

A knowledge management infrastructure for the NSW Fire Brigades

by Anne Pickles

Introduction

A key corporate goal of the NSW Fire Brigades (NSWFB) is using information to learn and improve our service. The NSWFB is an information rich organisation, but at present lacks effective means for sharing information across the organisation, or with other organisations. The NSWFB's Information Management and Technology Strategy has a vision for the NSWFB of:

an efficient, effective, integrated information and knowledge sharing framework.

One of the strategies for achieving this vision is the development of a knowledge management infrastructure, for which the NSWFB is currently developing a business case. This paper will outline the components of the project and discuss how the introduction of the systems of knowledge management infrastructure can be used to move the NSWFB towards a knowledge management culture.

Background

Over the past decade or so, the NSWFB has come to realise that information is an important and valuable asset, to be considered alongside human, physical and financial assets. The increasingly complex social, technological and legislative environment in which we work, the need to work in partnership with other organisations and increasing external scrutiny have required the NSWFB to leverage its information assets to meet the new challenges and keep pace with the speed of change.

Increasingly, employees are seeking better access to accurate, reliable and timely information to do their jobs effectively. The telecommunications and information technology infrastructure has improved greatly, but in many areas access to information has not improved as fast. This is reflected in employee surveys which highlight communication and access

to information as important areas of dissatisfaction. Information managers in the NSWFB increasingly see lack of knowledge management tools as a major impediment to improving services and productivity.

The NSWFB has conducted a review of its records management functions to assess compliance with the State Records Act 1998 and has also reviewed its management of personal information under the *Personal Information and Privacy Protection Act 1998*. In the past year, much work has also been done on analysing user needs for document management and for content management for the NSWFB's Intranet. Another important area of work is the Operational Information Service which is developing business systems tailored to the work of front line firefighters.

The outcome of this research has been a recognition of the need for the NSWFB to build a knowledge management infrastructure, based on integrated records, document and content management systems and including improved data management and workflow tools.

The knowledge management infrastructure project

The NSWFB is currently developing a business case for a knowledge management infrastructure project that will:

1. establish the intranet as the delivery vehicle for information dissemination by:
 - setting up the required network infrastructure,
 - implementing a content management system for publishing, managing and accessing web content in accordance with best practice and Australian and NSW Government standards
 - implementing portal or other technology to provide access to major business applications and enable functions such as employee self service and e-procurement;
2. leverage the intranet delivery vehicles to manage the delivery of information to internet and extranet sites, giving the NSWFB greater capacity for e-commerce, online delivery of community safety and distance learning programs and establishing



The internet can be an effective delivery vehicle for information dissemination

- a platform for shared service delivery with other agencies;
- 3. develop security systems, workflow processes and other shared business processes that are necessary to achieve productivity gains and share information across the NSWFB;
- 4. ensure that NSWFB electronic information systems meet the requirements of the State Records Act and other information management legislation by:
 - determining systems requirements for the management of electronic information as records,
 - developing comprehensive software acquisition and development standards and approval processes to address records management and privacy functionality,
 - upgrading the NSWFB's records management system,
 - incorporating records management functionality into NSWFB business systems, including document and content management systems;
- 5. improve the management of mission critical documentation across the NSWFB by:
 - developing document management standards and processes to a level that will support ISO 9000 quality management certification of NSWFB business processes and meet legal and records management requirements,
 - implementing a document management system that is integrated with the records management system and the content management system, and
 - providing access to the wealth of information held in technical and mission critical documents across the NSWFB.
- 6. ensure that the NSWFB has appropriate systems and processes in place to manage information security in accordance with NSW Government information security guidelines, while maintaining sufficient flexibility to adapt to changing risk environments.

Knowledge management benefits

The implementation of a knowledge management infrastructure as outlined above will obviously have great benefits for NSWFB records managers, document managers, information managers, technical writers, web content managers and online application developers. They will be intimately involved in the project and their needs for compliance and efficiency will form core requirements.

Important as these outcomes are, most of the return on investment will come from the spread of knowledge management capabilities beyond these key information managers to staff across the organisation. At the moment, knowledge management is not perceived as an integral part of the work of most employees (although many of them probably do more of this than they realise!). Records are seen as the responsibility of the records staff and, as the actual records are currently almost entirely on paper, filing is not integrated into work practices. Document management is an esoteric discipline practiced in a few specialist units. Content management is the domain of the webmaster.

A key aim of the knowledge management infrastructure project will be to introduce systems that are integrated with work practices, making compliance with the various laws and standards almost a byproduct of the system, transparent to the normal user.

For example, if when you save a word processing document the system gets you to save it into a record, then record keeping becomes a byproduct of your work. Efficiencies can then be achieved by giving all the other people who need to use that document access to that record in the system, so you will no longer need to send copies of documents to people through the email system. Information entered once can be stored in one location and used many times.

I think it is fair to say that almost all NSWFB information managers wish to increase access to their information systems, to disseminate the information in them more widely and to devolve information creation and management to information users. The information needs of the NSWFB are getting too complex to have all information management channelled through a few managers. We must increase the capabilities of users to manage their own information by giving them the tools and training to do so. The information manager will increasingly become a facilitator and a coordinator, designing the systems, training the users, and managing the technical bits in the background like numbering systems, data management, taxonomies, thesauri and software upgrades.



