



Planning your first Knowledge Management Solution

By Reynold Leming

Knowledge Management (KM) has for some time been an objective for information technology; increasingly it is being identified and implemented as a core business process. There are many definitions proffered for KM, so I begin this article by providing a hopefully simple, illustrative answer to the question, what is Knowledge?

In straightforward terms it is the combination of information with experiences (i.e. intellectual capital). Let me give the example of a takeaway menu for a restaurant. "Singapore Noodles, £5.95" is a set of data, or piece of information, which is of limited use in isolation. However, when presented with other related information within a document (the primary container for business information) called the Menu, it provides a more complete picture. From the menu you can review and compare all available offerings and their prices, see the address, opening hours, delivery options etc. This information would be transformed to knowledge when combined with any personal experiences of this restaurant and its competitors, together with any third party contributions available - for example, if the menu were accompanied by a cutting from a local newspaper where a journalist, whose opinions you respect, provides a review of the cuisine and service.

Within this definition, there are two objectives for a Knowledge Management project. One is to create an environment whereby data and information can be methodically organised, enhancing its value to suit a variety purposes and ensuring that it is easily available for use and reuse. The second is to ensure that methods and forums are in place to capture intellectual capital. KM can be implemented to support the entire operation of the business or can focus initially upon key processes/challenges, such as supply chain management, project management or customer relationship management. In all cases the KM programme must ensure that people culturally accept the need to share knowledge, that processes are in place to facilitate the creation and exchange of knowledge and that (where applicable) technology tools are user-friendly and available any place, any time.

A business is its people - their skills, ideas, experiences, energy and ability to deliver. People come together within a process to deliver a function, product or service. They interact with each other and with the 'machinery' provided within their business. This machinery is utilised effectively if members of staff, as individuals, perceive benefit. A technology architecture, as discussed below, can be provided to support their needs for information and knowledge. Yes, technology can help in organising knowledge and giving the user effective tools to find knowledge according to need; however, you must work with your people to achieve the cultural acceptance that the voluntary contribution of knowledge is beneficial. KM will



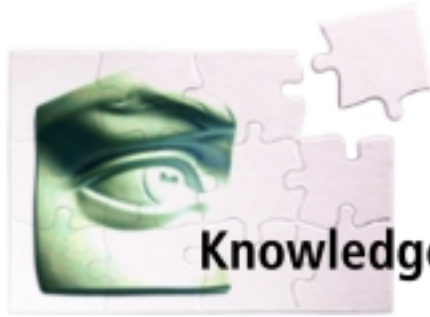
therefore require careful marketing and the management of change must be seen as a key challenge. You must also put in place the processes and procedures to ensure that the contribution and capture of knowledge is undertaken in a disciplined manner, which does not however unnecessarily burden employees. It must not be seen as another "administrative overhead". These will cover the methods for identifying, collating, assessing, discussing, authoring, recreating, etc. knowledge.

Crudely, people give in order to get. Therefore you should work on the KM programme with a wide, representative sample of staff members from the outset. Not only will they feel ownership of the design and purchasing decisions for technology, they will also provide the objectives and benefits themselves by understanding, as applicable, how the information and knowledge management practices of the organisation currently lets them down. Some people will enjoy the fact that there is now a method to 'level' the company culture, with the powerless connected more easily to the powerful; there are a variety of other potential motivations, including attention seeking, tangible rewards, recognition of expertise, the desire to learn etc. All these motivations should be taken into account. The technical solutions chosen will work best if sufficiently "seeded" with knowledge. The process of KM should therefore begin immediately. This will begin the exercise of knowledge gathering and encourage a culture of sharing.

Firstly, identify your core business functions. Think laterally to job titles: you might not have someone whose role is dedicated to procurement, yet this is a vital function for any business. Then interview a representative selection of members of staff to understand the challenges they face and the knowledge they require in order to meet these challenges. Next conduct an audit as to where and in what format this knowledge currently exists. Remember that the focus is not to redesign business processes, although opportunities may well appear, but to understand how accessible knowledge is.

