009) *Making Tough (But Smart) Decisions In An Economic Downturn.* 200. Brickstone Sq. Suite 303, Andover, MA 01810, 978-296-6600. [Online], Available from http://www.hrmarketer.com/site/home/community/whitepaper.php?id=4868 [Accessed on 3rd June 2010].

Martin, Graeme and Reddington, Martin (2009) Reconceptualising absorptive capacity to explain the e-enablement of the HR function (e-HR) in organizations. *Employee Relations*. 31(5), 515-537, Full-text [online]. Emerald [Accessed on 21st June 2010].

May, T.Y., Korczynski, M. and Frenkel, S.J. (2002) Organizational and occupational commitment: knowledge workers in large corporations. *Management Studies*. 39(6), 775-801.

McLeod, Raymond Jr. and Anctis, Gerardine DeS (1995) A Resource-Flow Model Of The Human Resource Information System. *Information Technology Management*. 6(3). 20th December 2010. Available from: http://jitm.ubalt.edu/VI-3/article1.pdf [Accessed 20th November 2010].

McLeod, R. and Schell, G. P. (1998) *Management Information Systems: Human Resource Information Systems*. 10th edition. India, Prentice-Hall Publishers.

Morley, Michael J., Gunnigle, Patrick, O'Sullivan, Michelle and Collings, David G. (2006) New directions in the roles and responsibilities of the HRM function. *Personnel Review*. 35(6), 609-617. Full-text [online]. Emerald [Accessed on 12th November 2010].

Noe, Hollenbeck and Gerhard, Wreight (2007) Fundamentals of Human Resource Management, 2nd edition, The McGraw-Hill Companies.

Ngai, E.W.T. and Wat F.K.T. (2006) Human resource information systems: a review and empirical analysis. *Human Resource Information Systems*. 35(3), 297-314. Full-text [online]. Emerald [Accessed on 21st January 2010].

Ngai, E.W.T. Law, Chuck C.H., Chan, Simon C.H. and Wat F.K.T. (2006) Importance of the Internet to human resource practitioners in Hong Kong. *Personnel Review.* 37(1), 66-84. Full-text [online]. Emerald [Accessed on 13th June 2010].

Özçelik, Gaye and Ferman, Murat (2006) Competency Approach to Human Resources Management: Outcomes and Contributions in a Turkish Cultural Context. Human Resource Development Review. 5(1), 72-91. Full-text [online]. Sage [Accessed on 30th August 2010].

O'Brien, James A. and Marakas, George M. (2008b) Management Information Systems, 8th edition, The McGraw-Hill Companies.

Panayotopoulou, Leda. Vakola, Maria and Galanaki, Eleanna (2005) E-HR adoption and the role of HRM: evidence from Greece. *Personnel Review*. 36(2), 277-294. Full-text [online]. Emerald [Accessed on 13th August 2010].

Parker, Brian and Caine, David (1996) Holonic modelling: human resource planning and the two faces of Janus. *Manpower*. 17 (8), 1996, 30-45. Full-text [online]. Emerald [Accessed on 23rd November 2010].

Pattanayak, Biswajeet (2009) Human Resource Management, 3rd edition, New Delhi, PHI Learning Private Limited.

Planware(n/d). Business Planning Papers: Developing a Strategic Plan, [online], Available from http://www.planware.org/strategicplan.htm [Accessed on 10th May 2010].

Project perfect (2005). IT Governance and Project Governance, [online], Available from www.projectperfect.com.au [Accessed on 10th August 2009].

Pyburn, Philip J. (1983) Linking the MIS Plan with Corporate Strategy: An Exploratory Study. *MIS Quarterly.* 1-13. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 12th June 2010].

qfinance (2009) The Objectives of Corporate Planning and Budgeting, [online], Available from www.qfinance.com [Accessed on 10th April 2010].

Reddic, Christopher G. (2009) Human Resources Information Systems in Texas City Governments: Scope and Perception of its Effectiveness. *Public Personnel Management*. 38(4), 19-34. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 13th June 2010].

