Although some analysts believe that information technology is a key driver for knowledge management, others disagree with this view and believe that knowledge management is about people not technology, and to start from a “computer” perspective would ensure the failure of knowledge management. For instance, a recent Victorian government report made the point that technology is the "pipeline and storage system for knowledge exchange" but of itself is not knowledge management (Victorian Law Reform Committee, 1999, p. 47). In addition, Eginton (1998) and Sbarcea (1998) reported that some firms have invested heavily in technology to underpin their knowledge management strategy, but have still planned the technology infrastructure to support and deliver the required knowledge capability, rather than being driven by the imperatives of information technology.

Quinn (1992) believes that the economic and producing power of a modern corporation lies in its intellectual and service capabilities instead of its hard assets. Quinn also points out that the value of most products and services now depends on “knowledge-based intangibles” such as technical know-how, product design, marketing presentation, understanding customers, personal creativity and innovation. This view is an extension to that of Toffler (1990) who considers knowledge to be the source of power and no longer just an adjunct of money and muscle but instead the key element of power.

Recently Sanchez et al. (1996) defined knowledge as the ability to sustain the co-ordinated deployment of assets and capabilities in a way that promises to help the firm achieve its goals. These assets, or “Knowledge Treasures”, need a knowledge map which describes how to find, what to find and where to find useful knowledge within the organisation. Stewart (1997) believes that knowledge, or “intellectual capital”, is found in three forms, namely:

1. human capital;
2. structural capital; and
3. customer capital.

The treasure map needs to cover all three areas for both tacit and explicit knowledge.

Joining tacit with explicit knowledge could be a very complex task and in some circumstances may not be possible. In other
words, at present reconciling what is in employees’ minds with what is stored in databases requires extensive research and, in spite of major advances in knowledge-based technologies, this task is still in its infancy.

It is widely accepted that human resources management requires a mix of skills in working with tacit and explicit knowledge. Knowledge in areas such as conflict resolution, employee appraisals, customer satisfaction, business intelligence and competitor information is a mixture of tacit and explicit and hence requires skills in handling both.

However, since knowledge management is most useful as an integrated system, which brings together several disciplines and shows their connections, this paper looks at knowledge management from two perspectives:
(1) the role of human resources management in an organisation; and
(2) the goals of organisations.

By focusing on the place of knowledge management in these two issues, it is hoped to provide new insights.

Employees’ collective knowledge as competitive advantage

Vincenti (1990), Faulkner (1994) and more recently Coombs and Hull (1998) classified knowledge management activities and associated practices under the three headings:
(1) knowledge processing;
(2) knowledge domains; and
(3) knowledge formality.

Furthermore, Soliman et al. (1999) described the processes of managing the human resources knowledge in organisations as:
...the means by which value is added to raw knowledge (inputs) in order to create processed knowledge (outputs) i.e. adding value for their clients.

The specifics of this will of course vary substantially across industries; however, in general, most organisations would utilise five processes for knowledge management in order:
(1) create;
(2) capture;
(3) organise;
(4) access; and
(5) use knowledge.

These five processes cover almost the entire scope of human resources functions and they are usually used to obtain the details of human resources “employees” knowledge.

Strategy for managing the human resources knowledge

According to Mintzberg (1989):
The strategic data bank of the organisation is not in the memory of its computers but in the minds of its managers.

Furthermore, it is likely that the enterprise believes that there is knowledge trapped within the organisation that could drive it to new heights. The only problem is where to start? Soliman et al. (1999) suggested the following strategy for managing the human resources knowledge:
(1) reviewing the drivers and strategies for human resources knowledge management efforts;
(2) gaining the commitment and understanding from human resources executives;
(3) identifying priorities within the human resources department;
(4) implementing knowledge management support systems within the human resources department; and
(5) managing the expectation of employees.

An increasing number of enterprises are now viewing the collective knowledge of their employees as a key competitive tool from which innovation can emerge, and are encouraging, supporting and rewarding collaboration between people. Moreover, while decentralised enterprises may know where the bulk of their information resides, the problem becomes the dissemination of that knowledge to the people who need it.

Human resources knowledge management can confer competitive advantage which may result in higher revenue and increased market share, especially in markets where time to market and high quality make a difference.

