The Study of Learning Organisations in Malaysia: Knowledge Workers Perspective

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ABSTRACT

The use of the technology has advanced from the automation of structured processes to systems that are truly revolutionary in that they introduce change into fundamental business procedures, work flow and the management of an organisation. The study with users from different organisations with exposure to information systems was conducted to provide an in-depth insight into the trend of learning organisations in Malaysia. As a result, observation has been made that changes in organisation procedures, workflows and management require knowledge based workers. This leads to recommendations on how an organisation can develop its information systems to nurture knowledge workers.

Keywords

Learning Organisations, Knowledge Workers, Intelligent Information Systems

1.0 INTRODUCTION

An Information System (IS) is the application of computing and communication technology to the challenges that face business in the emerging and strengthening global economy. Ultimately an IS exists to help an organisation accomplish its objectives. An IS takes raw facts, known as data, and integrates, manipulates, compiles and disintegrates that data into something that has meaning for a manager or operator. An IS should provide guidance to the organisations employees to better assist them in the accomplishment of those objectives. IS impact all levels of the organisation: operational, tactical, and strategic. They also impact all functional areas: finance, operations, marketing, strategic planning, personnel, and even the information technology function itself.

2.0 ADAPTATION OF INFORMATION SYSTEM IN TODAY'S ORGANISATION

As international competition continues to increase, significant numbers of organisations are investing large amounts in information technology (IT) and information systems (IS) as they seek to gain competitive advantage (Rotemberg and Saloner, 1991). Information systems are increasingly being implemented for strategic reasons such as to enable improved responsiveness through electronic commerce, and improved efficiency and control of internal operations as expected productivity and efficiency benefits fail to be realised (Willcocks and Lester, 1996).

According to Tallon et al. (1997), the business value of IT is a complex and multi-dimensional construct. Just as practitioners are dissatisfied with techniques used to evaluate the business impact of information systems, researchers also find it difficult to isolate the contribution of information systems from other factors affecting performance (DeLone and McLean, 1992). As the correlation between the measurement and control of IS implementation and their success is considered to be strong, poor evaluation techniques are considered to be a major constraint on IS investments (Willcocks and Lester, 1996).

It is considered that continuation of traditional one-dimensional measures of IT business value can only prolong the productivity paradox and frustrate efforts at using IT to improve organisational performance (Tallon et al., 1997). This highlights the importance to the success of IS investments. The shift in emphasis towards more strategic IS objectives especially for learning organisations brings the need to make a similar shift in the focus of evaluation to wider work performance implications.

3.0 KNOWLEDGE MANAGEMENT FOR LEARNING ORGANISATIONS

In a big organisation, a greater amount of information processing is needed and therefore information systems play a major part in coordinating different functions in an organisation. Organisations tend to be more efficient, when it comes to growing competition, governmental regulation, etc. So the process of reengineering the whole system has started some years ago. This process delineates the structure of the organisation and at the same time it is adaptable to any kind of environment. Hammer and Champy (1993) suggested "an organisation should look at the best way to achieve an outcome and thereby focus on the larger objective by embracing technology, seeing things from a customer's perspective, removing obsolete

assumptions and imagining the possibility of one individual handling the entire process".

Knowledge is one of the most valuable assets of an organisation and an important factor for production and competition. In spite of this, the intellectual potential of organisation is not usually used or cultivated to the full. Specialists spend a large amount of their working hours looking for information, due to staff turnover a lot of valuable experience is lost, in decision making relevant information is not taken into consideration. The key factors of the organisations of the future are: to expand knowledge, to make individual knowledge permanently available to the organisation and to use existing knowledge optimally.

Human knowledge processing, which is marked by creativity and intuition, cannot be replaced by formal knowledge processing by the computer. The computer can however support the quality of human decisions and problem solving considerably, in that it makes important information available in its application context. The long-term objective of the knowledge management system is to create a computer system, which delivers the basis of technical information so as to retrieve existing information specifically. Additionally the employees will be supported and encouraged to write down current experiences. By techniques of information extraction and knowledge structuring these will be integrated into the knowledge management system and therefore available to the whole knowledge of the organisation. This is how knowledge management system supports organisational learning as it stores and distributes individual knowledge.