What will become apparent is that there are certain subject matter entities around which you wish to cluster and organise knowledge. These will reflect the work you do, the business relationships you acquire and maintain, the environment in which you operate and the needs of your staff. Form "Communities" of staff based upon the principle entities and encourage them to meet both for the purposes of defining technical requirements and in the provision of a teaming forum where they can discuss, collate and indeed create related knowledge. An example list of these entities might read as follows:

- | | |
|--------------|---|
| Companies | <i>The companies who are your suspects, prospects, customers, suppliers, potential suppliers, partners, resellers, competitors, influencers, media etc.</i> |
| People | <i>The individuals who are important within your business sphere, be they gurus, customers or suppliers who are not part of a company, potential recruits, authors etc.</i> |
| Transactions | <i>The audit trail of inputs and outputs relating to your business transactions with customers and suppliers.</i> |



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Processes	<i>The policies, procedures, work instructions, templates etc. relating to your business processes. This might also include operational knowledge relating to administration, accounting, insurance, leasing, taxation, financing, inventory control, business assistance, business planning, premises and equipment, innovation, marketing, management practice etc.</i>
Solutions	<i>Reusable knowledge relating to your proposals, projects, specifications, customer service and support etc.</i>
Places	<i>The places that have a bearing upon your operations: for example, sites, venues, restaurants, trading estates, individual properties etc.</i>
Markets	<i>The markets within which you operate, reflecting considerations of geography, industrial classification, corporate/consumer etc.</i>
Law & Compliance	<i>Knowledge relating to legal matters, permits and licences, patents and trademarks, trade practices, regulations etc.</i>
Environment	<i>Knowledge relating to environmental impact, hazardous materials, waste management etc.</i>
Employment	<i>Knowledge relating to hiring, managing people, health and safety, dismissal, training, benefits etc.</i>
R&D	<i>Knowledge relating to innovation, research, product development etc.</i>
Information Technology	<i>Knowledge relating to the hardware and software in operation, your web site, e-commerce in general etc.</i>

I will take the example of Company-related knowledge. The data and information currently 'stored' within your business is probably scattered across isolated physical and digital repositories. This might include business card rolodexes, URLs tagged within individual browser favourites, departmental filing systems, 'My Documents' on the C: drive of office PCs and laptops, personal notebooks, individual application databases, press cuttings, journals, magazines, email folders etc.

A Contact Management System (CMS) will allow you to record data relating to companies in a structured manner which can provide information to users in the form of enquiries and reports. Thus you could manage the relationships between organisations, companies, people and sites. Contacts can be profiled as to the nature of the business relationship, their own business, their preferences, their terms and conditions etc. A CMS would provide a holistic view of all activity with a company/person, such as telephone calls, meetings, email,



correspondence, file notes, quotations, transactions etc. Contacts can be grouped for marketing or project purposes.

Within a knowledge management architecture, the data stored within a CMS can be combined with other information assets. These could include news items referring to the company, magazine articles about the company, brochures from the company etc. What is still missing is the knowledge that exists as intellectual capital. This tacit knowledge (ideas, insights, experiences, opinions, clues, hunches, instincts etc.) is invaluable and all too often forms a large part of the knowledge set available.

Let me give the "example" of Sherlock Holmes. "For many years he [Sherlock Holmes] had adopted a system of docketing all paragraphs concerning men and things, so that it was difficult to name a subject or a person on which he could not at once furnish information. In this case I [Watson] found her biography sandwiched in between that of a Hebrew rabbi and that of a staff-commander who had written a monograph upon the deep-sea fishes." ('A Scandal in Bohemia'). However, data was not necessarily enough, for as Holmes himself said: "As a rule, when I have heard some slight indication of the course of events, I am able to guide myself by the thousands of other similar cases which occur to my memory" (the case of 'The Red-headed League'). He combined his experiences (tacit knowledge) with a documented and organised information base (explicit knowledge). When combining his personal capabilities for deductive logic with this reusable information and experiences, he was able to solve his cases. The narratives of his cases were always shared with Dr. Watson who was able to learn from them and record them as stories for posterity. Albeit based upon a fictional example, this is Knowledge Management!