Suescun, Emilio (2007) Testing resource-based propositions about IS sourcing decisions. *Industrial Management and Data Systems*. 107 (6), 762-779. Full-text [online]. Emerald [Accessed on 21st August 2010].

Rue¨l, Huub J.M. , Bondarouk, Tanya V. and Velde, Mandy Van der (2007) The contribution of e-HRM to HRM effectiveness: Results from a quantitative study in a Dutch Ministry. *Employee Relations.* 29(3), 280-219. Full-text [online]. Emerald [Accessed on 21st August 2010].

Sadtler, David (2009) Corporate-Level Strategy, [online], Available from www.qfinance.com [Accessed on 10th April 2010].

Sambrook, Sally (2005) Exploring succession planning in small, growing firms. *Exploring succession planning.* 12(4), 579-594. Full-text [online]. Emerald [Accessed on 7th November 2010].

Saunders, M., Lewis, Philip and Thornhill, Adrian (2003) Research Methods for Business Students, 3rd Edition, Pearson Education : South Asia.

Selden, Sally Coleman., Jacobson, Willow., Ammar, Salwa H. and Wright, Ronald H. (2000) A New Approach to Assessing Performance of State Human Resource Management Systems: A Multi-Level Fuzzy Rule-Based System. *Public Personnel Administration*. 20, 58-74. Full-text [online]. SAGE [Accessed on 13th December 2010].

Sekaran, Uma (2003) Research Methods for Business, A skill Building Approach, 4th edition, John Wiley : India.

Sigmaconsultancy (2001). Human Resources Decision Support System (HR DSS), [online], Available from http://www.sigmaconsultancy.com/HR%20DSS.html [Accessed on 10th January 2010].

Simon, Carol (2006) Corporate information transparency: The synthesis of internal and external information streams. *Management Development*. 25(10), 1029-1031. Full-text [online]. Emerald [Accessed on 13th June 2010].

Sri Lanka Telecom (2009), *Driven to Deliver,* annual report 2009, eMAGEWISE.

Stewart and Brown (2009) Human Resource Management, Linking Strategy to Practice, John Wiley and Sons.

Tansley, Carole, Newell, Sue and Williams, Hazel (2001) Effecting HRM-style practices through an integrated human resource information system: An e-greenfield site?. Personnel *Review*. 30(3), 351-370. Full-text [online]. Emerald [Accessed on 22nd August 2010].

Tansley, Carole and Newell, Sue (2006) Project social capital, leadership and trust : A study of human resource information systems development*. Managerial Psychology.* 22(4), 350-365. Full-text [online]. Emerald [Accessed on 13th June 2010].

Tanriverdi, Hüseyin (2006) Performance Effects of Information Technology Synergies In Multibusiness Firms. *MIS Quarterly.* 30(1), 57-77. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 12th June 2010].

Tao, Yu-Hui , Yeh, C. Rosa and Sheng-I Sun (2006) Improving training needs assessment processes via the Internet: system design and qualitative study*. Internet Research.* 16(4), 427-449. Full-text [online]. Emerald [Accessed on 29th June 2010].

Teo, Thompson S.H., Lim, Ghee Soon and Fedric, Sherin Ann (2007) The adoption and diffusion of human resources information systems in Singapore. *Human Resources*. 45, 44-62. Full-text [online]. SAGE [Accessed on 20th December 2010].

Thapisa A.P.N. (1994) Human Resources Planning in Swaziland: Rolls-Royce versus Volkswagen Approaches. *Library Management.* 15(4), 22-29. Full-text [online]. Emerald [Accessed on 7th November 2010].

Thomas, Mark A. (1996) What is a human resources strategy?. *Health Manpower Management*. 22(2), 4-11. Full-text [online]. Emerald [Accessed on 21st January 2010].

