Knowledge Management

Staying in Front

Report of Knowledge Management Initiatives in the Department of Education Training and Youth Affairs Canberra

by
Professor Ron Johnston
Executive Director
Australian Centre for Innovation

June 2000

Introduction

This project grew out of the commitment to establish outstanding organisational capabilities in understanding, anticipation, creation, influence and implementation within DETYA. It was recognised that these organisational capabilities are closely linked to the organisation's values of cooperation, creativity and learning as set out in the Corporate Plan, and in particular, to the commitment to "actively create, seek and share knowledge and information in our work".

The objectives of this project were to:

- enhance and diffuse the understanding of the role and contribution of knowledge management across the staff of the Department;
- to develop an analysis of the various kinds of knowledge work carried out within the Department, and of their relative contribution;
- to identify a number of cases of good practice in knowledge management within the Department; and
- to draw lessons and make recommendations for improving the level of knowledge management within the Department.

In order to pursue these objectives, a three-phase project was developed. The first phase involved two introductory workshops, in which staff were introduced to the concepts of knowledge work and knowledge management, and provided with some instruments to explore their own practices in knowledge management.

In the second phases, a work analysis matrix was used to distinguish between four different types of work according to their degree of complexity and interdependence. An attempt was made to characterise all DETYA Sections according to this model, and to present an overview of the work-type distribution.

In the third phase, it was proposed that the most appropriate approach for the further development of effective knowledge management practices and systems in DETYA was via a case study approach, based on the following principles:

- no 'standard model' of knowledge management exists, or can be applied across the Department;

- while formal knowledge management systems can be implemented, the tacit nature of much knowledge places the emphasis on informal processes and systems;

- hence the most effective approach to learning knowledge management is through doing, and through learning from other's experience;

- there are many instances of effective approaches to knowledge management within the Department;

- an approach based on capturing and sharing methods used and insights arising from knowledge management developed in different parts of the Department addressing different needs, through selected case studies, provides a means of sharing good practice, and demonstrating effective knowledge management.

Hence, after a brief survey of knowledge management projects in the Department, five case studies were selected for more detailed examination.

The Role of Knowledge Management

Over the past decade, however, there has been a considerable upsurge in interest in and analysis of the nature and contribution of knowledge to the modern economy and society. Drucker maintains a society is emerging that is dependent on the development and application of new knowledges: "knowledge is being applied to knowledge itself".[1] Productivity is becoming dependent on the development and application of new knowledge by specialist knowledge workers.

An increasingly common argument[2] is that the character of the economy, national and international, is being transformed. One major component of this, along with globalisation and electronic connectivity, is the increasing knowledge intensification of all economic activity, and the emergence of trade in knowledge as a commodity in its own right.

The two defining characteristics of the global knowledge economy are the increased knowledge intensity of the processes of creation, production and distribution of goods and services, and the fact that economic processes are becoming increasingly integrated on a global basis. Neither of these two elements is new to the world economy, but both their rising intensity and their mutual interaction are of a new order.

The new modes of production and distribution of knowledge have changed radically the role of knowledge in economic development. The industrial economy, based on goods and services, is being matched, and in some cases displaced, by the global knowledge economy, based on the production, distribution and use of knowledge. As the OECD puts it, the power of information and communication technology gives the global knowledge economy a new technological base which:

> fundamentally changes the conditions for producing and distributing knowledge as well as linking it to the system of production. [3]

---

[1] Drucker, P.,1993, *Post-Capitalist Society*, Butterworth.

[2] Johnston, R. 1996, 'The new drivers of innovation in the knowledge economy', in *Dialogues on Australia's Future*, (Sheehan, P., ed.), pp.229-240.

[3] OECD, 1996, *Employment and Growth in the Knowledge-Based Economy*, Paris, p.13

Since the 1970s the pace of this process has accelerated rapidly, because of the increasing availability of vastly improved processes for generating, storing and using knowledge. This increased knowledge intensity is evident in production and trade flows for both goods and services - the increasing importance, for example, of knowledge-intensive products such as education, health and complex financial services - and also in both the qualifications of the employed labour force and the pattern of employment within manufacturing.

