Knowledge Management and Resources Planning *Using Enterprise Portal in Higher Academic Institutions*

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Abstract Planning and managing resources in efficient and effective ways will contribute to the higher productivity of the organisation leading to a gain in competitiveness. With the emergence of the Internet technology, the manager can use it to plan and manage resources in their organisation. One technology that uses Internet, Intranet and Extranet capability is Portal technology. Portal technology was developed to enable users to easily access the database, work collaboratively and have the information at their fingertips to organise, personalise and publish what is needed. Furthermore, by applying Portal technology, it can improve the business processes where the information does not need to flow from one level to another. This paper introduces the concept of enterprise portal technology, with an example on how it works. This is compared with the traditional way of managing resources. Finally the integration of enterprise portal technology in knowledge management and resource planning is shown in detail together with a list of portal benefits.

1. INTRODUCTION

The enterprise portal is the concept of centralisation and categorisation of information in an organisation, which can be accessed through a web browser. The utilisation of ICT – internet, intranet and extranet in businesses – are an important factor in improving organisations' competitiveness in the networked economy. The objectives for implementing an enterprise portal in an organisation are to improve worker productivity, lower operational cost, save the time needed in acquiring data, report preparation and knowledge

management (CTRC 2000). It is predicted that by 2001, nearly 50 percent of all businesses will be using enterprise portal (CTRC 2000). Enterprise portal will play an important role in an organisation by increasing the quality of decisions made, aiding an organisation's strategic planning process, managing worker's knowledge and enterprise level resources planning.

In achieving a world-class organisation standard, the ability to plan, acquire and manage the organisation's resources and knowledge are the critical success factors. Resource planning means the ability to manage all the resources in the organisation that will be used in producing products and services, including how the organisation can manage the resources for input, process and output life cycle. Capital, raw materials, human, machinery and equipment, procedures, are the resources for an organisation.

Knowledge management within an organisation is also crucial. According to Malhorta (1998, in McCampbell, Clare and Gitters 2000), 'Knowledge management caters to the critical issues of organisational adaptation, survival and competence in face of increasingly discontinuous environmental change. ...Essentially, it embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings'. There are two kind of knowledge an organisation needs to manage. One is explicit knowledge, information and data in the form of computer printouts and files, and written down. The other is tacit knowledge, 'know-tos' of knowledge that resides in workers of the organisation. "Knowledge management is an application of enterprise information portals and intranets that uses ICT tools to organise, manage and share diverse forms of business information created by individuals and teams in an organisation. These form of stored information help creates a knowledge base or organisational memory of strategic business information to be shared within the organisation" (O'Brian 2001).

Organisations can not only save the cost of production by utilising these knowledge and resources in an effective and efficient way, but also increase the quality of products or services. This will lead to an improvement in the organisations competitiveness.

2. ENTERPRISE PORTAL

'An enterprise portal is a web page from which work begins. It combines access to all significant information on the corporate network into a gateway. Enterprise portal facilitate shifting through the complex, previously overwhelming maze of networks and documents by bringing all relevant information together in a single place' (CTRC 2000).

Enterprise portal is the place where employees of one organisation can organise, personalise and publish information through web browser. This helps them reduce the amount of time spent on searching for data. It also enables the employees to work in a collaborative manner, sharing enterprise information needed in their project. Enterprise portal encompasses the concept of knowledge management, implementing and utilising the Business Intelligence concept and intranet applications. From the users' perspective, the added value of Portal technology comes from the information that it contains. Enterprise portal provides users with easy-access to internal and external information relevant to their role and job function.

Figure 1. The concept of Portal technology

Portal technology also offers several other attractive capabilities such as tailored to individual executives needs, extract, filters, compress and track critical data, provide online status access, trend analysis, exception reporting and drill-down, user-friendly and requires little or no training to use and has the capability to present graphical, tabular and/or textual information. This concept can be viewed in Figure 1 as proposed by Intraspact (CTRC 2000)

3. MANAGING RESOURCES IN HIGHER ACADEMIC INSTITUTIONS

Planning and managing resources in higher academic institutions is a critical task for management. Knowledge resources such as academic,

administrative and support staffs, and students, together with other physical and logical resources like lecture halls/theatres, tutorial/class rooms, class schedule, accommodations, and libraries are the elements to be managed effectively in order to produce high quality students and graduates.

In larger academic institutions such as universities, the top management or board of directors needs information about all the resources available to plan and develop strategies. In traditional practices, the information will only be sent to the top management from departments if there is any demand or request for information from them. Every time particular information is needed, the top management has to call people in a department to get it. This prolongs the time to acquire the information, as the department needs to search, compile and arrange the information before delivering it. The information has to be updated and validated regularly. Most information is available in the operational database; it will change from time to time. Thus the process of getting information to top management is time consuming.

Figure 2. Gathering knowledge the traditional way:
 (A) - data operator from respective departments
 - key-in operational data
 - search, compile & arrange information for top management
 (B) - requested information send to the top management
 (C) - request information from department

Another problem in this process is managing the knowledge. Information will be used by management to make decisions, chart out a course of action, and implement solutions to problems. Any outcome is actually considered as knowledge by the workers' for the institution. Most of this knowledge is kept as hardcopy reports or computer files in personal computers or notebooks. What happens when a particular member of the management

team leaves the institution? Reports and computer files will leave the organisation too. It is also difficult to identify where this knowledge is kept in the organisation even if the person leaves it behind. Figure 2 shows the process of getting information in a traditional way.

The traditional way of performing the above tasks can be done in a better and efficient way by applying the portal technology.