Turban, Leidner, McLean and Wetherbe (2007) Information Technology for Management, 6th edition, John Wiley and Sons, Inc.

Vetter, E. W (1967). Manpower planning for high talent personnel Cited in: Jackson, Susan E. and Schuler, Randall S. (1990). Human Resource Planning: Challenges for Industrial/Organisational Psychologists [online], Available from www.rci.rutgers.edu/~sjacksox/PDF/HRPlanning.pdf [Accessed on 3rd May 2010].

Wang, Zhongming (2005) Organisational effectiveness through technology innovation and HRM strategies. *Manpower*. 26(6), 481-487. Full-text [online]. Emerald [Accessed on 13th June 2010].

Williams, L.T. (1997) Planning and managing the information system – a manager's guide. *Industrial Management and Data Systems.* 97(5), 187-191. Full-text [online]. Emerald [Accessed on 12th June 2010].

Yadapadithaya, P.S. (2001) Evaluating corporate training and development: an Indian experience. *Training and Development.* 5(4), 261-273. Blackwell Publishers [Accessed on 5th December 2010].

Yasin, Mahmoud M. and Quigley, John V. (1994) The Utility of Information Systems: Views of CEOs and Information System Executives. *Industrial Management and Data Systems*. 94(5), 25-29. Full-text [online]. Emerald [Accessed on 12th June 2010].

Zhang, Li and Wang, Hong (2006) Intelligent information processing in human resource management: an implementation case in China. *Expert Systems*. 23(5), 356-369. Full-text [online]. *Academic Search Premier,* EBSCOhost [Accessed on 12th June 2010].

Further reading

Carver, Robert H. and Nash, Jane Gradwohl (2009) *Data Analysis with SPSS Version 16*. First Indian Reprint 2009. India, Cengage Learning India Private Limited.

Mello, Jeffrey A. (2005) *Strategic Human Resources Management: Human Resource Planning*. 2nd edition. South-Western, Thomson.

O'Brien, James A. and Marakas, George M. (2008a) Introduction to Information System, 8th edition, The McGraw-Hill Companies.

Rampton, Lan J. (1999) *Human Resources Management Systems*: A Practical Approach, 2nd edition, Carswell.

Rozakis, Laurie (2007) Schaum's *Quick Guide to Writing Great Research Papers*, 2nd edition, New Delhi, The McGraw-Hall Companies.

Utoronto (2009). *Advice on Academic Writing*, [online], Available from www.writing.utoronto.ca [Accessed on 10th January 2010].

Appendix a

Population frame

Table: 9.1 Distribution of target population among thirty-one organisations.

Private sector organisations	Senior HR executives (Who uses HRIS)	Organisation Type
Sri Lanka Telecom (SLT)	33	Service
MAS Holding	26	Manufacturing
Hayleys	25	Manufacturing
Seylan Bank	23	Financial
Dialog Telekom Plc	20	Service
Sampath Bank	20	Financial
Nestle Lanka Limited	15	Manufacturing
Amba Research Lanka (Pvt) Ltd	13	Service
Mobitel	13	Service
HSBC Bank	12	Financial
Sri Lankan Airlines	12	Service
Ceylon Tobacco Company	11	Manufacturing
CIC Group	10	Manufacturing
Commercial Bank	10	Financial
Holcim Group	10	Manufacturing
Kelani Cables	10	Manufacturing
Nations Trust Bank Ltd	10	Financial
People's Leasing Co. Ltd	9	Financial
Brandix Group	8	Manufacturing
Hilton Hotels	8	Service
Hutch	8	Service
Richard Pieris Distributors Ltd.	8	Manufacturing
Sumathi Trading Co Ltd.	8	Service
Cargills Ceylon Limited	7	Service
DFCC Bank	7	Financial
DIMO	7	Service
Union Assurance Ltd	7	Service
Ansell Lanka (Pvt) Ltd	6	Manufacturing
Bartleet	6	Service
Central Finance	5	Financial
Ceylinco Insurance	5	Service
Total	372	

Cover Letter

Dear Sir/Madam,

Survey addressed to Senior HR Executives in Sri Lanka

The attached questionnaire is designed to gather data on “The Role of Human Resource Information System (HRIS) in HR Planning in Private Sector Organisations in Sri Lanka”, which is a study conducted for Sri Lankan Senior HR Executives who uses HRIS. This research is carried out in order to fulfil the requirement of Faculty of Graduate Studies – University of Colombo, as the final year thesis for Masters in Information Systems Management degree.