However, we are faced with the challenge that intentionally or otherwise, we all hoard knowledge. The interpretation of the expression 'Knowledge is Power' often can lead us to retain what we know for reasons of influence or security. However, this does not help establish a corporate memory. All too often if a member of staff is away, promoted, relocated or leaves, their personal knowledge remains unlocked and unavailable. I have already mentioned the establishment of staff communities to help get the project underway. Communities should continue to exist to fuel the discipline of KM. They should be sanctioned to meet formally; also informal conversations and exchanges should be fostered, for example in the provision of a coffee lounge. Tools must be provided to enable the capture and sharing of this tacit knowledge, quickly and easily. We can also be assisted by the fact that today's intelligent, creative and perceptive workforce ('knowledge workers') typically seeks intangible benefits from their working experience. These include the opportunities for learning, personal development, collaboration and teaming. Therefore if we give staff a 'place to go' for these things (such as an intranet), we can also utilise this as a forum where they can also voluntarily contribute their knowledge for all to share and benefit. Technology is valuable - whilst the knowledge captured by formal and informal communities can be written down and published on paper communications, this is not necessarily readily available or secure from disaster.

The mechanism for doing so, as in the case of Sherlock Holmes and Watson, can be the format of the Story. Whilst a business will capture an audit trail of inputs and outputs relating to a decision, transaction, research project, solution etc., this does not always form the fullest



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narrative of this activity (from start to finish), especially in capturing the decision logic and experiences. For example, in dealing with a customer we need to know: what we think of the client, what they think of us, what others think of them, who they like to deal with, which approaches work, which do not, why decisions were made etc. We are natural story-tellers and this is an excellent method of encouraging the voluntary contribution of experiences/knowledge. We therefore recommend that a story is created (as an electronic document or via an intranet tool) for every challenge which is met, decision made or solution created that offers reusable value or insight to others. This would provide a corporate memory of both best practice and lessons learned.

Using the expression loosely, there are four principal forms of Story that you could focus on initially - the Anecdote, the Narrative, the Opinion and the Question.

- *Anecdotes* are summaries of past activities written by individuals. This might be in the form of a file note about your views of an exhibition or conference that you have recently attended; or the how you dealt with a particular customer service issue as an example of best practice.
- *Narratives* are the 'story' of more complex projects or potential scenarios. This will identify participants, decision points and decisions, judgements, problems resolved, problems unresolved, best practice followed, resources used etc. Associated audit trail information can be sign-posted.
- *Opinions* are either floated ideas or deliberate exercises in meaningful provocation. Often these are most readily provided anonymously!
- *Questions* seek answers, which can be captured and evolved in the form of discussions.

Another key concept is to know who your colleagues are and what they do. In addition to providing published employee directories and organisation structures, you can offer the function of locating expertise. A key focus of implementing knowledge management is the 'mobilisation of collective intelligence'. If you are seeking knowledge, as well as the data/information/published experiences available to you, you may wish to find colleagues who have skills, expertise or relevant experiences. Upon locating them in the process of meeting a challenge, you can either make contact with them off-line or, for example, via an intranet to invite them to join in electronic discussion with you. This may also be useful in knowing whether, for example, you have the skills available in-house to accept a certain type of job, case or instruction.

Staff would register and publish their function, resume, areas of practice and interest, together with their contact preferences. Against a particular skill or competency, staff would indicate this is an area of Practice or Interest; what qualifications they possess; and indicators of the extent (in time) and currency of their skills. Colleagues can be located by their areas of practice or interest and then judged according to the length and currency of their expertise. They might have direct experience, access to useful references or knowledge of other people who can provide input.



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In this scenario, for managing company related knowledge, we have the combination of a structured database tool - the Contact Management System - implemented in conjunction with a publishing and collaboration environment, perhaps best implemented as an intranet. In the rest of this article I will focus on some of the features that could be included within a corporate intranet.

Information Publishing

If accessible across geographic and time boundaries, the intranet is an excellent tool to propagate best practice. The site can offer a corporate library of internet text and hyper-linked documents summarising corporate policies, business processes, methodologies, manuals, staff handbooks, standard operating procedures and work instructions. The library could also provide access to and explanations for the use of recommended office document templates.

Other useful documents, such as project reports, proposals, product specifications, users manuals, price lists, marketing collateral, electronic demos, presentations and sales scripts, maps and directions, could be included. Consider sign-posting to the location of hard copy or physical materials that are not available in digital format: such as books, journals or audio/visual material.

Document Management

The document is a primary container of business information. Many organisations are seeking to enhance the filing paper/network 'systems' they currently deploy, both in terms of facilitating retrieval and automating the management of document lifecycles, by introducing dedicated Document Management solutions.