4.0 CASE STUDIES

In this study, we focus on two large local organisations to show how information systems cover almost every aspect of their business processes and structures, their values to organisations' employees and the future trends of IS in organisations.

4.1 The New Straits Times Press (M) Bhd

The New Straits Times Press (M) Berhad is a well-established company that has been around in Malaysia since 1900. The activity of the organisation is emphasized on publishing, distributing and selling papers.

In order to keep up with the globalization of Information Technology, the company has implemented the Information System technologies in almost every aspect of their business management. Strong global competition is driving companies to find ways to reduce costs, improve customer service and increase productivity. Besides, it can help them to enhance the current systems and technologies, and also to compete with the rapid development of IT.

The management in NSTP is divided into departments according to their operation. They are Finance, Legal, E-media, Advertising, Circulation and Information System department. Information System Department (ISD) handles all the systems that applied Information System. The existing ICT/IS technologies that the company uses are Executive Information System (EIS) and Knowledge Management Systems (KMS).

In KMS, the knowledge is organized and stored in an organisational knowledge base. When a problem is to be solved, the relevant knowledge is extracted from knowledge base using the technologies such as intelligent agents. It appears in variety of format and can be used to support decision-making in several ways such as uses past knowledge and expertise. This can be used to formulate a strategy in managing and organizing information to solve business problems.

The KMS technology is newly implemented in the current system of End User Support (EUC) under ISD department and Administration department in NSTP. EUC provides technical assistant on PC troubleshooting for NSTP staff. The objective of the system is to deliver information and knowledge to the IT technician on common PC problem. This is also to create a sharing virtual community with the users within NSTP organisation. The system was initially designed to support the IT staff of ISD department to quickly attend to user PC problems requests. Before this system was implemented, it took hours to attend to user request. User had to wait for the technician to respond. Now solution can be generated based on past similar problems and technician can access the system to quickly solve their problem either through the system or directly.

In the administration department, the KMS technology organizes knowledge repository for the entire NSTP store inventory. This will help the administration department to keep track storage transaction, evaluate financial asset and make decision regarding storage use. Some of the assets are PC hardware and office stationeries. The system that they use is only a basic approach of the KMS and does not implement any intelligent technology. It is used by Store Supervisor in administration department and other technician staff. The finance department can also retrieve information from the system for financial analysis.

The impact of KMS is to capture and reuses knowledge at the organisational level to increase efficiency, improve quality, productivity, and profitability. The organized storage of assets can make it easier to manage. This will improve the standard of management in NSTP.

4.2 Malaysia Airport Holding Bhd (MAHB)

The Malaysia Airports Holdings Berhad Group has been the primary operator and manager of Malaysia's 38 airports, including one of the world's most technologically – advanced airports, which is the Kuala Lumpur International Airport (KLIA). The Group has proven itself with various achievements, among which is the operation and management of KLIA. It has pioneered the use of state-of-the-art technology in airport management, known as the Total Airport Management System (TAMS).

The implementation of Systems Application Products (SAP) within Malaysia Airports is only of the few major milestones of a challenging journey towards achieving Malaysia Airports' mission. SAP is a business systems platform that caters for organisations that has a requirement for integrated Enterprise Resource Planning (ERP) structure. In other words, it provides a framework for all at the planning and management of resources and components of the business to be fully integrated i.e. from sales & distribution, to materials management, to production planning, quality management, plant maintenance, human resources, financial accounting, project accounting and fixed asset & real estate management.

The main objective and expectation from this SAP implementation is precisely to achieve optimal efficiencies through maximum automation and business process improvements to ensure that seamless data flow is attained throughout the complexities of the many different entities making up Malaysia Airports. The expected result is a high return on the company's investment in this technological platform in the form of:

- High productivity with speed and accuracy;
- Higher collaboration across functions and boundaries;
- Better and faster communication and decision making;
- Better way of working and work culture in a high performing organisation;
- Higher competencies in people, creating more and new values for own self in a learning organisation.

The impact of SAP implementation will be in demonstrating the new behaviours vision in a World Class Airport Service provider organisation. In order to achieve the mission, Malaysia Airport must quickly transform itself into a high performing organisation which is continuously learning and improving to be better and at world class standards.