To summarise:

> Knowledge in the form of technology market information, is the principal resource in the world economy, especially knowledge in its dynamic form as the capacity to generate new technologies and to market new products.[4]

Drucker has emphasised the need for a new theory of the knowledge-based economy, as current assumptions about economic behaviour quite obviously do not apply. Thus, in the knowledge economy, imperfect competition is inherent, increasing returns are the rule rather than the exception, neither consumption nor investment appear to determine the level of knowledge production, and the quantity of knowledge bears no relationship to outcomes.

> Within this complex structure of differentiated knowledges, **what determines performance is not so much knowledge creation as the "distribution power" of the system**: the system's capability to ensure timely access by innovators to the relevant stocks of knowledge. The distribution power of the system affects risks in knowledge creation and use, speed of access to knowledge, the amount of socially wasteful duplication, and so on.[5]

As a consequence, it is:

> knowledge of how to develop new knowledge, how to locate and acquire rapidly knowledge generated elsewhere, how to diffuse knowledge throughout an organisation, how to recognise possible inter-connections between two distinct pieces of knowledge, how to embody knowledge in products and services, how to obtain access to the learning experiences of customers - all of these are the challenge for the modern manager, and for those who would make policy.[6]

While the emphasis of analysis of knowledge management has been on the private sector, it is evident that public sector organisations are centrally involved in the manipulation of knowledge and information. Indeed, it has long been a central component of their activity. Hence, new insights into the management of knowledge, and the availability of new technology to capture and store codified knowledge offer considerable promise.

[4] Cox, R. 1987, *Production, Power and World Order*, New York, University Press.
[5] OECD, 1994, Interactions for Knowledge Systems: Foundation, Policy Implications and Empirical Methods, Paris, p.13
[6] OECD, 1994b, *Accessing and Expanding the Science and Technology Base*, Paris, p.14

Analysis of knowledge management has quickly revealed that single, standardised models are inappropriate. Different organisations (and parts of organisations) operate in different environments with different needs. Andersen Consulting[7] have developed a framework that associates specific knowledge management strategies with the challenges an organisation faces. This framework is based on the premise that the focus should be on the way knowledge is used to build the critical capabilities an organisation needs.

