

# The Virtual University for the Small States of the Commonwealth



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A virtual university network has been under construction during the past few years. With minimal fanfare, the Virtual University for the Small States of the Commonwealth (VUSSC) has gained the participation of 25 Commonwealth Small States ([www.col.org/vussc](http://www.col.org/vussc)). This network is now turning its attention to the priorities of the member countries in areas such as the professional development of educators and the creation of course content. Beyond the creation sharing and deployment of course content, member countries will need to become full participants in the global knowledge society.

In the past half-century, the rapid development of an information society and the growth in the quantity of accessible information has been given considerable momentum with the development of information and communication technologies (ICT), which allow people to interact with each other and to share digital information relatively easily. An example of this is the Internet which now stretches to most parts of the world.

For many people the information explosion has led to an overwhelming feeling of information overload, while for others it has represented a new barrier to overcome. Internet searches for relevant information yield a growing number of results that are unrelated to the searched topic or are only marginally useful, while growing amounts of the information available are of poor quality. In countries with limited bandwidth, taking a long time to find information of marginal value can be a costly frustration. Small countries can become significant players in the global knowledge society provided they have well-trained and motivated people who are equipped with PCs and good internet lines.

If information and knowledge are to be of practical value, they must be effectively managed. This is particularly important in education and distance education (DE), where information plays such an important role in teaching and learning.

## What is knowledge?

Many people use 'information' and 'knowledge' interchangeably. However, in Knowledge Management (KM) these terms are distinct. Most experts also differentiate between data and information:

'Data' is a collection of facts and quantitative measures which exist outside of any context from which people can draw conclusions. By itself, data has relatively little value.

'Information' is data that people interpret and place in a meaningful context, from which they can highlight patterns, causes or relationships; for example, reports or strategic planning documents.

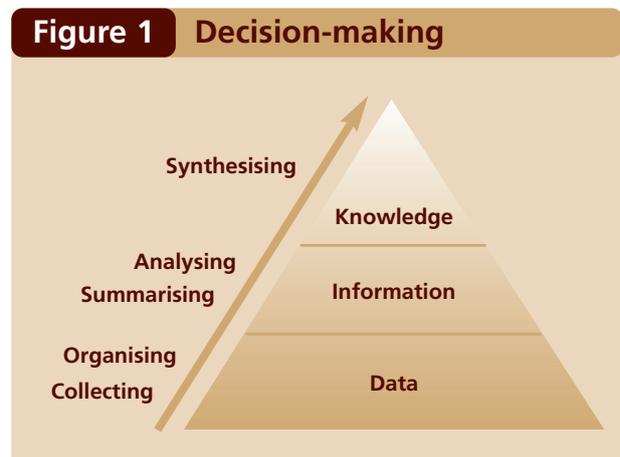
'Knowledge' is the understanding people develop as they react to and use information, either individually or as an organisation.

- 'Tacit knowledge' is subconsciously understood and applied, developed from direct experience and action, and usually communicated through informal conversation and shared experience.
- 'Explicit knowledge' is more precisely and formally articulated, and removed from the original context of its creation or use.

Tacit knowledge is a vital component of knowledge in any system. A key challenge in KM is to find ways to structure and record tacit knowledge so that it becomes explicit. If this is not done, significant value is quickly lost when people move on from an organisation; for example, in many traditional universities when academics leave a position, they take with them all of the tacit knowledge associated with running a particular course before it can be passed on to their successors.

Data, information and knowledge are separate but linked concepts, represented in the diagram (Figure 1) adapted from the Manaaki Whenua Landcare Research website.

People are at the centre of processes that convert data into information, as well as of those that use information to create



and share knowledge. People, not systems, manage knowledge. KM is the attempt to improve or maximise knowledge usage in an organisation or system.

## KM and DE

At an institutional level, KM is essential to creating organisations that 'learn' more effectively.

In a business context, a 'learning organisation' is well-positioned to meet customer needs, with employees who are good 'knowledge workers' that is, who can apply knowledge effectively and adapt quickly through learning.

KM should be a fundamental objective of any educational institution or network such as VUWSC, where learning is the core function, and this should be reflected in how the organisation operates. In an educational context, educators are the knowledge workers because they typically have considerable personal discretion and responsibility for analysing, developing, and implementing curricular goals. The primary 'customers', the learners, also play a role in creating and sharing knowledge.

