A Study of Factors Influencing Implementation
of
Human Resource Information Systems

Boon-Anan Phinaitrup[1]

บทคัดย่อ

บทความนี้เป็นการนำเสนอเกี่ยวกับการนำระบบสารสนเทศมาใช้ในงานพัฒนา
ทรัพยากรมนุษย์ โดยมีวัตถุประสงค์เพื่อค้นหาหรือหาแนวทางสำหรับองค์กรไทย
ที่มีความสนใจในการสร้างความพร้อมของหน่วยงานด้วยการนำระบบสารสนเทศมาใช้
เครื่องมือที่ใช้ในการศึกษาคือ การทบทวนวรรณกรรมและการสัมภาษณ์ผู้บริหารที่รับ
ผิดชอบการนำระบบสารสนเทศมาใช้ในงานทรัพยากรมนุษย์ ผลของการศึกษาพบว่า
องค์กรควรมีนโยบายที่ชัดเจนในการนำเทคโนโลยีเข้ามาใช้งาน เพื่อให้การทำงานสะดวก
รวดเร็วและมีประสิทธิภาพเพิ่มขึ้น โดยที่องค์กรควรจะสร้างความพร้อมและความเข้าใจ
กับบุคลากรที่เกี่ยวข้อง นอกจากนี้ยังต้องเตรียมโครงสร้างองค์กรที่รองรับเทคโนโลยีรวมทั้ง
Software และ Hardware และท้ายสุดองค์กรสามารถที่จะจ้างที่ปรึกษา ผู้ซึ่งมีความรู้และ
ความเชี่ยวชาญในเรื่องระบบสารสนเทศ มาช่วยในการพัฒนาระบบได้

---

[1] ผู้ช่วยศาสตราจารย์ ประจำคณะรัฐประศาสนศาสตร์ สถาบันบัณฑิตพัฒนบริหารศาสตร์

Abstract

The paper discusses how to implement human resource infor-
mation systems. The purpose of the study is to investigate the readi-
ness of Thai companies to implement information systems in the area of
human resource and to find the relationship between human resources
in the organization and information systems. The research tools are
literature review and interviews. The findings indicate that the human
resource manager must have a policy for the implementation and un-
derstand and build readiness of the organization, including infrastruc-
ture, software, hardware, and telephone lines. Sometimes, the manager
may need assistance from a consultant that can provide knowledge and
expertise to make the system run efficiently.

Key words : Human resource information systems, IT management, and
technology

Since the early 1980s, human resource managers have been receiving
two messages from academic and professional literature regarding how to
increase the competitive capacity of their organizations. The first message
stresses the importance of managing people that are the most valuable re-
sources in an organization's competitive strategy. The second message refers
to the use of technology in human resource work and activities in order to
serve stakeholders more efficiently and effectively.

This paper discusses the use of technology. Human resource manag-
ers are confronted with the problem of how to utilize technology. There are
numerous articles that explain why we need to bring technology into human
resource work. These are summarized in the literature review. Actually, tech-
nology has always been used by people to improve the quality of their work
and enhance productivity. Technology is defined as a tool that assists people
to get the work done with less cost and higher productivity.

Many CEOs recognize the challenges presented in effectively combining HRIS professionals and information systems. They have set IT policies that try to make work operations run more efficiently and professionally.

According to Stambaugh (2002), to implement HRIS the organization must understand what should be asked of packages and systems. The organization should be seen as a whole and can not work well without technology. The organization needs to support HRIS activity and provide easy-to-access information.

If we see the necessity of HRIS and would like to implement it, we should begin by learning what is needed by the organization in terms of HRIS. For example: What needs to be prepared by the organization? How do we implement HRIS effectively? How can the HR department participate in the preparations for HRIS?

Problem Statement

An information system (Laudon&Laudon, 2000) is defined as "a set of interrelated components that collect, process, store, and distribute information to support decision making and control in an organization." Such a system can assist human resource managers in analyzing problems, making decisions, and creating new ways to work.

Since information systems can enhance the value of information in human resources and offer new opportunities to work efficiently, HRIS can provide the communication and analytic power that organizations need to manage HR. In Thailand, there are many organizations interested in implementing HRIS but don't know how to begin or to prepare themselves. Furthermore, there are only a few books and research studies investigating HRIS. Therefore, it is necessary to study and research the ways in which Thai companies can implement HRIS so that they can compete with others. Such knowledge would enable Thai companies to transform their business into a knowledge-based organization, strengthen their business operation, and challenge management to become more efficient.

