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# Technology and Knowledge Management: Is Technology Just An Enabler?

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## ABSTRACT

*Developments in technology have provided organisations with the ability to access information, and to share knowledge with the aim of gaining greater value both to the organisation and its customers. Is technology an enabler or does it add value will be discussed from the perspective of various authors, with examples of how organisations view their technology. Results of an exploratory study carried out by the author will also be referred to.*

## INTRODUCTION

Rapid and extensive advances in technology, particularly in the area of communications, have had a considerable impact on the way organisations operate. Providing a means through which information can be accessed with relative ease technology has opened a pathway to increasing knowledge. Information, however, is static unless action is taken through the application of knowledge to translate it into something with meaning. The stock of knowledge held by organisations, is so often regarded as being inaccessible yet systems are available to provide the conduit for knowledge to flow through the organisation. Technology has opened up ways for knowledge to be shared thus providing organisations with the means to improve and increase their business opportunities. Frequently technology is referred to as 'just an enabler' but can it also be a value-adder. The purpose of this paper is to consider whether technology is simply providing organisations with the means through which they have greater access to information, or whether it is opening up avenues for sharing of knowledge that will lead to greater value to both the organisations and its customers. An exploratory study was undertaken to identify what stage organisations were at with regard to knowledge management and some of the results of that study are included in the paper.

## DATA, INFORMATION AND KNOWLEDGE

In their paper Evans and Wurster (1997:71) referred to changes that had taken place over the previous 10 years as organisations adapted their "operating processes" to "information technologies" recognising that accessing information was going to have an important bearing on where industries would be going in the future. It was during this period of time that technology was moving forward at a rapid rate and organisations were investing huge sums of money in information technology. It is perhaps worth posing a question, "were organisations getting a sufficient return on their investment?" While the technology of the time focused on cutting transactional processing costs it was also recognised that a wealth of data was available that could be presented in a way to provide information with the potential to add considerable value to the organisation.

Of the information infrastructure, it is suggested by Brook Manville, director of knowledge management for McKinsey, and quoted by Amidon (1997:87) that it "must not focus on collecting and disseminating information, but rather on creating a mechanism for practitioners to reach out to other practitioners". Amidon then refers to the major change from information processing to knowledge processing that has taken place "which includes the concepts of learning tools, intelligent electronic coaching, decision-making systems, and more". Today, organisations are not only expecting more from technology but also becoming more reliant upon it.

Connectivity is cited by Evans and Wurster (1997:73) as providing the most important change in the information revolution. "What is truly revolutionary about the explosion in connectivity is the possibility it offers to unbundle information from its physical carrier. According to Teece (1998:60) the linking of the functional areas of the organisation will bring together previously "fragmented flows of data" to provide real-time information about the external environment. How useful the information is to the organisation depends very much on how it is used, and what knowledge is applied to it to provide the organisation with a valuable asset. With interest growing beyond information per se, organisations have looked to technology to progress towards the development of knowledge management systems.

From a productivity perspective Grant (2000) indicates the value of digital technology. He refers to knowledge no longer being held exclusively by people. Codification and use of technology provides the opportunity for knowledge replication. While costly to create, replication and distribution can be reduced to almost "zero marginal cost" (Grant, 2000:32). Grant suggests that "…explicit knowledge offers greater potential for value creation because of its replicability potential". He goes on to say that gains in productivity through turning tacit knowledge to codified knowledge and the ability to replicate globally are "fundamental to the rapid rates of economic growth experienced during the past few decades" (p.34). In the long term, and with the arrival of new technologies, the rate of productivity growth is likely to accelerate (Grant 2000).

However, having the technologies available is not enough. It is people who use the technology, it is people who have the knowledge, therefore the culture of the organisation needs to be such that knowledge is valued and the technology adds value by providing a mechanism for the sharing of knowledge.

## SHARING KNOWLEDGE

In an article by Nonaka (1991:99) he refers to the knowledge spiral and talks about articulation and internalization (extending tacit knowledge through explicit) as critical steps in the spiraling of knowledge. Seven years later Nonaka and Konno (1998) reinforces Nonaka's previous views that knowledge creating is a spiraling process leading to new knowledge. A culture of sharing knowledge leads to the creation of new knowledge but as Marshall, Prusak & Shpilberg (1996) indicate it is not easy to encourage voluntary sharing of knowledge by employees. An organisation that does develop a knowledge sharing environment increases the opportunities for the creation of new ideas that have the potential to add value to it. However, as Brand (1998) of 3M, and Martiny (1998) of HP Consulting indicate the environment must be such that people are keen to share knowledge and to benefit from the knowledge of others. Motivation is a key factor and if it is within the culture, knowledge management systems will be used. If motivation is not present, no matter how sophisticated the system, sharing and learning is unlikely to occur.