Please be kind enough to forward this questionnaire to HR Executives in your organisation. Please note that the confidentiality of the response to this questionnaire would be guaranteed. I assure you that the given data would only be used for academic purpose and for my graduation. (You are free to skip any question without answering.)

I greatly appreciate your cooperation and dedication, and thank you for spending your valuable time in making this endeavour a success.

Thank You,

Yours sincerely,

Udani Wickramaratna

Questionnaire

The purpose of this questionnaire is to obtain your views and opinions on the role of HRIS (Human Resource Information System) in HR Planning. Please select the response that you think is the most appropriate to each statement.

Please be kind enough to save and email your feedback to udani@gmx.com

(A.) HRIS Role in Recruitment and Selection								
Organisation Type			Financial		Manufacturing		Service	
Statements		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Remarks	
1.	Organisation uses HRIS recruitment subsystem at an optimum level							
2.	HRIS identifies unfilled positions accurately.							
3.	HRIS analyses each job position and its job title in an organisation.							
4.	HRIS analyses the employees in each position.							
5.	HRIS supports development of recruiting plan.							
6.	HRIS maintains skill inventory.							
7.	HRIS performs comprehensive reporting and tracking of applicants efficiently.							
8.	Candidates are recruited through HRIS e-recruiting.							
9.	HRIS maintains relationships with individuals who register in a talent warehouse.							
10.	HRIS reduces recruiting costs.							
11.	HRIS eliminates unsuitable applicants early and focuses on promising candidates.							
12.	HRIS leverages employee's talent in the right place at the right time.							
13.	HRIS evaluates the recruiting processes effectively.							

(B.) HRIS Role in Training and Development							
Statements		**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**	**Remarks**
1.	Organisation uses HRIS training and development subsystem at an optimum level						
2.	HRIS provides insight into organisational training needs.						
3.	The outcomes of HRIS training needs analysis (TNA) are accurate.						
4.	Managers find HRIS detailed training plan relevant to their needs.						
5.	HRIS evaluates the effectiveness of training programs.						
6.	Employees find HRIS training programs relevant to their needs.						
7.	HRIS selects right person to be trained at right time.						
8.	HRIS eliminates skill gaps across the organisation.						
9.	HRIS plays a vital role administrating training programs.						
10.	HRIS assesses the budget of training and development programs.						
11.	HRIS makes better and faster decisions about successor rankings.						
12.	HRIS identifies specific key positions and target specific employees as potential successors.						
13.	HRIS minimises costs associated with succession planning or applicant tracking.						

(C.) Common HRIS role in Recruiting and Training and Development							
		Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**	**Remarks**
1.	HRIS manages internal information within the organisation.						
2.	HRIS manages external information outside the organisation.						
3.	HRIS provides an opportunity to become a strategic partner with top management.						
4.	HRIS constantly analyses and matches the demand for human resources.						
5.	HRIS forecasts supply of human resources.						
6.	HRIS estimates future human resources requirement of the organisation.						
7.	HRIS connects employee to required position and keep track of their movements.						
8.	HRIS identifies a logical progression path and the steps required for advancements.						
9.	HRIS ensures organisation has right kind and numbers of employees at right place at right time.						
10.	HRIS identifies human resources need to achieve organisational goals.						
11.	Role of HRIS aligns with the organisation's HR Strategy.						
12.	Role of HRIS aligns with the organisation's Information System strategy.						
13.	HRIS has improved the quality of my decisions.						
14.	As a result of HRIS, I can better set my HR decision-making priorities.						
15.	Through HRIS, more relevant information has become available to me for decision-making.						
16.	Through HRIS, the speed at which I analyse decisions has increased.						