Purpose of the Study

The purpose of this research is to investigate the readiness of Thai companies to implement information systems in the area of human resources. The paper will show the relationship between human resources in the organization and information systems. It is a growing interdependence between business strategy, human resource work, information systems, software, hardware, database, and telecommunication. In order to be ready for HRIS, the companies need to learn about components or factors that are critical to implementing HRIS. A literature review and interviews are employed.

Theoretical Framework

Proposition 1: Human resource managers should understand the relationship between the organization and human resource information systems. Laudon & Laudon (2000) state that a business can continue to survive because of its information system, which has become a necessary tool in making the job of the organization easier. Therefore, the human resource information systems affect how a manager decides, plans, and produces products and services. Some books in the area of information systems suggest that information systems play an important role in helping the organization to work efficiently. Research suggests that human resource managers should understand the relationship between an organization and its human resource information systems.

Proposition 2: The human resource manager should implement information systems in the work of human resources. Cerellion (1991) states, for example, that the work of human resource management is becoming more important in the workplace and that technology is developing all the time. If an organization wishes to compete with others, it must implement IS in human resource work. Human resource activities and the information systems need to work together in order to make human resource work efficient and effective.

Literature Review

Human resource information systems are a new field in human re-source development. There are relatively few articles on HRIS in journals and on the Internet. In Thailand, there are even fewer, especially in the area of research. It is very difficult to find articles and research papers on this topic. The literature review section of this study is divided into two parts. The first part will review articles on how human resource information systems impact human resource management, how HRIS is essential to human resource activities, and why we need human resource information systems. The second part reviews literature on IT policy and the status of HRIS in Thailand in order to illustrate that Thailand is ready for HRIS.

General HRIS

After the introduction of the PC in the early 1980s, only 15% of em-ployees and students used computers in their work. According to Carr (2003), this percentage increased to more than 30% by the year 2000. He estimates that this percentage will reach 50% by 2010. That means that there are more and more people using the PC in a variety of work. Today, the world is changing. Senior executives now talk about the strategic value of information technology and how to use IT to gain a competitive edge, as well as the digitization of their business models. Most of the companies have appointed chief information officers to their senior management teams, and many have hired strategy consulting firms to provide fresh ideas on how to leverage their IT investment to their advantage. At present, the core functions of IT – data storage, data processing and data transport – are transforming from potentially strategic resources into commodity factors of production. Expenses related to IT are becoming an accepted cost of doing business that must be paid by all, and human resource managers should be ready for it.

The book **Reengineering Human Resources** (1995) explains the changes that are occurring in the business world with a particular focus on information technology and human resource information systems and how these can help

HR professionals provide more effective delivery of their services. In addition, the book analyses workflow and cost-benefits to determine whether it is worthwhile to implement human resource information systems. It shows how new technologies, reengineered work processes, and retrained employees will bring about a revolution in the work of human resource professionals.

Spencer (1995) has stated that information technology is transforming human resource management, and its impact will include outsourcing, automation, and integration. Eighty percent of major organizations are considering outsourcing most human resource functions and services. Further, most human resource work will be handled by personal computers and interactive voice systems. Human resource functions will be integrated by human resource information systems. Spencer explains with real examples the new approaches to organizing work made possible by combing traditional work with technology in the areas of human resources, such as record keeping, employee health care benefits, performance management training, compensation, and labor relations.

Spencer's ideas are consistent with Emily (1993), who indicated that more and more organizations are deciding to implement human resource systems as they are easy to control and provide access to integrated database information. However, caution is also recommended. One of the problems is managing the change and turmoil that client-server computing brings to the enterprise, particularly in the areas of system and network management and security. Implementing a network is another potential stumbling block when moving to client-server environments. This process can vary widely depending on how familiar an organization is with the technology and whether it already has a network in place. The implementator of client-server human resource management systems also complains that cost can be surprising, particular the costs of upgrading workstations, licensing PC products, and training users. Careful planning can help a company get its client-server human resource management systems up and running with few snags.

Rothman (2001) has raised a question concerning what companies have had the most impact on our world and on the way business is done today. In his career, he has been a newspaper reporter, a magazine editor, a book author and other things. He investigated 50 outstanding companies in the business world to determine how they achieved their success. These companies are changing the world. Some of the companies are Apple computer, Netscape, Microsoft and Hewlett-Packard. IBM, Intel, and Yahoo are global companies that show the context of each company's individual operation, historical context, and specific industry. Rothman explains how technology assisted these companies in improving their strategic alignment, business intelligence, efficiency, and effectiveness and they can be examples for human resource information systems development.