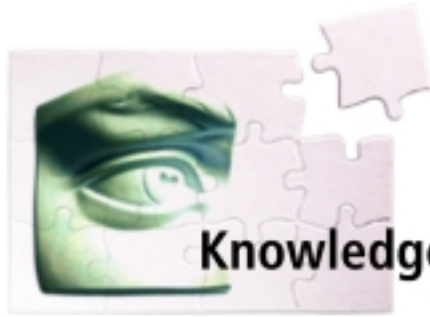
To cater for home workers, frequent travellers, geographically disperse project teams, multiple locations etc., these document management applications are often deployed via the intranet. This will allow access to documents any place, any time.

For organisations seeking to provide comprehensive access to their business records and audit trails via the intranet, we would recommend the integration of third party web-enabled Document Management technology. This would provide advanced image processing, security, version control and document classification features.

E-Learning

Increasingly organisations are deploying multi-media educational aides. The intranet is a natural home for these to reside, especially in the facilitation of distance learning.

Facilities could include:



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- *'Recorded' demonstrations*
- *FAQs*
- *Operational manuals*
- *Online courses*
- *Live 'talks' to experts*
- *Events and seminars*

News

News keeps employees informed and involved; it can also be used as a method for recognition and salutation. Typically this would include internal news advertising for example commercial successes, product/service announcements, marketing campaigns and social events. You could also publish press releases and newsletters.

You might also include externally sourced news, offering for example customer or market intelligence. This could be provided by an integrated third party 'feed', links to scanned images of articles cut from newspapers or journals or the contribution of the e-mail newsletters we increasingly receive on a personal basis.

Users should be given the opportunity to add their own comments and updates, thus keeping news items fresh and facilitating the contribution of tacit knowledge.

(If news is authored by a third party marketing or public relations consultant/company, then you will need to consider providing them with secure access to the content management tools.)

Internet

The internet is now a fundamentally important tool for research. A library of useful links to internet sites would form an important part of an intranet, allowing the sharing of links otherwise perhaps retained as individual favourites. Users can add their individual thoughts/abstracts on the usefulness of a site. You could provide links to the web sites of companies important to your business, useful search engines and directories, discussion forums, external portals, train, airline, weather, street map sites etc.

Application Integration

A single point of access to existing GroupWare and line of business system applications can be provided, with the intranet deployed as a "portal".

Thus users could access key employee, customer or supplier databases; access to e-mail; or access to business intelligence



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tools such as spreadsheets or reporting applications. This could be personalised to give users access to the diary items, projects lists, tasks, accounts, opportunities, reports etc. which are relevant to them. Alternatively the intranet could be developed to offer task and diary management features.

The intranet could also provide forms processing and employee self-service features in areas such as:

- *Time sheet submission*
- *Expense claims*
- *Travel requisitions*
- *Access to technical and support help desks*
- *Benefit scheme enrolment*
- *Internal recruitment*

Story-telling and Discussion

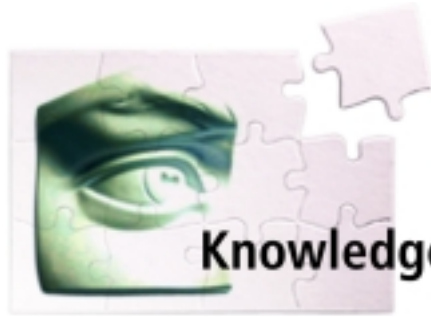
Provide templates for the contribution of anecdotes, narratives, opinions and threaded discussions. You could establish discussion capabilities whereby an electronic "conversation" can be created in its own right or about any other piece of content that has been published.

Content Management

Procedures may require definition and implementation to ensure that new content contributions are reviewed and approved (or 'moderated') prior to publication. You might also wish to automatically archive types of item when they reach a certain age. A Content Management tool would need to form part of the intranet specification.