The framework is based on categorising work according to the level of interdependence involved, and the complexity of the work. This produces a two-by-two matrix with four work models: *transactional* (low complexity, low interdependence), *integrative* (low complexity, high interdependence), *expert* (high complexity, low interdependence) and *collaborative* (high complexity, high interdependence) - Figure 1.
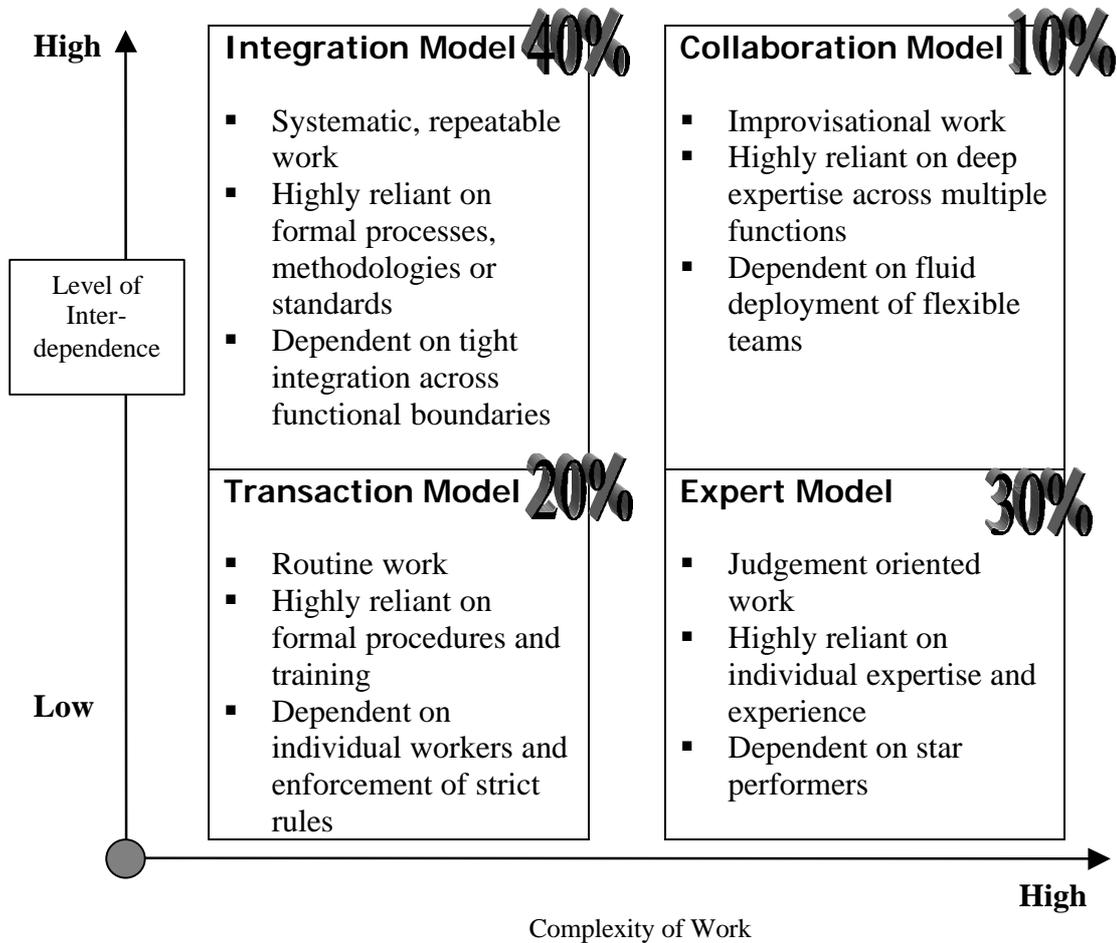
Figure 1
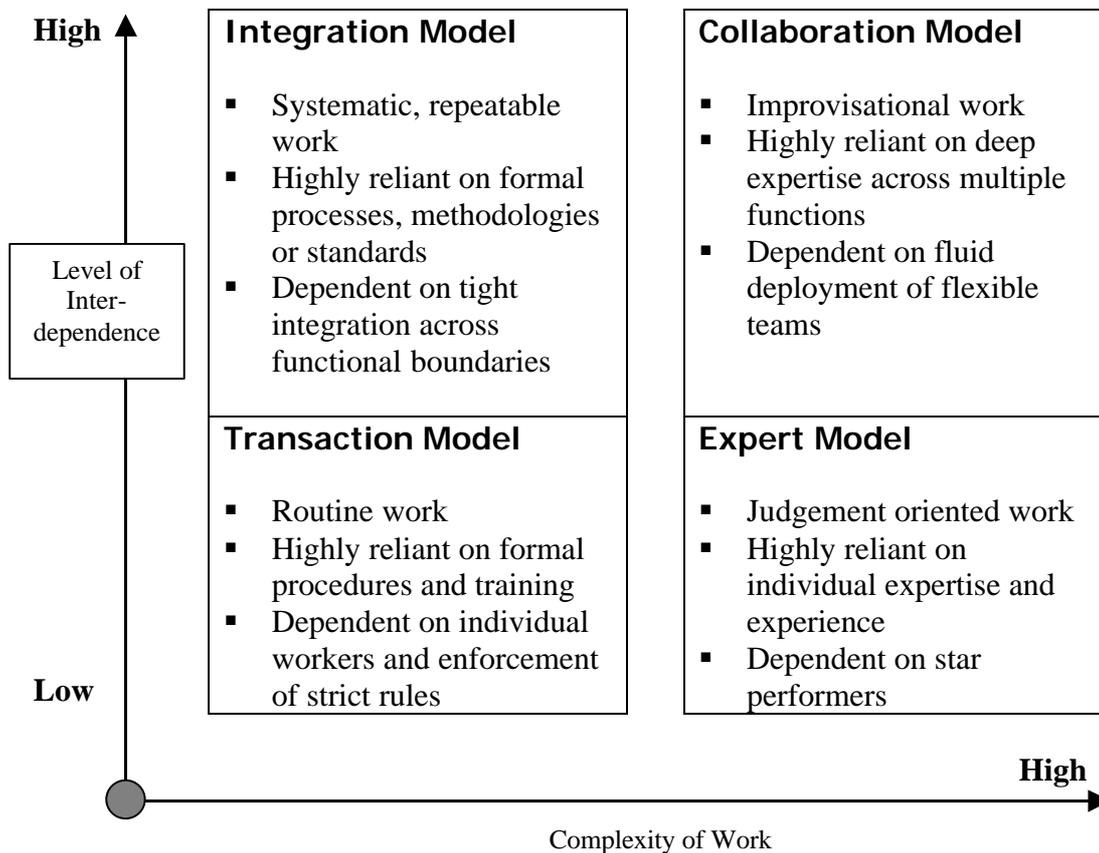
The model has been applied to DETYA by a group of officials from the Knowledge Management Working Party, through a process of allocating each section to predominantly one work model, based on their functional responsibilities. The results