The practices of well-functioning DE systems already reflect attempts to manage knowledge. A key attribute of DE programmes is an approach where systematic planning and implementation compensate for separation in time and space between educators and learners. Well-functioning DE institutions invest significantly in developing structured curricula and materials; creating flexible learner support systems; maintaining carefully designed administrative systems to support distance learners; and implementing quality assurance strategies.

KM is therefore not a new concept beyond the reach of the average DE institution or small state, nor a concept that should induce fear in distance educators. The main challenges in DE institutions are to create and build on existing good practice, and to integrate KM more systematically into all aspects of the institution's operations.

## Implementing KM

A KM strategy that works well in one institutional context may fail in another. Systems aimed at sharing information between institutions in different countries run even greater risks, requiring careful and detailed needs analysis. When designing KM strategies, systems and tools, one needs to consider the people involved; the organisation's operational context, history and ICT capacity; and what the institution wants to achieve. People, processes and technologies are the three core elements in preparing a KM strategy (Figure 2; Patrides and Nodine, 2003).

## KM and people

The more people see the benefit of managing knowledge effectively, and the easier it makes their jobs, the more supportive of the KM strategy they will be. The simplest way to achieve this is to design KM strategies and systems around the needs of its users, who are the educators, administrators, managers, and learners. Successful KM depends on engaged, proactive participants, and a broader institutional environment



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- College of Health Sciences at the Kenyatta National Hospital Campus
- College of Humanities & Social Sciences at the Main Campus



## Windows of opportunity

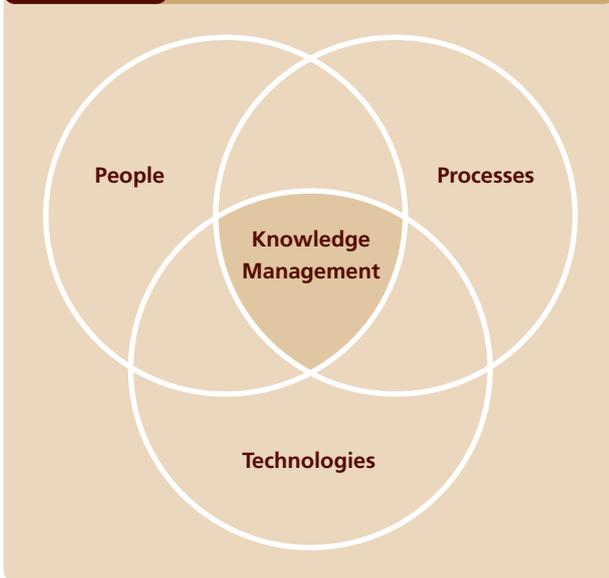
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**Figure 2** The three core elements



that facilitates collaboration, builds trust and shared understanding, and encourages the creation of communities of practice.

Na Ubon and Kimble (2002) identify some key elements of effective, user-friendly, KM design:

- Communities of practice: Small, informal, self-organising networks of practitioners. An excellent point of departure for dynamic, productive knowledge creation and sharing in education, as knowledge in an organisation is often built up and generated by communities of practice.
- Staff collaboration: Meetings, forums and discussions, and tools such as email and intranets, create knowledge through active social interaction and collaboration. Most organisations realise they will improve performance if their staff work together.
- Organisational trust: This is an essential condition for people to share knowledge and expertise. People are often reluctant to share knowledge because of the risk of loss of control and influence. Overcoming this reluctance is the key to successful implementation of KM strategies.
- Organisational understanding: Shared understanding, and common ground or purpose among people in an organisation or community is essential for collaboration and for the transfer of productive knowledge.

An institution's existing policies and practices should be reviewed to assess whether they support organisation-wide communities of practice, or promote departmental cliques. For example, human resource policies should be reviewed to assess how much they reward information-sharing, as opposed to encouraging employee territorialism and competition. If compensation and reward systems are based only on what people know, there will be few incentives to share information; if they are based on what people teach others in the organisation, information-sharing is likely to increase dramatically.

Finally, information gathering and storage systems should be made accessible to any members of the organisation who may need that information to produce and use knowledge effectively. Information has historically been regarded as a source of power, and the people responsible for managing information have often been selective in sharing it. Patrides and Nodine note that organisations benefit enormously when people who have been formerly excluded begin to gain access to information, and join with others to actually change the system.