4. APPLYING PORTAL TECHNOLOGY

Figure 3. Enterprise portal technology applied in an academic institution

By applying Portal technology, the information needed by top management is at their fingertips through an attractive and easy-to-use interface. In higher academic institutions such as universities, planning and managing resources and knowledge are very complex processes. Adding to this complexity is that the usage of technology is not at an optimum level. By adopting of Portal technology managers can access information easily, in a short time period and presented in the attractive way. The outcome of the their decisions can be well documented, organised and stored for future usage.

Based on Figure 3, we can see how the information from departments regarding students profile, staff profile, inventories, library, financial and information about its customers, supplier, stakeholder and even competitor that are stored operationally, is pumped into data warehouse before it sent to the top level managers. Data warehouse is a database design for analytical task using data from multiple applications in the institution. It contains current and historical data to provide a historical perspective of information

and is periodically updated. From the data warehouse, the Portal server will access all the data to organise, personalise and publish it according to users' needs. All information will be in the web page format and can be accessed through Internet or intranet. The user can access all the data by clicking the icon or the hypertext to link it to the required application.

In a university environment, top management can easily access the summarised information that can be used for decision-making process. For example, Vice-Chancellors may want to know about how many classes should be opened to accommodate students with a given number of lecturers and lecture halls. By using the Portal, they can get this information spontaneously without having to get it from the respective departments. This information can be viewed through textual or graphical or even in video format. They also can make a projection about how many classrooms should be made in the next five years based on the projection of students' numbers. The projection or decisions made can be kept in the any unstructured database attached to the portal server as a tool to manage knowledge.

By utilising Portal technology in resource planning, the business process of the organisation can be improved. The information that is needed by top management, need not to flow from one level to another in the traditional way. Users can directly access the information they need with some authorisation. Furthermore, Portal technology helps to reduce the number of intermediate steps in these business processes that will allow the task to access the information can be accomplished more independently and easily.

5. CONCLUSION

In the era of knowledge power, organisations that have knowledge and know how to use them effectively and efficiently will gain the competitive advantage and will lead the market. In order to have information or knowledge just right at the fingertip, Portal technology is one of the solutions. In this paper, we proposed a conceptual framework that is based on the generic Enterprise Portal framework that produced by CTTC. As discussed earlier there are many benefit of this technology to user.

Table 1. Summary of Enterprise Portal Benefits

Portal Benefits	Description
Aggregation of information sources	Combines <ul style="list-style-type: none"> ➤ Personalised interfaces ➤ All pertinent corporate information ➤ Access to news and web information ➤ E-commerce potential
Business intelligence	<ul style="list-style-type: none"> ➤ Provides ideal interface for application ➤ Real-time information and data from sources

	<ul style="list-style-type: none"> ➤ Basic component of all enterprise portals
Real-time visibility	<ul style="list-style-type: none"> ➤ Leverages corporate information assets ➤ Gives effortless visibility of corporate sources
Simplified complexity	<ul style="list-style-type: none"> ➤ Evaluates and presents new product data ➤ Minimise search for pertinent information ➤ Organise existing information sources
Competitive advantage	<ul style="list-style-type: none"> ➤ Combines and integrates pertinent information ➤ Enhance corporate work performance ➤ Improves access to existing information
Return on investment	<ul style="list-style-type: none"> ➤ Offers advantages of off-the-shelf solutions ➤ Increases choice of portal software products ➤ Provides specialised portal products opportunities
Cost reductions	<ul style="list-style-type: none"> Takes advantage of ➤ Operating resources saving potential ➤ Supply chain economies of scale
Potential to generate revenue	<ul style="list-style-type: none"> ➤ Offers virtual corporation operations potential ➤ Creates new revenue sources ➤ Tests new products ➤ Establishes ready management system for new operations
Sharing corporate resources	<ul style="list-style-type: none"> Provides ➤ Universal access to corporate information ➤ Facility for control and organisation ➤ Agglomerated information for creating knowledge
Increased productivity	<ul style="list-style-type: none"> ➤ Supplies individual tools for each employee ➤ Reduce unproductive search time ➤ Accelerates product/service cycle times
Enhance decision-making process	<ul style="list-style-type: none"> ➤ Encourages more decisive employee behavior ➤ Enables faster and consistent communications ➤ Assists in selling and customer service decisions
Enhance effectiveness	<ul style="list-style-type: none"> ➤ Provides access to new information sources ➤ Focuses in information on specific tasks ➤ Develops more knowledgeable and effective employee
Lower cost of information	<ul style="list-style-type: none"> ➤ Automates character searching ➤ Provides significant advantage over private solution ➤ Lowers cost of information delivery
Organised and searchable corporate information	<ul style="list-style-type: none"> ➤ Affords common view of corporate information ➤ Impacts upon new employee integration ➤ Encourages consistent view of enterprise worldwide ➤ Assists in collaboration processes
Employee collaboration	<ul style="list-style-type: none"> ➤ Promotes collaborative employee environment ➤ Presents common objectives clearly ➤ Alleviates corporate fragmentation issues
Advertising advantage	<ul style="list-style-type: none"> ➤ Eliminates unwanted online advertising ➤ Reduces employee distractions ➤ Allows corporate control of online advertising ➤ Creates potential for advertising revenues

The benefits are users can have more timely and accurate information; greater access to timely data, more concise and relevant information, new or additional information, better knowledge management within the organisation, faster access to information and reduced paper costs. Portal technology also can improve users job performance abilities and productivity. Furthermore it can give greater support for users specifically

top-level manager to plan and manage their resources and knowledge in decision-making process.

Finally, though this technology can contribute the effective way in managing resources through the information available, it is also important that some issues related to humans should be considered, such privacy, culture, and managing change. Based on our proposed conceptual framework, it is believed that the planning and managing of resources and knowledge in an higher academic institutions can be done more effective and efficient. This will contribute to higher productivity in the organisation.

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