Implementing knowledge management programs within an organisation can be very costly, especially during the start-up phase. Therefore, looking at the business case for knowledge management is essential to ensure that the organisation has in place a set of strategies suitable for the implementation of the knowledge management effort.
Guidelines for such a strategy set are discussed in the following sections.

1. Alignment of knowledge management with business directions
A key element in the business case is deciding how to apportion efforts aimed at harnessing tacit knowledge versus explicit knowledge. Hansen et al. (1999) argue that attempts to focus equally on managing both tacit and explicit knowledge may quickly undermine the business. They point to the models adopted in major consulting firms (considered to be benchmarks in managing their knowledge) that are either primarily focused on explicit knowledge or on tacit knowledge. They recommend using the 80:20 rule, i.e. spending 80 percent of resources on one approach and 20 percent on the other. The way to decide on the best approach for each organisation is to know:
(1) the market;
(2) the profitable areas; and
(3) whether the organisation provides one-off solutions or the same solution repeatedly.

If the enterprise primarily provides clients with a repeat of earlier solutions, then it should emphasise the capture and automation of explicit knowledge. This means investing heavily in information technology (IT) and less heavily in the “best” experts. On the other hand, if the enterprise specialises in finding solutions for one-off projects, then knowledge management strategy should focus on tacit knowledge, i.e. hiring the best minds available.

Clearly strategies for implementing knowledge management efforts must be carefully developed and discussed before a significant investment is made. It is essential to be clear about what the benefits would be for the organisation and what impact is expected on its strategies. The role of human resources management in identifying where the tacit knowledge resides and how best it may be utilised is important for the success of this strategy.

2. Identification of the benefits of knowledge management efforts
According to Clark and Soliman (1999), many of the benefits of knowledge management are intangible and difficult to quantify. Eginton (1998), Rees et al. (1999) and Sbarcea (1998) concluded that the benefits from knowledge management programs are clearly compelling and that it is important to conduct full-scale business analysis before choosing a knowledge management program to suit an organisation. In this regard also, the human resources department plays a key role in assessing employees’ knowledge and in determining if major benefits to the organisation are obtainable from conducting this analysis.

3. Choosing the appropriate knowledge management program
According to Hansen et al. (1999), when an enterprise considers developing a knowledge management strategy it must know its market and must also find an answer to three important questions:
(1) what does the market want?
(2) what are the driving forces? and
(3) how may the enterprise can best provide answers?

The enterprise must also determine how the human resources department can convert the knowledge and make it available. Nonaka and Takeuchi (1995) argue that there are four modes of knowledge conversion. These are externalisation, internalisation, socialisation and combination. When adopting a knowledge management program, the enterprise needs to plan for each conversion mode.

A good knowledge strategy needs to delineate clearly the resources to be dedicated to tacit and explicit knowledge management and should include strategies to improve knowledge sharing. According to Hansen et al. (1999), there are three approaches for encouraging knowledge sharing:
(1) scare them;
(2) massage their egos (recognise their contribution; make it competitive); and
(3) pay them.

Since selecting an appropriate program may involve negotiation with employees plus review of their remuneration and performance, the human resources department plays a key role in this strategy.

4. Implement a know-how strategy
A recent study (Price Waterhouse Coopers, 1999) suggests that in order to harness and amplify the know-how experience and expertise of employees, companies should implement the following strategy:
(1) focus only on what the business needs to know, i.e. become knowledge focused;
(2) make important knowledge visible, i.e. become knowledge visible (e.g. create and make explicit pathways to the experts and important wisdom within the company);
(3) pay attention to the vocabulary of knowledge, i.e. become knowledge defined (e.g. customers’ needs versus customer feedback);
(4) go beyond the company to tap knowledge from customers, suppliers and competitors, i.e. become a knowledge seeker;
(5) make it clear to employees that knowledge sharing is a core value for the company, i.e. become a knowledge culture;
(6) measure the results of the implementation of the knowledge management program, i.e. become a knowledge assessor;
(7) reward the sharing of expertise and intelligence, i.e. become knowledge exemplified.

The above strategy could also assist as a checklist to ensure that the knowledge management program covers all key elements of the organisation. The role of human resources management in harnessing employees’ knowledge is therefore central to the success of this strategy.