---

[7] Donoghue, L.P., Harris, J.G., and Weitzman, B.E., 'Knowledge Management: Strategies that Create Value',

are shown in Figure 2. Some 60% of work activity, assessed this way, has low complexity, and 40% has high complexity. Interdependence is evenly spread. Consequently, the most common work model is low complexity, high interaction *integrative* work. The least common is high complexity high interactive *collaboration* work, where high levels of innovation and rule-breaking are to be expected.

Figure 2

	Integration Model 40%	Collaboration Model 10%
High ↑	▪ Systematic, repeatable work ▪ Highly reliant on formal processes, methodologies or standards ▪ Dependent on tight integration across functional boundaries	▪ Improvisational work ▪ Highly reliant on deep expertise across multiple functions ▪ Dependent on fluid deployment of flexible teams
Level of Inter-dependence	Transaction Model 20%	Expert Model 30%
Low	▪ Routine work ▪ Highly reliant on formal procedures and training ▪ Dependent on individual workers and enforcement of strict rules	▪ Judgement oriented work ▪ Highly reliant on individual expertise and experience ▪ Dependent on star performers

Complexity of Work → **High**

This framework has been further developed by the author to reflect the different types of, and approaches to, knowledge management appropriate to each work model.

Figure 3

Knowledge Management Framework
(copyright ACIIC 2000)

Level of
Interdependence

	Routine	Interpretation/ judgement
Collaborative Groups	**Integration Model** *People* ▪ cross-functional skills ▪ regular training *Processes* ▪ standardised procedures ▪ strong communication processes ▪ knowledge codified where possible *Systems* ▪ knowledge location (inside/outside) ▪ IT-based information systems ▪ incremental improvement systems	**Collaboration Model** *People* ▪ high creativity ▪ deep and broad expertise *Processes* ▪ alliances ▪ creativity/brainstorming ▪ open knowledge 'architecture' ▪ teaming ▪ knowledge exchange through workshops *Systems* ▪ knowledge creation ▪ shared learning systems ▪ largely tacit/informal ▪ knowledge search systems
Individual Actors	**Transaction Model** *People* ▪ targeted skills ▪ regular training ▪ problem solvers *Processes* ▪ standardised procedures ▪ all knowledge codified *Systems* ▪ work routines ▪ IT-based process control ▪ incremental improvement systems	**Expert Model** *People* ▪ specialists ▪ challenge motivated ▪ problem/opportunity identifiers ▪ strongly networked outside organisation *Processes* ▪ interaction with a range of people ▪ personal development ▪ teams built around experts *Systems* ▪ knowledge support systems ▪ translation and dissemination
	Routine	Interpretation/ judgement

Complexity of Work

These frameworks have been used in preparing the case studies.

7

Case Studies of Knowledge Management

Case Study 1

Legal Knowhow

Information and Knowledge Systems

Legal, Business Assurance and Investigations Branch

Synopsis

Interviewees: George Kriz, Jenny Dunstan

- **LRS** (Legal Reporting System) – designed to enable requests to be tracked electronically, capturing requests made, jobs performed, future tasks, linked to a diary reminder system and providing a 'costing' mechanism.

- The **LAD** (Legal Advice Database) – an electronic plus paper-based database which contains all legal advice provided against a set of pre-determined categories: client, relevant Act or regulation, keywords identifying the essence of the advice, the question and short answer in non-legal language as far as possible, and the background.

- **Second Counsel** – a system of peer review whereby legal opinions are reviewed, and signed off, by a colleague.

Key Stages and Components

- *The Challenges* – lack of a project management system which could identify workflow, location and progress; advantages of legal opinions written in a simple reader friendly format; need to track previous advices and build efficient cumulative system; desire to establish professional responsibility for judgment.

- *The Champion* – George Kriz.

- *Design and Development* – pre-existing LRS complicated and under-used was redesigned by GK with other lawyers of the Branch to provide simple work and document tracking system (common in legal practices). LAD system based conceptually on previous experience of GK, but needed new technology system; the categories of information and keywords are essentially evident to lawyers, but tested with staff before introduction.