This could include a check-list of capabilities such as:

- *Importing existing content*
- *Integration with industry-standard web authoring tools*
- *Templates for non-technical users to author content*
- *Rendition of documents to HTML, XML or PDF*
- *Editing existing content with check in/check out and version control features*
- *Maintenance of previous versions for rollback, audit and library purposes*
- *Security profiles to control content access and editing permissions*
- *Workflows to manage content lifecycles, such as through an approval process*



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The principles behind the design and management of the intranet site should be the same as those desired for an external internet site: that it is attractive, easy to navigate, fresh, reliable, accurate and up-to-date. An intranet site would be organised in much the same way, with a Home Page providing a gateway to the available content. Even for smaller organisations, we recommend that the intranet site should be database-driven and dynamic, rather than a hierarchy of manually maintained static pages. This facilitates the query, contribution and management of content.

We recommend that each item is 'filed' within a subject-matter hierarchy (or '**Taxonomy**') from the general to the specific. You will probably wish to take advantage of people's internet navigational experience and offer hierarchical browsing, based upon the taxonomy. Therefore you could find all items (news, stories, documents etc.) relating to a particular subject matter.

An early task is to think through and specify the initial taxonomy - this will probably relate to the entities which have been defined, as discussed above. Dependent upon the level of investment to be made in the intranet, third party tools are available to assist in 'intelligent' classification, organising information into a digital inventory according to its content/context, based upon pre-defined business rules. This can obviously be very useful when high volumes of historic/new content must be encompassed. One leading provider states that they can categorise upwards of 4 million documents in 24 hours.

In creating the taxonomy, attention should be paid to the corporate "**ontology**" – or managing a commonality of meaning. Thus, for example, what is the common parlance in your business for computing – Information Technology (IT), Information & Communications Technology (ICT) or Management Information Systems (MIS)?

Users should have a 'Favourites' area where they can bookmark or monitor categories, sub-categories or individual items, such as a discussion thread or story. They can be notified of new content matching their roles, responsibilities or interests. Any moves towards personalisation of the intranet will facilitate user acceptance.

Whilst an effective taxonomy will facilitate the structured organisation of information and thus its retrieval, we must also take into account more 'lateral' groupings of content. It may therefore be appropriate to provide 'Keyword' and other Metadata (i.e. "data about data") features by which to further classify intranet content. This might be provided by a dedicated intranet database, the use of HTML META tags or Office document properties. For example, you may wish to establish keywords that define unusual/positive/negative case or scenario 'characteristics'.

I have provided an example list of Metadata below (based upon the criteria by which one might wish to identify or group related items):

- Title or unique description
- Unique ID
- Author
- Subject (i.e. place within the Taxonomy)



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- Abstract
- Keywords
- Creation Date
- Contributors (authors, reviewers, approvers etc.)
- Type (which could represent format or purpose - for example, documents might be classified as Proposals, Agreements, Specifications etc.)
- Relationships (to other items)
- Location (digital or physical)
- Intended audience
- Version

Every item of information included within the intranet should be organic – users should be allowed to add comments or reviews in order to contribute their views and experiences: in this way tacit knowledge is continually captured and the value of information is enhanced.

Locating knowledge by metadata can be usefully complemented by text searching of the content. We would recommend the incorporation of third party search engine technology to deliver this function, potentially incorporating features such as word, phrase, proximity, phonic, stemming, wildcard, fuzzy, concept, pattern, synonym, thesaurus etc. search types. The more advanced search technologies will aid you by distilling 'meaning' from words and phrases and matching this to your 'natural language' request. The scope of the search engine could encompass more than just intranet content - it could embrace email, the internet, file servers, databases etc. The search tool could offer intelligence to rank the returns on a 'best bet' basis.

Here is an example success story of knowledge discovery, as occurred during a demonstration of search engine technology by a leading vendor to British Gas Technology. The great crested newt is an endangered species and if found near an engineering site, the work has to stop and potentially large costs can be incurred by the delay. The search engine 'discovered' that buried in the staff magazine archive was an article about an employee with a newt handling licence. This employee could then be engaged during certain projects to save the company time and money.

However, we would also argue that relying on content searches alone (i.e. as opposed to implementing a taxonomy) can lead to a glut of information and starvation of knowledge, thus debilitating the user experience and making the intranet less attractive. We do not want users to suffer from 'Information Fatigue'!

In summary, a KM solution is likely to be achieved by a combination of database, publishing and collaborative technologies, all fitting together within an architecture that reuses information/knowledge across processes. However, it will only work if there is a company culture instilled to facilitate the contribution of this information/knowledge. Therefore, make the KM programme democratic rather than bureaucratic.



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