## RANGE OF TECHNOLOGIES

According to Frappaola and Capshaw (1999 p.44), "Knowledge management refers to the practices and technologies that facilitate the efficient creation and exchange of knowledge on an organizational

level." However, technology has also changed work practices. Anecdotal evidence suggests organisations do realise that well managed and readily accessed databases have a wealth of knowledge that can provide a valuable differentiator, they do not have the means, or perhaps the skills to mine the databases to maximise their value. Organisations also need to be aware that "Another major thrust of the information age is the switch in emphasis from the mass-production, high-volume, faceless transaction mode of the industrial age to a far more intimate level of customer interaction" (Hurley and Harris 1997:170). The trend is to "…one-to-one marketing, mass customization, database marketing" (p 170), and organisations need to move in line with this trend. For organisations this suggests committing to greater investment in order to have the ability to access that information and take action to create value.

Technology making an impact and mentioned by Fahey and Prusak (1998: 265), are data warehousing, groupware, and client-server systems. Many writers, Allee, 1997; Amidon, 1997; Marshall, 1997; Watt, 1997; Davenport and Prusak, 1998; refer to the intranet as providing channels through which organisational knowledge can flow and providing a medium for the sharing of knowledge within the organisation. From the literature it would appear that Lotus Notesä is a favoured medium for sharing knowledge (Davenport, 1997; LaPlante, 1997; Fahey and Prusak, 1998). In distinguishing between the use of Lotus Notesä and the Web-based intranets, Davenport (1994:123) refers to Hewlett-Packard's policy that "Notes should be used for discussion-oriented applications, and the Web for publishing purposes.

According to Evans and Wurster (1997), technology is changing the relationships between customers and organisations because it is now possible for customers to have access to the same information, for example in the financial markets. While technology has opened up avenues to the customer to search for opportunities and products that may better serve their needs the opportunity is also open to the organisation to exploit the potential of the technology to create greater value to its customers. For the organisation, customers are a valuable source of knowledge and it is important to build and maintain relationships. Amidon (1997) refers to "Innovating with the Customer" (p.122) and recommends the value of working closely with customers and integrating their knowledge with that of the organisation.

## TECHNOLOGY - ENABLER OR VALUE ADDER

If technology is just an enabler, what is it that adds value to the organisation? While technology as an enabler is very much to the fore in 3M, they recognise that knowledge management does not come about solely through the provision of technology, and say "People have to be motivated to access and share information and to convert that information into knowledge" (Brand, 1998:17).

Binney (2001:33) has provided an article in which he addresses the question about knowledge management investments. What has emerged is the KM spectrum, developed as a result of his experience working with organisations to understand knowledge management and what part it can play within their organisations. Having explored the literature, Binney identified KM applications placing them into "six common categories to establish the elements of the KM spectrum" (p.34). The elements are: transactional; analytical; asset management; process based; developmental; and innovation/creation knowledge management (p35). Explaining how the placement of each application was made, Binney (2001) then adds the enabling technologies. Uses for the spectrum are identified by Binney as providing assistance so that "individuals and organizations better understand the KM landscape; and second, plan KM-related investment strategies based on the framework" (p.38). The KM spectrum provides organisations with the means for identifying their present position and to use the framework to map their future investment in knowledge management. Looking below the surface of the KM spectrum, the development of technology clearly emerges but also emerging is the realisation that through technology value has been added to organisations.

Lloyd (1996:576) refers to the use by organisations of worldwide networks says that new technology is "the catalyst which is forcing all organizations to re-evaluate what they know, what they do with that knowledge, and how they continually add value (or not) to that knowledge in meeting changing customer needs". And technology has advanced considerably since Lloyd made this comment.