Once designed, it was turned over to a programmer (outsourced for LRS, in-house for LAD). A simple template developed for reporting legal advice; LRS data entered by all staff. Data entry for LAD is centralised to maintain quality (editorial control by Jenny Dunstan). LRS available to all in Branch, LAD available only to people in the legal sections.

- *Technology* – prime requirement was simplicity in terms of use and accessibility (eg no text search capability on whole document just on short questions and answers). Shaped by user needs, not technology capability; LAD written in Microsoft Visual Basis but uses Microsoft Access for data tables and Word for reporting. LRS is a Microsoft Access database.

- *Promotion/Training/Adoption* – range of promotional measures, including exhortation, group and one-on-one training sessions, 'data shows'. Adoption essentially universal, primarily because "it helps people do their job better".

- *Culture and Management Style* – LRS might have been viewed as a work management system – its effective adoption rested on a culture of support and responsibility rather than policing. The LAD system was imposed, but designed to allow a great deal of flexibility in how staff use it for reporting. Second counsel moved decision-making process and responsibility from the hierarchical to the professional model. This promoted a shift to collegiality, wherein contributions were designed to improve the decision (with occasional robust debate) rather than to demonstrate superior intellectual capacity.

- *Capability/Impact* – basis of speedier response capability to provide legal advice (accumulated history of advices now instantly accessible). Search capacity allows new staff to 'stand on shoulders' of their predecessors. LRS-based data extremely useful in market testing Advices from outside organisations now required in LAD format; tenders from new legal panel require billing against LRS categories. Unfinished work greatly diminished; client satisfaction increased.

- *Wider applications/implications* – LRS system is directly transferable to the Department, with minor adaptation, providing culture is appropriate; second counsel peer review offers a model to achieve higher quality and responsibility, and reduce hierarchy-based approval/clearance bottlenecks.

Applying the Knowledge Management Perspective

- *The design of the LRS and LAD systems was expert work; key KM issues are adequacy of expertise, strong problem/opportunity identification, adequacy of knowledge support systems – all seem to have been effectively met in this case.*

- *Operation of LRS and LAD constituted a mix of transaction and integration work; Key KM issues are standardised procedures, regular training and reinforcement, IT-based systems linked to work routines, and strong communication processes - all seem to have been effectively met in this case.*

- *The champion was in a position of authority, but relied largely on persuasion, and the value of the system, to promote adoption.*

- *The design of the LRS and LAD was from a user- rather than a technology-perspective; it used simple technology and was under-designed, in contrast to the over-design common in technology driven solutions.*

- *The design of the systems was expert work, relying largely on GK's knowledge and previous experience.*

- *Even the specialist knowledge of particular lawyers could, at least in part, be codified and made readily available to others with the necessary knowledge competence to understand and interpret.*

- *LAD provides a substantial basis for speedier response legal advice.*

- *The use of LRS and LAD are primarily transaction work, and rely on a simple self-learning system and some training, oversight and remedial tutoring.*

- *The supportive culture encouraging self-responsibility was essential in the effective adoption of the system.*

- *The peer review Second Counsel provides a regular and compulsory knowledge exchange process.*

<div align="center">

Case Study 2

University Intelligence

Systems for Collecting and Sharing Intelligence about Australian Universities

Higher Education Division

</div>

Synopsis

Interviewees: Sharon Field, Karen Sandercock

- Arising from changes in function, a detailed environmental scan, the requirement to become more effective in intelligence-gathering, and the need to strengthen organisational anticipation capability, the Division has committed to establishing an institutional desk officer (IDO) for each higher education institution.

- The desk officer system is proposed to provide a systematic search capacity and repository of public and collected strategic information on each institution.

- The IDOs are one element of a number of initiatives occurring within Higher Education, which are designed to establish a more integrated framework for knowledge management and communications within the Division.

- Major tasks will include liaison, developing a library of relevant publicly available information including course handbooks, governance structures, key staff, and newsletters, scanning Websites and media sources, identifying topical issues from University Profiles Visits, analysing and cataloguing this information in accord with agreed categories, and preparing and maintaining an Institutional Brief.