5. Creating supportive environments for knowledge management programs

Many firms have cultures which do not support knowledge management practices. For example, if employees are accountable for their time and the reward system and promotions are decided on the basis of value-added performance (i.e. performance in adding value to products/services to the customer), it would be rare to find an employee who spends time on knowledge sharing projects if they are not recognised value-added activities. Similarly, if there were neither assessment nor credit given for knowledge management activities within the firm, knowledge management would always be at the bottom of in-trays, possibly never to be seen again. There are at least seven important roles for human resources departments in supporting knowledge management activities. These roles include:

(1) Social gatherings of staff. In some organisations talking to colleagues may be considered a no-value-added activity. The human resources department could facilitate staff meetings to support knowledge management activities.
(2) The office layout. The layout of spaces for staff to meet informally is important to encourage exchange of ideas and share knowledge. The human resources department could liaise with management to create office space for staff knowledge management meetings.
(3) Trust between employees of the firm. In general, increased trust between employees improves the chance of knowledge sharing. The human resources department could play a role in building trust among staff so that they can share knowledge.
(4) Differences in culture and language. Clearly the more languages staff speak the better their ability to acquire knowledge of customers and markets, especially in global markets. The human resources department through its role in recruitment and staff development could assist in selecting staff with appropriate cultural and linguistic backgrounds to support knowledge management activities.
(5) Timeliness. The timing of the knowledge management effort is important for its success. The timing of facilitating support for knowledge management activities by the human resources department could assist the success of the program.
(6) Learning and mistakes handling. If staff are encouraged to discuss their mistakes openly, a culture of “openness and seeking help” could lead to the creation of a learning organisation. The human resources department could assist in creating a learning environment far from fear of punishment and penalties. This could in turn facilitate the knowledge management activities.
(7) Senior management involvement and support. The inclusion of senior management in the knowledge management effort provides additional motivation for staff to share knowledge and increases the chance of success of the knowledge management program. The human resources department assistance in motivating staff could lead to
increasing support for knowledge management activities.

Interaction between a knowledge management effort and the existing organisational culture will undoubtedly result in changes to that culture, which may indeed need to change for the program to succeed.

6. Use of enabling technologies for the knowledge management program

Many analysts believe that the emergence of technologies such as the Internet, mobile telephones and knowledge-based systems will facilitate the sharing of knowledge and assist in the implementation of knowledge management programs. However, there is also a view that these technologies may actually be "anti" knowledge management. Without active oversight, technology may just add to the information glut in the organisation. Other technologies already employed by the enterprise could go at least part of the way towards employing the knowledge management approach. These technologies include office information systems, collaboration tools, retrieval and navigation tools and knowledge-based systems. However, despite the applicability of the technology, enterprises have been warned that technologies possess limitations which could result in many conflicts before a solution is achieved. The sign of a real knowledge management system is a process and infrastructure aimed at supporting the creation, harvesting, assimilation and leverage of knowledge.

This infrastructure is necessarily people-intensive. Enterprises that have successful approaches to knowledge management do so by trying to manage knowledge of human resources in the organisation rather than by identifying high-payback processes for which better knowledge management can yield significant business value.

The commercial emergence of knowledge-based information technology represents a tremendous opportunity to enhance the practice of human resource management. Unfortunately, much of the potential of knowledge-based systems to leverage expertise and promote organisational learning remains unrealised because of poor management and piecemeal adoption of the technology. With the impending shortage of skilled professionals in many economies, it is imperative to consider this technology in the human resource management process so that the workforce may be effectively used.

Clark and Soliman (1997) have shown that managing the introduction of knowledge-based systems is a difficult task, which requires team effort and support throughout the enterprise. For instance, in the knowledge management chain a number of decisions need to be made. These decisions are required at each stage in the knowledge management chain where it is necessary to create, capture, access and use knowledge, as shown in Figure 1 (Soliman et al., 1999). Each time a decision is made, input from various teams and groups across the enterprise is required and the complexity of the input warrants the use of knowledge-based systems.

Skelin (1999) investigated a number of factors relevant to the successful implementation of knowledge-based systems. One of these critical factors is the effectiveness of the knowledge-based system, which in turn requires teamwork and support from the human resources department.

