

# Shapes technology

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In order for ICT to be effective, it needs to be accepted into an organisation. After implementation, learning increases the productivity of a technology to its full potential. (D. Comin, 2007) It is not just about making knowledge accessible, it also needs to be consumed. Organisations must process the knowledge in order to accrue the benefits. " Technological change can be seen as a " cause" and everyone and everything that follows can be seen as an " effect". Technology is socially constructed, social constructivists argue that technology does not determine human action, but that rather, human action shapes technology.

They also argue that the ways in which a technology is used cannot be understood without understanding how that technology is embedded in its social context. (Hughes and Pinch 1987) Bijker and Pinch (1984) demonstrate the importance of interpretive flexibility i. e. technological artifacts that have differing uses and meanings to different groups. For example, the air tire for the bicycle was seen as a more appropriate transportation method for some people, however, sport cyclists saw it as a nuisance as it reduce their speed.

Controlling technology is hard, as is the controlling of knowledge. In the 1970s interest was directed towards artificial intelligence. This was thought to change the knowledge process in firms. However in reality, expectations were too high and computers did not represent the human brain. Today we see great research into artificial intelligence and there have been great advancements with the introduction of for example, neural networks and intelligent agents. It is now being seen in many knowledge management programs.

The greatest barrier to the success of ICTs as a knowledge management solution is the fundamental difference between explicit knowledge and tacit knowledge. On the one hand explicit knowledge can be regularly codified into databases and documents and communicated to others. Tacit knowledge on the other hand reflects a humans knowledge, as Spender (1996) defines, it is knowledge that is acquired through experience . ICTs make use of explknowledge that are important for showing data, however, it only provides a platform and doesn't represent the solution.

For example, if you ask someone explicitly how to drive a car they will not be able to, however, they will no how to. " valuable manager, is not simply one who knows in the abstract how to act in certain circumstances, but who in practice can recognize the circumstances and acts appropriately when they come along. " (Brown and Duguid, 1998: 95) This demonstrates the distinction between tacit and explicit knowledge. Information and data out of context can be interpreted in a completely different way. Whilst this concept may seem obvious, the current Western attitude is still to put everything into a database.

The most successful ICT knowledge management solutions however, are the ones that encourage human to human communication, for example, through lotus notes. Toyota's utilisation of Quality Circles provides us with an example where tacit knowledge creates new knowledge. As a result of employee interaction at the end of each week, ideas for improvements are made, steps are devised to assess the ideas for improvement and then the results are assessed. Toyota's production process has become one of the highest quality production processes in the world.

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(Spear and Bowen 1999) Some writers and consultants have even gone so far as to argue that all knowledge is tacit in nature. They believe that learning in an organization occurs when individuals come together under circumstances that encourage them to share their ideas and potentially develop new insights together that will lead to the creation of new knowledge. (Sanchez, 2001)Essentially however, tacit knowledge should not be considered independently from explicit knowledge, as there is a tacit dimension to all forms of knowledge (Polanyi, 1966)

The impact of technology varies in different circumstances. Several ICTs make up the knowledge management programs which I will now describe. They generally disseminate the " know how" or tacit knowledge. The availability of the internet has been instrumental in catalysing the knowledge management movement. Information technology may, if well resourced and implemented, provide a comprehensive knowledge base that is speedily accessed, interactive, and of immediate value to the user. (S.

Denning, 2000) It is estimated that there are over two billion Web pages, and thousands of newsgroups and forums, on the Internet covering virtually every topic imaginable. (A. Bostock, 2002) The internet has enabled collaborative technology, which has allowed company professionals that may be situated in different geographical locations, to communicate anywhere and any time. Booz Allen & Hamilton's Knowledge Online ([www. boozallen. com](http://www.boozallen.com), accessed 20th Dec 2009) is an intranet that provides a golden source of information to their consultants worldwide about best practice and industry trends etc.

" We combine a consultant's unique problem-solving orientation with deep technical knowledge and strong execution to help clients achieve success in their most critical missions. " It provides up-to-date, relevant information that is well structured. As workloads become more strenuous and overloaded, the introduction of Intelligent Agents can greatly filter the amount of work needing to be done. It is a mechanism that can act on behalf of the user and can be programmed to search, acquire and store information.

As British Telecom has found out, intelligence agents can summarise large documents i. e. over 90 per cent of the relevant material with only a quarter of the text used. (Hyacinth. S et al, 1991) Another significant role that intelligent agents play in regard to knowledge management solutions is the protection of a companies network system, most commonly, through the use of Norton Anti Virus software. Firewalls provide security and it is now becoming company policy to at least be able to search for email abuses. Groupware products such as IBM's Lotus Domino Server 6.

5 provide additional discussion databases compared to the intranet. It provides services and support where you can look through existing explicit knowledge i. e. in the archives or get expert help through the form of tacit knowledge in the discussion databases. Mapping tools such as Aquarius or GMT help teams or individuals develop cognitive maps. Shell among other companies for example, have used these tools to make strategic plans for the future. Document management allows for the transfer of explicit knowledge.

It allows for the immediate availability of information and therefore knowledge, reduces time to complete processes, increases security and enhances flow of information and documents between personnel, suppliers and customers. A fortune 500 manager benefited from document management solutions. DocFinity software suite assisted the company in its growth and helped the manufacturer to develop in face of changing technology and it provided the marketing team with instant access to worldwide consumer research. (www. whitepapers. zdnet. com, accessed 20th Dec 2009)