MAHB has morphed into a learner and more streamlined company, and one whose senior management can access up-to-date group financial data, at the click of a mouse to make informed decisions on the spot. Group accounting has been consolidated since September 2002, when its SAP Enterprise Resource Planning (SAP ERP) solution went "live". Automatically generated reports permit top management to closely monitor the financial health of the company, on a daily basis, if necessary. While MAHB has yet to quantify the benefits of the SAP ERP implementation, a value analysis will be undertaken only after one year of use. However, it has begun to see positive returns in the improved business processes and streamlining of accounts of all four companies.

A major benefit of the SAP ERP implementation is that MAHB now has a well-structured workforce with well-defined areas of responsibility. The adoption of best practices has also raised the employees self worth, making them more marketable, not that company would like to see them go. The reduced workload-process being cut from, say five to two steps and no more manual billings – has given the staff time to ensure accuracy when keying in data, and also engage in more productive work like data analysis and other studies. But current emphasis is to ensure that their back office is working fine.

Among other things, the system was responsible only for the engineering maintenance. The reported luggage pile-ups, since resolved with the addition of more manpower, were an operational problem. Inventory levels are also better managed. With the SAP ERP system, the company not only has a very well managed inventory but also know what items need to be replenished. The system will automatically generate a report should any item fall below the required stock level. Credited the smooth implementation, which took nine months, to a parallel change management programme.

The point made was the changes would help the staff become more marketable. Learning to do things the new way would bring personal benefits in terms of their career path. The system is the most up to date in the world. That was the trade-off. And, in the training sessions, the staff were not only taught how to use the system and told how it would benefit them, but also got to decide on their responsibilities.

5.0 KNOWLEDGE WORKERS IN ORGANISATION

The above study has highlighted a number of characteristics that are relevant to effective functioning of knowledge workers in the learning organisation. A knowledge worker is anyone who works for a living at the tasks of developing or using knowledge (SearchCRM.com, 2003). For example, a knowledge worker might be someone who works at any of the tasks of planning, acquiring, searching, analyzing, organizing, storing, programming, distributing, marketing, or otherwise contributing to the transformation and commerce of information and those

(often the same people) who work at using the knowledge so produced.

At a fundamental level, the objective is to achieve the synergy of data and information processing capacity of information technologies, and the creative and innovative capacity of their employees. Hence, the knowledge workers need to be facile in the applications of new technologies to their business contexts. Such understanding is necessary so that they can delegate "programmable" tasks to technologies to concentrate their time and efforts on value-adding activities that demand creativity and innovation. More importantly, they should have the capability of judging if the organisation's practices are aligned with the dynamics of the business environment.

The knowledge workers would also need to have an overall understanding of the business of their organisation and how their work contexts fit within it. Such understanding is necessary for their active involvement in the organisational learning processes. Only if they understand the implications of changes in their work contexts for the business enterprise, they can be instrumental in synchronizing the organisational "best practices" with the external reality of the business environment.

6.0 RECOMMENDATIONS ON HOW AN ORGANISATION NURTURE THEIR KNOWLEDGE WORKERS

Technology is the key to knowledge worker's enabler. It provides the foundation for making full use of data coupled with employees' skills and ideas. There is a need to automate and centralize the sharing of knowledge to deliver only the relevant information to employees from every possible source. They ensure the right information goes to the right person at the right place and at the right time. The challenge for many organisations is to capture an employee's knowledge and share it with others, thereby empowering the entire organisation to make best use of its information. Furthermore, single organisation employee rarely performs an entire work process, therefore staff must be able to collaborate and work as team on different project documents and databases which are usually resides in disparate back-end systems.

Organisation can empowers their employees by developing new service processes and exploiting open Web-based technologies that enable easy integration among applications, devices and data storage. Automated workflow, document management, data warehouses, intranets and extranets can all work together to ease the flow of communication. They allow organisations to optimize processes on a team-oriented basis. They also enable employees to move naturally back and forth from working within a document to working within a group of people. No matter what they are doing, common applications are always at hand. Colleagues can respond easily to day-to-day questions and unplanned events in real-time. Employees throughout a department can contribute to a goal without major interruptions in the flow of their work.