### KM and organisational processes

KM is useful to all processes that identify, share and create knowledge. In DE, formal and informal processes and procedures govern all aspects of institutional operations, including administration, course design and development, learner support, student assessment, and quality assurance. All institutional processes can be improved through effective KM.

### KM and ICT

ICT enables effective KM. The rapid growth and development of ICT functionality opens up great possibilities for building and exploiting information, and for converting it into knowledge. ICT can be harnessed to support many key KM processes (Barnes, 2001):

- Capturing knowledge: Use electronic databases and software information management systems to digitally store any kind of information, whether text, graphic, audio or video.
- Designing, storing, categorising, indexing and linking digital information: Using today's computers with their faster computer processing speed, storage capacity and a lower relative price enables us to store more data and to access it and manipulate it more quickly.
- Searching for, and subscribing to, digitally stored content: You can use a Web browser to query the stored information and receive search results via the Internet or a secure intranet. You can send student course updates or receive student feedback using cheap, increasingly automated electronic communication, such as mobile phones or Internet-based email.
- Presenting information and content in a way that it is meaningful and applicable for many contexts and uses: You can organise content as learning objects, in learning object repositories (e.g. [www.col.org/lor/](http://www.col.org/lor/)).

DE organisations must devise systematic ICT strategies to re-use information in different ways without generating significant additional cost, and to store information in ways that allow it to be easily used for future purposes and applications. This ensures that an institution builds on growing knowledge bases rather than repeating basic work already conducted. In this way it maximises the value of money spent on course design, development or educational research. The gathered information can also, where appropriate, be made available online for access by other distance educators around the world, contributing to an effective, useful global DE resource and research base. If information security is important, user access can be restricted through passwords by the online website or system.



## KM and information systems

A DE institution's information management systems should allow information to be cheaply, easily and logically stored and retrieved, and provide the type of information that a DE institution actually needs at all levels, without adding unnecessary bureaucracy or administrative labour.

You should create user-friendly computer access to information so that users can easily access information independently. For example, implement a Web-based interface to access and search your institution's data systems. This enables educators and learners to select their own search criteria and extract relevant resources quickly, at no additional cost after initial design and set-up. These systems can be designed with security measures that allow decentralised data entry, so that the individuals responsible for maintaining certain information can independently enter data into the system—for example, academics entering student marks for their courses—and for the database changes to be updated automatically to the Web interface.

## Investing in ICT and KM

To implement an effective, broad, ICT-based KM strategy, DE institutions must invest financial and human resources to:

- Establish types and combinations of information that will support teaching and learning environments, target learners, and make the information accessible to all participants in the educational process.

- Develop a conceptual framework for computer-based management information systems. Many investments in ICT systems lead to disappointment and serious wastage of resources due to the incomplete definition of the system's business requirements; insufficiently detailed technical specifications; and lack of user input during design and development. A key objective in designing effective ICT systems to support KM is to leverage existing processes by computerising and automating them.
- Design an electronic database that can be used to organise, store and allow for multiple uses of information, including some combination of:
  - a) databases, data warehousing systems and content repositories;
  - b) computer networks that allow users to connect to the resources remotely. Increasingly, these should be high bandwidth networks that allow faster transfer of large amounts of data. A significant challenge in developing country contexts is that communication between the various centres of a DE institution may be hampered by poor quality or expensive telecommunications. Affordable high bandwidth connectivity must be established to allow all elements of the distance education system to stay in continuous contact, and to share information seamlessly and effectively;
  - c) communication systems including email systems, discussion lists and collaborative tools designed to support knowledge sharing, such as online project management systems and collaborative content authoring tools.

## Web resources

Understand what information or knowledge you want to extract from the databases you develop, to ensure that the gathered data is capable of providing the answers to your questions. These resources may provide some guidance:

- An overview of the kinds of information that DE systems should contain, by J. Kidwell *et al* ([www.educause.edu/ir/library/pdf/EQM0044.pdf](http://www.educause.edu/ir/library/pdf/EQM0044.pdf))
- COL Knowledge Series guide *Managing Student Records in Distance Education* by Christine Randell ([www.col.org/knowledge](http://www.col.org/knowledge))
- An article by this author on *Student Management Information Systems for Distance Education Institutions* ([www.africaodl.org/resources/0000001539/0000000763/000001039/Student%20Management%20Information%20Systems%20for%20Distance%20Education%20Institutions.pdf](http://www.africaodl.org/resources/0000001539/0000000763/000001039/Student%20Management%20Information%20Systems%20for%20Distance%20Education%20Institutions.pdf)).