Walker (1999) expresses concern that a new model for the human resource function has evolved in concept and practice over the past years. Many companies have reduced costs and improved the quality of operational services by using vendors for services or establishing internal centers to provide shared services. Such restructuring has been supported by new, more powerful information systems, such as Peoplesoft, SAP, and online information access for managers and employees. At the same time, companies have invested in capabilities to enhance business performance and to develop specialized human resource expertise, such as consultants or leaders within business units.

The experiences of such leading companies as IBM, United Technology, Clorox, Johnson & Johnson, Dupont, Hewlett-Packard, and Sun Microsystem have been examined and reported in numerous studies and reports. What were once innovative practices are now characterized as current practices and trends in the strategic repositioning of human resource functions.

Willard (2002) interviewed five IT managers regarding how to manage new IT people. The IT managers were Leo Conner of California State Automobile Associate, Mike Cole of Rockwell International Corp., Chuck Norms of Aqua-Chem Inc., and Jerry Miller of Sears. These people believe that managers

should emphasize people in everything and should learn to leverage their strengths. The key to successful IT management is to understand the business and the talents of staff.

Hammers (2002) states that some organizations are not successful in implementing human resource information systems. The system fails because the various software programs are not integrated and information is often missing. Some possible ways to prevent or solve these problems are: 1) consider add-ons, 2) get portal power, 3) integrate the system, 4) hire or host, 5) use what you have, 6) restructure the team, and 7) don't go it alone.

Safran (2002) believes that only big organizations with large numbers of employees can have a human resource management system because the system needed by big companies is very expensive and requires a lot of people to implement it. However, human resource management systems are also needed by small and medium-size enterprises. Some small companies do not upgrade their hardware or operating system to current standards, and many smaller operations do not have an IT staff. This function is either outsourced to an independent-on-call consultant or to a computer supplier.

This short literature review summarizes a few thoughts about human resource information systems. **The first idea** is that technology is a powerful tool for supporting the work of human resources by reducing paper work and the complexity of the work process. It shows that technology is changing the way human resource departments manage and organize recruitment through use of the Web, employment self-service, call centers, help on-line, or e-records. **The second indea** is that technology can provide opportunities for competitiveness in business through integrating the functions of the human resource department and improving its work processes. **The third idea** is that new employees must have technology skills in addition to human resource knowledge. Employees must know how to store, retrieve, analyze, and access information from the Internet, an intranet, or an extranet.

These three concepts should be considered by Thai businesses if they want to compete with others. They need to consider human resource technology

as a value added activity in the business process since it is a trend in the new business world.

The IT Situation in Thailand

As it is very difficult to find articles in Thai journals or find research regarding HRIS, it would be useful to investigate some information technology situations in Thailand.

Thailand first established a national IT policy in 2001. The National IT 2001 is part of the current National Economic and Social Policy. The government believes that it can utilize IT and communication technology to improve quality of life and compete more effectively in the business world. The government also believes that IT can be used as a tool for the development of the economy, society, and politics in conjunction with its self-sufficient economic theory and Buddhist thought. By 2010, the government wants the country to have an e-government, e-commerce, e-industry, e-education, and e-society. The government is focusing on three projects: 1) development of the software industry of Thailand, 2) improvement of people skills in IT, and 3) converting the administration and services of the government to be more IT based (i.e. e-government).

According to the National Plan of ICT in Thailand 2001-2006, ICT infrastructure in Thailand will provide Thai people with easy access to the radio, TV, telephones, computers, and the Internet. Currently there are 12.6 telephones per 100 people and 4,550 schools are connected to the Internet. Thailand spent only 0.1 of its GDP on research and development in science and technology and only 0.06% on the development of ICT. Furthermore, Thai education institutions have produced fewer graduates in the field of computer science and this has created a lack of people skilled in IT. Consequently, Thai companies have had to employ people from other countries. Another problem is that IT changes rapidly and educational institutions cannot adjust their curriculum to respond to market needs. Table 1 shows the ranking of readiness for IT infrastructure according to country:

Table 1 : Comparison of Information Infrastructure 1999

Index	Thailand	Singapore	Korea	Japan
1. Information Infrastructure				
- Teledensity 2000	60	20	24	11
- Years to adoption of cellular telephone	15	29	15	2
-Telecommunication staff	45	14	7	1
- Telephone faults, 2000	33	12	2	4
- Availability of telephone internet access	34	7	31	7
- Perceptions of broadband internet access	45	4	3	58
- Price and quality of internet connection	36	9	19	43
- availability and cost of mobile telephone	54	4	30	12
2. General infrastructure				
- Electricity consumption	53	12	25	9
- Efficiency of electrical system	33	3	22	2
- Quality of highways	14	15	33	32
- Television penetration	46	43	36	3
- Typical driving speed between cities	12	38	47	52
- Quality of facilities and waterways	35	1	30	11
- Quality of air transport	29	1	36	26

Source : iir.ngi.n ectec.or.th

According to this table, Thailand is not in a good position regarding teledensity, telephone lines for business, broadband internet access, electricity consumption, or quality of facilities. However, the number of internet users in Thailand increased between 2000-2004.