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Remarks
17.	Through HRIS, the speed at which I analyse decisions has increased.						
18.	Future supply and demand of labour can be forecast using What-If analysis function of HRIS.						
19.	HRIS simulation models support HR decision making.						
20.	Goal-seeking method empowers HRIS decision making.						
21.	HRIS focuses on decisions made at the higher level by senior management and executives.						
22.	Organisation's HR planning is highly effective						
23.	Organisation's HR planning is highly efficient						

Semi structured interview

Company information

Company name: _____

Business unit name: _____

Address: _____

_____

Telephone number: _____

Year-end (month/day): _____

Company contacts

Name _____

Position _____

Education _____

Phone _____

Industry information

Industry classification: _____

(1.) How many employees work in the organisation?

a.) Less than 10

b.) 10-50

c.) 51-100

d.) Greater than 100

(2.) What is the annual revenue of the organisation?

a.) Less than 1 Billion (Rs.)

b.) 1 – 10 Billion (Rs.)

c.) 10 – 20 Billion (Rs.)

d.) Greater than 20 Billion (Rs.)

(3.) What is the annual profit of the organisation?

a.) Less than 1 Billion (Rs.)

b.) 1 - 10 Billion (Rs.)

c.) 10 – 20 Billion (Rs.)

d.) Greater than 20 Billion (Rs.)

(4.) Does the organisation have a separate HR department/group/unit?

a.) Yes

b.) No

(5.) Have you outsourced any HR functions?

a.) All functions

b.) Selected functions

c.) Not at all

If Selected functions, what are they?

If Yes,

(6.) Why did you decide to outsource?

(7.) Who is the service provider?

(8.) Annual revenue of the organisation?

(9.) Annual profit of the organisation?

(10.) Do you currently maintain a HR Information System (HRIS)?

If No,

a.) What are the barriers that keep you away from implementing HRIS?

i.) lack of sufficient capital

ii.) lack of skilled staff

iii.) lack of IT knowledge

iv.) not convinced of the benefits

v.) problems with time management;

vi.) need to work with other departments

vii.) no suitable HRIS or software

viii.) difficulty in changing the organization's culture

ix.) all

b.) Do you plan to set up an HRIS?

i.) Yes

ii.) No

c.) The budget planned to set up HRIS? (Rs.)

i.) Less than 0.1 million

ii.) 0.1 - 1 million

iii.) 1.1 – 2 million

iv.) Greater than 2 million

v.) Not sure

vi.) No separate budget

d.) Have you computerised any of the other functional area of the organisation?
(If “Yes” what are they?)

If Yes (currently maintain HRIS),

e.) For how long have you implemented HRIS?
   i.) Less than 1 year
   ii.) 1-5
   iii.) 6-10
   iv.) Greater than 10

f.) How much did you spend to set up HRIS?
   i.) Less than 1 million (Rs.)
   ii.) 1 - 5 million (Rs.)
   iii.) 5 – 10 million (Rs.)
   iv.) Greater than 10 million (Rs.)

g.) How much did you spend for the integrated system?
   i.) Less than 10 million
   ii.) 10 - 20 million
   iii.) 20 – 30 million
   iv.) Greater than 30 million

h.) How much do you spend as maintenance cost of HRIS per year?
   i.) Less than 0.1 million
   ii.) 0.1 - 1 million
   iii.) 1.1 – 2 million
   iv.) Greater than 2 million

i.) What HRIS do you currently employ?
   i.) PeopleSoft
   ii.) SAP
   iii.) Oracle
   iv.) Other

If “Other”, name it?

j.) Who is the solution provider?

k.) For how long have you implemented it?

l.) Is it a web based solution?

m.) Is HRIS integrated with the company’s other systems?