7. Creating the knowledge management team

Until recently, work was designed to avoid the sharing of knowledge and teamwork that are so critical in today’s business.

By invoking the concept of knowledge sharing, a manager may be trying to bring about a unity of purpose that is currently lacking. It should be born in mind that “Declaring people a knowledge-sharing team does not automatically make them one”.

Knowledge management teams are required not only to improve the performance and standing of the enterprise but also to ensure the effectiveness of the knowledge management program. The more structured the implementation of the program, the more likely it is to succeed. This of course means that strategies for the implementation of knowledge management programs must receive appropriate attention especially from the human resources department (Skelin, 1999). This implies that, for effective implementation of knowledge management programs, the human resources department needs to assist in:

• forming the knowledge management team;
Figure 1 Illustration of the use of knowledge-based systems for decision making in the various stages of the knowledge management chain (after Soliman et al., 1999)

- storming the knowledge management program;
- norming the knowledge management rules;
- performing the knowledge management activities; and
- reforming the knowledge management program.

8. Creating knowledge management leadership

When planning implementation of a knowledge management program, the organisation needs to consider whether to create a leadership role to develop and drive the process, for instance, a chief knowledge officer. Many firms have devolved responsibility to an existing or new position. Some firms use a cross-functional team to develop knowledge management while in others the CEO has taken the leading role. According to Lloyd (1999), the characteristics and challenges of the chief knowledge officer/ chief learning officer should include:

- interpersonal/communication skills;
- passionate visionary leadership;
- business acumen;
- strategic thinking skills;
- championship of change with the ability to withstand ambiguity and uncertainty; and
- collaborative skills (this is a rare skill and is the ability to pull together people from different parts of the organisation to work as one team).

Although there are sound reasons for appointing knowledge manager, few firms in Australia have done so (Eginton, 1998; Sbarcea, 1998); thus it is too early to assess how effective the position of chief knowledge officer is.

While it is useful to have a focal point (e.g. a knowledge manager) to “lead the charge”, it is not essential, and the need for this position may be transitory once the knowledge management discipline is embedded in the firm’s culture and processes. Regardless of how the responsibility for knowledge management is shared, the human resources department provides critical input to creating the role of chief knowledge officer and also for selecting the person to implement the strategy.

Drivers of knowledge management efforts

It is clear from the above that human resources departments play a significant role in driving knowledge management solutions. However, they face the difficult task of ensuring that employees are not misdirected people going through the “ritual dances” of knowledge management solutions when the
problems of the organisation are really quite different. It has been shown that many problems could be avoided through appropriate pre-employment screening of applicants, which includes checking reports, financial history, bankruptcy records, criminal records, educational history, credentials verification and employment history verification. In addition to these roles, human resources departments could drive the knowledge management process through assistance in avoiding:

- poor recruitment and selection;
- confused or uneven organisational structure;
- inappropriate management philosophy;
- lack of control;
- poor training;
- low motivation and individual stress;
- unfair rewards and personal stagnation; and
- lack of succession planning and development.

According to Soliman et al. (1999), additional roles for the human resources departments in driving the knowledge management interventions could be linked to assisting staff who are consistently experiencing difficulties such as:

- lack of progress towards goals;
- inappropriate leadership;
- failure to make sound decisions;
- interpersonal hostility;
- role confusion or alienation; and
- high turnover, absenteeism.

**Role of human resources department in human resources knowledge mapping**

Clarke and Staunton (1989) provided a model of the knowledge management process that could be useful for mapping human resources knowledge. Their modified model, shown in Figure 2, provides a guide to four key concepts that could be mapped through the human resources management function. The four concepts are: construction, embodiment, dissemination and use of knowledge. Figure 2 illustrates the interaction between the human resources management function and each of the four knowledge concepts.

According to Soliman (1998), the main activities of the mapping process include deciding what is to be mapped and the level of knowledge mapping. The modified Clarke and Staunton model could provide an answer to the first question. However, the answer to the second question (how much knowledge mapping is required?) is guided by the economics for the intended purpose of knowledge mapping. Soliman (1998) provided a micro-mapping approach, which could be extended to cover the mapping of the four human resource management knowledge concepts. Although, research is needed to answer this particular question adequately, it is not difficulty to conclude that there exists a level of the micro-knowledge map beyond which the knowledge mapping effort may be a waste.