Table 2 : Internet users in Thailand

Year	Users
2000	2,300,000
2001	3,500,000
2002	4,800,000
2003	6,000,000
2004	6,970,000

Source : iir.ngi.n ectec.or.th

It would appear that Thailand must do something to make itself ready for an IT world. Today, more than ever, businesses are using information to gain and sustain a competitive advantage. At present, management information systems are very important because they coordinate the use information, information technology, and people. As we move forward, information technology is a key resource to gaining a competitive advantage. The government must push Thai businesses to use technology. Human resource management is part of business and IT use should be encouraged and supported within this important business function.

Findings and discussion

The researcher has reviewed many articles on human resources and human resource information systems. The researcher has also interviewed three people working at the management level who maintain a master employee database including, for example, salary tables, personnel tables, job classification tables, training tables, and experience tables. These people also

are responsible for finding staff, such as programmers, analysts, security experts, data entry people, and auditors with information technology backgrounds to take care of the system.

The main issues mentioned in the articles or journals deal with policies governing human resource information systems. Staff responsible for human resource information systems and infrastructure asked the three managers for their opinions regarding important factors to consider when implementing human resource information systems. The following table (Table 3) summarizes their responses.

Table 3 : Factors for implementing HRIS

	Policy for HRIS	Staff	Infrastructure	Vendor/ Consultant	Others
The first interviewee	HRIS supported by top manager	ICT Department maintains the system	Must select software first	Hiring a consultant to advise and work on the HRIS project	Goal is to be in a world-class organization
	Study the preparation for bring HRIS	HR job is divided into three departments: HRM, HRD, HR service	System must be easy to access	Be prepared for a large budget	HRIS makes the HR job more efficient and effective
	Implement SAP application	Every employee must know MS office as basic technology	HR information is on Web-based system		

Table 3 : Factors for implementing HRIS (continued)

	Policy for HRIS	Staff	Infrastructure	Vendor/ Consultant	Others
The second interviewee	Policy for organization to implement IT accurately	Person that does HRIS may not have IT background	Software and hardware are very important for implementing system	Hiring a vendor and IT department act as consultant in the organization	Make sure the company need HRIS
	HRIS must be able to analyze and help decision making	Each position can access different levels of data			Top manager must strongly support
The third interviewee	Policy for HRIS to buy or develop application program	IT department takes care of technical issuer	Local company may hire consultant to customize program	Good vendor will keep promise	Organization must know the requirements in detail.
	CEO support HRIS	Conduct training	Company must have enough servers	Vendor must cooperate with staff in the organization	Large enough budget for the system
		Maintain system	Planning infrastructure before implementing the system		Attitude of employees

The original assumption was that the human resource manager would implement information systems in human resource jobs and understand the relationship between the organization and the human resource information systems. The interviewees responded quite similarly to answers relating to policy, employee attitude, infrastructure, and consultants. They emphasized

that HRIS that can make the work of human resource management more effective and efficient. Based on the interviews, HRIS needs to grow in order for business to prepare to undertake changes and be ready to compete in the business world. These top managers all see the benefit of HRIS, including improved accuracy, the provision of timely and quick access to information, the savings of cost. Their thoughts are consisted with the research of Beckers and Bsat (2002), who pointed out at least five reasons why companies should use HRIS. These were that HRIS can increase competitiveness by improving HR operations, it can produce a great number and variety of HR-related reports, shift the focus of HR from the processing of transactions to strategic HRM, make employees part of HRIS and reengineer the entire HR function of companies.

Secondly, the staff taking care of HRIS should come from the human resource department and have a thorough understanding of human resource responsibilities and the interaction among the department's various functions. They should be able to coordinate well with staff from the IT department in all areas of a project, such as data ownership, access, reporting responsibilities and timing in order to make the work run smoothly. The team should establish a schedule, budget, and technical standards as well as report on the progress and contribution of each participant.

Infrastructure, software and hardware, telephone lines are infrastructure for HRIS. Vendors may refer to packaged software as having one function or many functions. Additionally, the product may offer a basic data base with a few functions built in or be one of the popular database management programs for business application. Therefore, in order to purchase the most appropriate products, it is necessary to communicate with vendors and compare different products to find the one that best fits the requirements of the company.