n.) Setting up cost (Rs.) of HRIS?
   i.) Less than 0.1 million
   ii.) 0.1 - 1 million
   iii.) 1.1 – 2 million
   iv.) Greater than 20 million

o.) Setting up cost (Rs.) of integrated system?
   i.) Less than 0.1 million
   ii.) 0.1 - 1 million
   iii.) 1.1 – 2 million
   iv.) Greater than 20 million

p.) Maintenance cost of HRIS?
   i.) Less than 0.1 million
   ii.) 0.1 - 1 million
   iii.) 1.1 – 2 million
   iv.) Greater than 20 million

q.) Who interact with the HRIS?
   i.) HR professionals,
   ii.) Managers in functional areas (production, marketing, engineering etc.)
   iii.) Employees
   iv.) All

r.) Does the HRIS support the company's HR Strategy?
   If yes how?

s.) Is the HRIS aligned with the company's business strategy?
   If yes how?

t.) Does HRIS work effectively?
   i.) Yes
   ii.) No

HR Management

1. Do you maintain an automated system for time and attendance recording?
2. Have you automated the payroll process?
3. Have you automated leave management system?
4. Is it with online facilities?

Workforce Planning

1. Does the company have a workforce plan?
2. Does HRIS help to create a workforce plan? If yes how?

a. Understand current workforce trends and plan future needs
b. Support all workforce cost-planning tasks
c. Empower HR executives to develop effective strategies
d. Measure standard workforce processes

Recruitment and Selection

1. Is the recruitment process automated?
2. Do you use e-recruiting facilities? If not, why?
3. Does HRIS help to improve the efficiency and effectiveness of recruitment processes?
    a. Find the right people quickly,
    b. Leverage their talent in the right place at the right time,
    c. Maintain relationships with individuals who register in a talent warehouse
    d. Perform comprehensive reporting and tracking of applicants and candidates
4. Does HRIS help to reduce recruiting costs?

Employee Retention

1. What kinds of programs exist for employee retention? Are they sufficient?
2. Does HRIS help to identify and develop an attractive benefit program that can retain employees? If yes, how?

Compensation and Reward

1. What is the current compensation system in your company? Please describe.
2. Is the compensation system reviewed periodically?
3. Does HRIS analyze the cost-effectiveness of employee compensation programs?
4. Does HRIS analyze and compare compensation packages using internal and external salary data to ensure competitiveness in the marketplace?

Training and Development

1. Does the company have a clear development or training plan?
2. How do you evaluate the effectiveness of HRIS in development or training context? Does it help to select the right person to be trained?
3. Does HRIS help to do Training Need Analysis (TNA)?

Succession Planning

1. What is the current system of succession planning? Please describe
2. Can you use HRIS for succession planning effectively?

a. Make better and faster decisions about talent pipeline and successor rankings
b. Identify and track high-potential employees and implement development plans to ensure that they are prepared to assume future leadership roles.
c. Identify specific key positions and target specific employees as potential successors.

Performance Management

1. What types of performance management system do you use? Please describe.
2. What kind of a role does HRIS play there?
    a. Analyze employee skills and qualifications
    b. Evaluate the efficiency of your recruiting processes
    c. Monitor the progress of aligning employee goals with corporate goals
    d. Support a performance-oriented compensation process.
    e. Assess how well your succession programs prepare your employees to assume key positions – and ensure continuity of operations

Employee Communication

1. Do you create an environment of open communication between employees and management?
2. How does HRIS perceive the effectiveness and integrity of current communication culture?

1. Does HRIS improve efficiency, accuracy and provide up to date information on HR?
2. Do you think HRIS plays a vital role in decision making within your organization?
3. Does HRIS give competitive advantage? Please describe
4. Does HRIS reengineer the entire HR function?
5. Do you think that HRIS provides functionality to meet the organisational goals and objectives?
    i. Yes
    ii. No
6. Is HRIS cost effective?