While there is no doubt that technology has provided the impetus for the growth of the information age, technology should not be regarded as a dominant partner. As Pemberton (1998:60) comments, "The IT exponents of KM tend to downplay the central role of human factors in KM", and provides a reminder that "IT doesn't itself create knowledge any more than does a library, an office, or a classroom". To emphasise the position of technology, Watt (1997:18) refers to the comment by Fran Ergonon of Price Waterhouse LLP, that "Technology is a key enabler but is not in itself knowledge management". The view of Ward (1996: 17) is that "the real value is in linking people together, not in the technology itself". However, it also needs to be remembered there is no guarantee that employees will make use of technology, nor will it encourage the sharing of knowledge if employees do not feel inclined to do so. It must not be forgotten that sharing of knowledge does not occur just through the use of technology but as a result of face-to-face social interaction. Technology has, however, provided the means of communication and interaction for those to far away to meet, and in doing so has added value.

## EXPLORATORY RESEARCH

The purpose of the exploratory research was to identify the status of knowledge within organisations and to find out what technology was used for the purpose of accessing information and sharing knowledge. From an independently prepared database of the top 500 companies in the country, 400 were randomly selected, and 26 organisations involved in government and local government activities and professional companies were added, making a total of 426 organisations surveyed. A questionnaire was the instrument used and the response rate was 20 per cent. For the purpose of the analysis the organisations were divided into the following categories:

| | |
|---|---|
| Primary Sector | 19 |
| Goods Sector | 27 |
| Service Sector | 40 |

From six factors – Technology, Skills and Competences, Research and Development, Information, Knowledge, Intellectual Capital – organisations were asked to select the most important factors now and predict the most important in 5 years.

Skills and Competences consistently ranked first both now and in 5 years. Technology clearly did not rank as being the most important factor although in future organisations did see technology increasing in importance. Knowledge, in most instances, did not show in the 'most important category'. There was no relationship between the size of the organisation and the importance of the factors.

Information gathered revealed that almost all organisations had in place client databases to gather information about their customers. The study asked organisations whether they were using the approach of data warehousing as a means of providing information that could enhance their business, and gain a competitive advantage through identifying patterns of customer needs. Of the organisations surveyed, 20 per cent indicated they were using or considering the data warehousing approach to provide them with information. The remaining 80 per cent had not integrated systems to this extent and relied on client/customer databases to gather and record information about customers.

Two-thirds of the organisations surveyed have an intranet and the principal uses were as a medium for disseminating, or obtaining, information. Use of the intranet appeared to be for the dissemination of general information or for obtaining specific information. Although a very useful medium for sharing knowledge, organisations did not appear to have progressed to the stage where they were using it as a useful tool for dialogue.

The questionnaires were address to the CEOs and their view is that employees are willing to share knowledge. When asked about technology used to assist with the sharing of knowledge most organisations responded with email and or databases, intranet and internet. However, some also referred to share drives and networks, and use of a wide range of software, with Lotus Notesä mentioned frequently.

The study identified that organisations are aware of the value of customer knowledge and are prepared to work closely with customers to develop new products. Two respondents developed further the information they provided explaining that considerable technological development had occurred as the result of working closely with their customers.

From the study it was clear that every organisation appears to use technology in some way or other although the level of sophistication varied considerably. It is clear that using technology to share knowledge has not developed to any great extent, although the use by some organisations of Lotus Notesä indicates they are attempting to do so. Setting up a sophisticated knowledge management system is expensive, and as many of the organisations surveyed would fit the category of small and medium sized, the cost would be beyond their means.

## CONCLUSION

Is technology just an enabler or is it also a value-adder? From the literature and the findings of the study, technology is regarded as an enabler rather than a value-adder. Yet the continual progress in technological progress as shown in Binney's KM spectrum clearly identifies the developments that have taken place in technology to enhance the operation of business and through these developments value is being added. While in most organisations the technological mechanisms are in place, whether at a sophisticated or fairly simplistic level, many are not using their technology as effectively as they could. While in reality it is people who add value through the application of their knowledge, productivity will only increase if people using the technology are thoroughly trained in its use and comfortable with it. If soundly trained people will use the technology to maximise its benefit for the job they are doing and therefore increase the potential to enhance their productivity. Technology will then have added value and the organisation will have gained value from its investment. Organisations need information for decision making and technology has opened many avenues through which it can be gathered. Technology also provides an excellent medium for the dissemination and sharing of knowledge. While much sharing of knowledge is through face-to-face social interaction, technology provides for the sharing of knowledge among those who because of distance are unlikely to have the opportunity for such socialisation. Knowledge sharing leads to the creation of new ideas, and organisations grow through the development of those ideas into new products and services. While the role of technology may be that of enabler, and the role of people is to add value through their knowledge, technology is a medium through which people can be 'brought together' to share their knowledge, so perhaps it can also be considered a value-adder!

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