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Towards a knowledge management culture

The rest of this paper is speculative in nature, as we are too early in this project to predict exact outcomes, particularly where cultural change is concerned.

Communication in the NSWFB is currently a very top down process. Executive management issues various publications distributed to everyone in the organisation, and quantities of memorandums directed to their chain of command. While feedback is theoretically encouraged, historic cultural forces tend to limit feedback from firefighters in fire stations. However, pilot projects and the limited availability of some communication tools have begun to show different ways of doing things that could be built on within the knowledge management infrastructure.

As an example, fire station crews are encouraged to send stories about incidents into Head Office for publication in the NSWFB's magazine *Fire News*. Very few stories are received. However, when a fire station gets to run its own website, the crews often regularly update the site with stories of incidents soon after they happen. With a good content management system, it should be possible to give every station the capability to develop its own website, including incident stories, and, if we get the metadata right, to index these stories chronologically and by incident type so that firefighters can browse for stories in which they are interested. Storytelling is an important method for passing on experiential learning and this could be a good way to make explicit a lot of the implicit firefighting knowledge and use it to feed back into training and standard operational guidelines.

From here, we can go on to develop communities of practice within the NSWFB. As noted before, most NSWFB publications are sent to everyone in the organisation. Budget constraints on publication and distribution, along with the difficulty of identifying diverse audiences, have precluded the development of tailored information resources. The knowledge management infrastructure should provide the opportunity for communities of practice to define themselves, perhaps around discussion boards, or from employees with shared access to records and data sets, working cooperatively across regions and divisions. Examples that spring to mind are firefighters involved in rescue, or hazardous materials response, or interagency Urban Search and Rescue Teams, or juvenile firesetters, or high rise building fire safety, or historic fire engines, or working with Aboriginal communities, or equipment design, or occupational health and safety.

The devolution of responsibility for such communities from central controllers such as the webmaster to trained members of the community of practice, who will have the responsibility for moderating discussions and aligning practice with standards, will empower those members and allow them to become change leaders. Active members of these communities will be a resource from which to draw members of project teams, barriers of distance and shiftwork being reduced by access to records, documents and data previously only available to day shift workers in central offices.

A knowledge management infrastructure could become a significant tool for building trust and confidence across the NSWFB. At the moment, the varying levels of access to information create divisions between the information rich (senior officers and administrative staff) and the information poor (operational firefighters). This is exacerbated by the fact that the information poor generally spend a lot of time providing the data (ie doing paperwork or data entry), the information from which is often only available to the information rich. It is an aim of the NSWFB that the people who provide data should have access to information relevant to them that is generated from that data. For example, firefighters are required to submit an incident report for every incident. In return, they should have routine access to analyses of incidents in their area or region. The ongoing development of applications for routine processes such as incident reporting, personnel management and procurement should lead to higher quality data upon which to base decisions.

Access to the records system and key documentation should reduce uncertainty across the NSWFB. There is currently a large number of reports that are theoretically available to all staff but are actually restricted to staff with access to the paper records, which does not usually include fire station crews. Even line managers often only have limited access to basic organisational information.



A knowledge management infrastructure will give the NSWFB improved capability and capacity

The result is a flourishing unofficial grapevine which often carries wildly inaccurate data very efficiently across the organisation and breeds distrust in management. This is exacerbated by the current situation where firefighters are outside the records management system and cannot monitor the progress of reports or requests that they send in to management or administrative areas. If staff have the capability to access data and source documents to and track the progress of their own communications, it should reduce uncertainty across the organisation and lead to more informed debate on key issues. It may also make management more accountable for communicating with their staff.

The combination of access to high quality data, increased trust and a reduction in uncertainty should then allow the NSWFB to start using knowledge management to increase its capability to provide tailored services to the community at a local level. Local station crews could have the capability to analyse risks to their community and develop local risk management strategies, while managing their staffing, budget and resources. These local strategies would fit within wider organisational strategies, with feedback both up and down on trends, priorities and resources. Success stories and lessons would be shared across the organisation through communities of practice.

In addition, it is intended to build into the knowledge management infrastructure a platform for shared service delivery with other agencies, such as other emergency services. The NSWFB is involved in many cooperative arrangements to provide services to the community. For example, Bushfire Management Committees, Local and District Emergency Management Committees, the Fire Services Joint Standing Committee and cooperative

arrangements with NSW Health, the Department of Housing, the Department of Community Services, Juvenile Justice, Aboriginal Affairs and Local Government. There are major projects underway with other agencies to develop and share geographic information systems. An extranet could provide agencies we work with and the community we serve with access to Mutual Aid Agreements, Memorandums of Understanding, Disaster Plans and Fire District Boundary data. An extranet could also be used to facilitate our commercial dealings with contractors and the suppliers of goods and services to the NSWFB.

Conclusion

The introduction of a knowledge management infrastructure will give the NSWFB the tools to move towards a knowledge management culture. The NSWFB is fully aware that the introduction of new technology and systems will not, in itself, lead to cultural change, but the building of capability across the NSWFB is an important step in the process.

As capability and capacity grows, so to will the capability of staff to drive change from all levels of the organisation and I expect a shift from change driven from top down to more emergent forms of change, driven by local needs but leading to a ever better fit between the NSWFB and the community it serves.

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