Some of the key technologies that can help organisation to facilitate their knowledge workers must have these characteristics:

- It empower employees to quickly and easily manage, access, create, share and act on information any time, any place and on any device. Employees should have single access to analytical and collaborative tools; database and data analysis on desktop and mobile devices; and a unified tool for calendar and email, accessible from all devices;
- It can increase organisational knowledge through collaboration, by integrating content management, tracking and analysis systems. This involves easy to use and easy to manage development tools, integration with back-end and legacy systems, and high levels of security and authentication to protect organisational data;
- The technology itself facilitates culture change. People are more likely to look things up if information is easy to access. They are more likely to involve and use the experience of others if others are easy to contact. They are more likely to follow correct procedures if procedures are easy to follow.

There has been an attemp to create an infrastructure for collaboration, productivity, and knowledge management by the software giant, Microsoft. The Microsoft Solution for Intranets provides web-based team collaboration, rapid access to organisation information, and end-to-end solution for broadcast communication (Microsoft Insight, 2003). It includes collaboration workspaces, general-purpose portals, intuitive document management, enterprise-class search, ad hoc team sites, and real-time or on-demand access to digital media content. Other solution from Sun Microsystems is TeamWARE Flow, a new generation workflow product that allows knowledge workers to manage collaborative work processes within learning organisations.

In every organisation, computing era is changing from standalone applications and Web sites to integrated Web experiences and constellations of services. To meet this challenge, Extensible Markup Language (XML) technology plays an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere (XML, 2003). XML is a simple, very flexible text format derived from SGML (ISO 8879).

XML Web services can exchange information regardless of platform, language, location or device. It will allow employees and customers to interact with each other through handwriting, speech, and vision technologies. Living securely on the Internet, data will be accessible from PCs, kiosks, cell phones, pagers, PDAs and other devices that have yet to appear on the market.

Organisation can also encourage productivity of knowledge workers by implementing various intelligent information systems. There have been many knowledge-based systems specifically developed to support problems requiring experts' knowledge for their solutions. Some of these knowledge based systems are:

- Expert System (ES). An expert system is a system that uses human knowledge captured in a computer to solve problems that ordinarily require human expertise. Many commercial ES are rule-based systems because the technology of rule-based systems is well developed and the development tools can be used by end users. In such systems, knowledge is represented as a series of rules. For details on succesful applications refer book (Turban and Aronson, 2001).

- Case-Based Reasoning System (CBR). Case-based reasoning system is build by accessing problem-solving experiences (called cases) for inferring solutions in solving future problems. Thus, a collection of the historical and their resolutions constitutes a knowledge base. The decision maker recalls previous cases, which may be identical to the new ones but usually are not. They may exhibit only slight hints of similarity with a new case, but even such a hint may be useful. For details on succesful applications refer book (Turban and Aronson, 2001).

- Intelligent Tutoring System (ITS). Intelligent tutoring system is a system that provides individualized tutoring or instruction that shape their teaching techniques to fit the learning patterns of individual learners. A learner learns from an ITS by solving problems. The system selects a problem and compares its solution with that of the learner and then it performs a diagnosis based on the differences. After giving feedback, the system reassesses and updates the learner skills model and the entire cycle is repeated. As the system is assessing what the learner knows, it is also considering what the learner needs to know, which part of the curriculum is to be taught next, and how to present the material. It then selects the problems accordingly.

- Intelligent Agent System (IA). An intelligent agent system is a computer program that helps a user with routine computer tasks. IA can carry out some set of operations on behalf of a user or another program, with some degree of independence or autonomy. In doing this, IA employ some knowledge or representation of the user's goal or needs. IA can improve in data searching from Internet, decision support, repetitive office activities, information filtering and electronic commerce.

Some other intelligent IS technologies are neural networks, intelligent decision support systems, model-based reasoning and fuzzy logic systems (Negnevitsky, 2002).

7.0 CONCLUSION

The preliminary findings presented provide a valuable insight into the impact that information systems have on organisational performance and the opportunity for in-depth investigation of the current learning organisations practice in Malaysia. It has been shown that changes in organisation procedures, workflows, and management require knowledge-based workers. We also make some recommendations on how learning organisation can fit their information systems to nurture more knowledge workers. From the study on the local organisations, a conclusion could be made that IS, especially for knowledge management system adds value to an organisation, its activities and performance which helps it to stay competitive in today's globalised world as can be seen in the studied organisations.

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