According to Demarest (1997), to manage knowledge successfully, one needs to understand the three relevant infrastructures within which the knowledge process takes place, the cultural infrastructure, the organisational infrastructure and the technical infrastructure. In addition, mapping projects need to focus on the fundamental business issues of an organisation (Soliman, 1998). Furthermore, because an organisation’s reality is dynamic, not static, the mapping process needs to be ongoing for the results to have reasonable currency. Soliman (1998) has shown that the cost of mapping is proportional to the degree of detail required (i.e. levels of micro-mapping).

**The strategic role of human resource management in knowledge mapping**

In addition to being aware of the knowledge process and the three infrastructures within which it takes place, a knowledge mapping project should have a conceptual focus (Soliman, 1998). Ideally the focus will be the fundamental business issues of the organisation such as reducing errors or rework, or minimising cycle time in some manufacturing organisations. Then the mapping project will provide useful results that improve the organisational efficiencies.

Zack (1999) has advocated using the well known SWOT technique (strengths, weaknesses, opportunities and threats) as a tool to develop a knowledge mapping strategy specifically tailored to an organisation’s needs. Zack advises that knowledge-based SWOT analysis could lead to mapping knowledge resources and capabilities against
strategy opportunities and threats, in order to understand advantage and weakness. Human resources departments are better positioned than other functional units to create a link between strategy and employee knowledge. However, to do so, the organisation must articulate its strategic intent and then identify the knowledge required in executing it. The required knowledge should be compared to the actual knowledge (employee knowledge). The comparison is likely to lead to the identification of gaps, two of which are the strategic gap and the knowledge gap.

The role of forward knowledge mapping is to identify any strategic gap that might exist. Forward knowledge mapping identifies what organisations can do, while the backward knowledge mapping identifies what organisations must know. The difference between what an organisation can and must do highlights the strategic deficiencies and here the human resources department can ensure that future recruitment is aligned with the strategic plan of the organisation.

Backward knowledge mapping identifies the knowledge gaps. Assessing what employees know against what they should know identifies training opportunities to overcome existing knowledge deficiencies. Again, the human resources department acts to ensure that the workforce fits within the strategic plan of the organisation.

Clearly a major role of the human resources department is assisting in overcoming any strategic and knowledge shortcomings through recruitment and training as well as re-training the existing workforce.

Figure 3 illustrates the role of knowledge mapping (forward and backward knowledge mapping) in the identification of strategic and knowledge gaps.

According to Davenport (1999), categorising and organising knowledge should be a core competence for future organisations. Therefore human resources departments should contribute to:

1. deciding what knowledge is important;
2. developing a knowledge vocabulary, including a thesaurus;
3. creating indices and search tools; and
4. constantly refining knowledge categories.

Conclusions

Knowledge management activities should result in improving productivity, enhancing the business environment and increasing levels of innovation. These activities also may assist organisations to address human resources management problems on local and global levels, and transform human resources managers into knowledge practitioners or facilitators, with responsibility for developing employee competence (Gustafson and Kleiner, 1994).
Although human resources management has played an increasingly important role in the structure of organisations in recent years, there are still areas where it can progress even further to improve the competitive position of organisations. For instance, if knowledge management programs are used and developed to reflect the characteristics of the organisation, it potentially leads to creating trust, mutual respect, dedication and cohesiveness of the workforce involved.

The role of human resources management goes beyond mapping the human resources knowledge. In fact, a significant part of the HRM role lies in identifying the knowledge gap(s) and thus assisting in filling the strategic gaps of organisations.

The process of forward knowledge mapping serves as the exploration of strategic opportunities for the organisation, while the backward knowledge mapping may be considered as the alarm-bell for strategic deficiencies which the organisation must overcome.

The depth and intensity of the knowledge sought will dictate the number of micro-knowledge mapping levels required. A trade off needs to be established between the usefulness of knowledge details (levels of micro-knowledge map) and the cost of mapping to define the level of the knowledge map which offers the best compromise.

While effective knowledge management can be expensive, ineffective knowledge management is inevitably far more expensive.

References


Fawzy Soliman and Keri Spooner


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