## Standards

- Advanced Distributed Learning (ADL)—SCORM. [www.adlnet.gov/scorm](http://www.adlnet.gov/scorm)
- Aviation Industry Computer-Based Training Committee (AICC). [www.aicc.org](http://www.aicc.org)
- The Centre for Educational Technology Interoperability Standards (CETIS). [www.cetis.ac.uk](http://www.cetis.ac.uk)

- Dublin Core Metadata Initiative (DCMI). [dublincore.org](http://dublincore.org)
- Educational Modelling Language (EML), Learning Networks of Educational Technology Expertise Centre, Open University of the Netherlands (OUNL). [eml.ou.nl/eml-ou-nl.htm](http://eml.ou.nl/eml-ou-nl.htm)
- IMS Global Learning Consortium. [www.imsproject.org](http://www.imsproject.org)
- Institute of Electrical and Electronics Engineers (IEEE), Learning Technology Standards Committee (LTSC). [ieeeltsc.org](http://ieeeltsc.org)

## Collaborative resources

- COL WikiEducator. [www.wikieducator.org](http://www.wikieducator.org)
- COL Learning Object Repository. [www.col.org/lor](http://www.col.org/lor)
- Community Dimensions of Learning Object Repositories (CD-LOR). [www.ic-learning.dundee.ac.uk/projects/CD-LOR](http://www.ic-learning.dundee.ac.uk/projects/CD-LOR)
- Creative Commons (CC). [www.creativecommons.org](http://www.creativecommons.org)
- OpenCourse. [www.opencourse.org](http://www.opencourse.org)
- EduResources Weblog—Higher Education Resources Online. [radio.weblogs.com/0114870](http://radio.weblogs.com/0114870)
- The Open Learner. [www.bloglines.com/blog/JosephHart](http://www.bloglines.com/blog/JosephHart)



## KM design principles

**Start with strategy:** Be clear what the objectives of your KM strategy are, to ensure that KM does not come to be seen as an end in itself. Document these so that they can be used to assess every aspect of designing evolving information systems and tools. The objectives must be to advance and improve student learning.

**Involve users in designing KM strategy and systems:** People are central to KM. The most successful strategies and systems will harness the people who are expected to drive the system from the outset, who can build a KM strategy based on the organisation's existing context and from an understanding of the patterns of information usage already present.

**Clearly distinguish KM strategies from ICT implementation and management:** Although ICT can be harnessed to support KM, technology should not drive KM. Technology should be an enabler, helping people to solve real problems.

**Ensure that the broader organisational environment supports and rewards knowledge creation and sharing:** There is little point in layering a KM strategy on top of an organisation that is structurally unsupportive of knowledge creation and sharing. The process of organisational change towards implementing policies and practices that encourage a spirit of enquiry and curiosity, while rewarding information-sharing and collaboration, requires strong institutional leadership if it is to work successfully. Policies should also work actively to break down internal departmental boundaries within an organisation, making it easier for people to work in teams so that they are able to develop their own knowledge through innovation and interaction with others.

**Approach KM as an ongoing process:** KM is not a one-time investment, in which a system is created and then left to run by itself. Support for KM strategies must be long-term, and must assume an ongoing need for change and improvement as the people and KM needs within an organisation change.

**Measure the impact of KM:** As previously noted, managing knowledge is not an end in itself, but should be informed by clear objectives. It is critical to integrate into KM strategies and systems

some processes of measuring the impact of these investments. This may be difficult to do, as it may be difficult to quantify the benefits of KM; however, reflective review of the impact of KM helps to ensure that its evolving design and implementation has the greatest impact.

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## Biographical notes

**Neil David Loftus Butcher** is leading the development of South Africa's national education portal for the Department of Education. He has managed a range of online database and web development projects for various organisations, in partnership with a technology company called Blue Matrix. He has also provided policy and technical advice and support to a range of national and international clients regarding uses of educational technology and distance education.

**Paul West** is Director, Knowledge Management, Information Technology and Communications at the Commonwealth of Learning. Before that he was the Director of the Centre for Lifelong Learning at Technikon, SouthAfrica.