Information technology departments play the role of IT consultants in order to help human resource departments run their HRIS. The role of a consultant is to provide knowledge and expertise and to point the organization

toward vendors whose software best meets its criteria. Consultants help determine the packages to be intergrated or interfaced. Consultants have expertise in using computers to achieve greater productivity and efficiency. Sometimes, a business lacks the expertise necessary to perform strategic HRIS planning – it needs a consultant. A consultant can negotiate with software vendors and handle the delicate give-and-take of the negotiation process.

The interviewees in this study mentioned that top managers strongly support HRIS. The support of top management is one of the most important factors in the successful implementation of HRIS. They even stated that top managers take primary responsibility for providing sufficient financial support and adequate resources for building a successful HRIS. They believe that a lack of financial support and adequate resources will lead to failure. Therefore, it requires top managers to understand how HRIS can bring the benefits to the company and that are willing to allocate valuable resources to the effort of implementation.

Implication for Research and Contribution to HRD

The findings of this study support the research statements. It is expected that human resource managers should understand information systems and implement them in human resource work. The literature indicates that human resource management will change as new technology is implemented and create a new approach to work. Lyler Spencer (1995) has stated that HRIS can increase data accuracy and increase speed because it can handle thousands of daily human resource transactions. There are many benefits, such as reduced customer costs, reduction in human resource vendor costs, and changes in human resource professional roles and competencies. Information technology can change human resource professionals from being just administrators to being consultants. Human resource persons can act as advisors or resource persons and assist line managers and employees in such activities as providing advice on which training course to send staff to or which package to buy from contractors. HRIS works well when the database of

human resource information is shared to help decision-making which, in turn, helps improve human resource management. Organizations and jobs may need to be redesigned and skills may need to be redefined.

References

Beckers, A.M. & Bsat, M. Z. 2002. "A DSS classification model for research in human resource information system" *Information System Management,* 19(3): 41-50.

Boddy, D.; Boonstra, A. & Kennedy, G. 2002. *Managing Information Systems: an organizational perspective.* United Kingdom: Prentice Hall.

Boyd, D. & Begley, T. 2000. "Incorporating worldwide input into human resource decision marketing in high technology companies." *Human Resource Planning* 23(2): 22-37.

Cabrera, E. & Bonache, J. 1999. "An expert HR system for aligning culture and strategy." *Human Resource Planning.* 22(1): 51-60.

Carr, E. 2003. "Human Resource Management System & Competitive Edge" *Academy of Management Executive,* 16(2): 7-17.

Elsdon, R.&Iyer, S .1999. "Creating value and enhancing retention through employee development: the Sun Microsystems experience." *Human Resource Planning.* 22(2), 39-48.

Ihlwan, M. & Reinhardt, A. (2004, March 8) "Intel Everywhere." *Business Week:* 44-50.

Greengard, S. 1997. "Harness the power of HRMS: the wild ride, but worth it." *Workforce.* 76(6): 28-33.

Hammer, M. 2002. "Recharging your HRMS" *Workforce.* 81(9): 38-41.

Kerstetter, J. & Burrows, P. 2004. "Microsoft's midlife crisis." *Business Week,* 9 April, 44-82.

Kripalani, M & Einhorn, B. 2004. "Tech's future." *Business Week,* 27 September. 2004. 50-57.

Laudon, J. & Laudon, K. 2000. *Management Information System.* 8th edition New Jersey: Prentice-Hall.

Leinfess, E. 1993. "Users find HR apps outpacing client/server architecture." *Software Magazine.* 13(17): 71-74.

Lewis, B. 1996 "Nontechnies can lead staff, but managing them take extra work." *Info World* .18(6): 62.

Port, O. & Tashiro, H. 2004. "Super computing." *Business Week,* 7 June, 50-54.

O'Reilly, C. & Pfeffer, J. 2000. "Cisco systems: acquiring and retaining talent in hypercompetitive markets." *Human Resource Planning.* 23(3): 38-52.

Safran, G. 2002 "HR technology solution for small and medium-sized business." *Canadian HR Report* . 15(16): 20-21.

Spencer, L. 1995. *Reengineering Human Resources.* New York: John Wiley & Sons, Inc.

Stanbaugh, R.F. 2002. *Information Technology.* New York: Wiley.

Ulrich, D. 2002. "From ebusiness to HR." *Human Resource Planning.* 23(2): 12-21

Walker, A. 2001. *Web-based Human Resources.* New York: McGraw Hill.

Willard, J. 2002. *Computer Power and Human Resources.* San Francisco: W.H. Freeman.