Key Stages and Components

- *The Challenge* – to provide accurate, detailed and rapid information about Australian universities to the portfolio Minister, other Ministers and the Divisional and Departmental Executive, and to use this capability to better inform the Profiles process.

- *The Champion* – Mike Gallagher proposed the idea, but left it to others to develop and implement.

- ***Design and Development*** – substantial planning at senior level eg idea explored at Executive Group meeting, draft terms of reference for institutional desk officer (IDO) discussed, the draft template for recording information was discussed jointly by Branch Heads, selection of desk officers examined one by one at Executive Group meeting.

  Model is for each desk officer to spend about an hour a week collecting and storing relevant intelligence, and to act as 'ears' of Division to pick up significant developments. Managerial responsibility has been allocated to the Executive Services and Communications Unit (ESCU). KS has responsibility for the IDOs, and will design clear simple procedures, to be encoded in a document.

  Two issues of major concern in the design process appeared to be maintaining control of the IDOs, avoiding excessive time commitment or inappropriate engagement with the university, and avoiding overlap with line responsibilities.

- ***Technology*** – at this stage only a print storage and sorting model is envisaged

- ***Promotion/Training/Adoption*** – by presenting the desk officer responsibility as an opportunity for personal development, and opportunity to travel to Profile visit, there was a large positive response to the call for Expressions of interest in the desk officer positions. Training will be provided once the design of the operation is bedded down and all desk officers appointed.

- ***Culture and Management Style*** – the culture of the Division is one marked by sharing of knowledge, and respect for individual contributions which allowed the idea to be rapidly developed and refined.

- ***Capability/Impact*** – the IDO system should enhance the intelligence capability; however there are a number of issues to be resolved which would impact on its effectiveness – see below.

- ***Wider applications/implications*** – desk officer systems have been used for addressing various times inside the Department and in other Departments. The principle is well established; what may be new is explicitly designing and operating a desk officer system as a knowledge management process.

Applying the Knowledge Management Perspective

- *The principle tasks involved are the design and operationalisation of a transaction model ie the work is largely characterised by low complexity and low interdependence. Key KM issues are standardising processes, quality control (including allowing for staff turnover), identification and development of appropriate skills, clearly defined work routines and encouragement of incremental innovation. Some of these issues are yet to be fully addressed.*

- *This is regarded as only one element of a more sophisticated knowledge management strategy the Division is attempting to build. The emphasis is on building the skills and knowledge base of individual staff, before moving the Division to a more expert model, where interpretation and judgement are paramount. The challenge of transition from transactional to expert is considerable, and full awareness of the different work, learning and knowledge styles appropriate to each will need to be considered.*

- *In addition, consideration will need to be given to effectively interfacing and integrating the largely transactional IDO knowledge management, with other aspects of the Division's knowledge management system, which will involve higher levels of interaction and collaboration.*

- *The choice of a transaction model will allow the collection and capture of routine information; however it may provide a fairly limited information base on which to build an adequate intelligence system.*

- *Key knowledge management issues yet to be addressed include how to store, how to classify, and how to ensure access to information collected.*

- *Consideration should be given to developing a simple electronic information storage, search and retrieval system; the Legal Branch's LAD system is one such model; a Directory of IDOs, similar to that included in the BILL system may be very useful.* (the Division has since decided to adopt the BILL system).

- *A decentralised/distributed model has been adopted for the intelligence system; this has the virtue of engaging far more people in the Division in this activity; however it may lack the economies and efficiencies of a very small dedicated unit.*

- *There is some potential for mismatch and tension between the routine information gathering and analysis activities of the IDOs and the specialist knowledge and interests of more senior staff. Ideally, they should be viewed and managed as complementary sources, each with a very different character.*

Case Study 3

The EdTech Package

Education Technology Advisory Committee
Education Technology Team
Education Technology Portal

IT Strategies and Services Group

Synopsis

Interviewees: Ian Lucas, Janette Lenz, Vivienne Teoh

- EdTAC (the Educational Technology Advisory Committee) was established by CLG in May 1999 to develop and implement a strategy for ensuring ongoing coordination on education technology issues across the Department.

- The Education Technology Team, within the ITSSG, has the responsibility of promoting the use of information and communications technologies to enhance the cost effectiveness, quality and accessibility of education and training, and to coordinate responses to education technology related issues where these cross sectoral boundaries.

- The EdTAC Portal has been, and continues to be, developed as a virtual workspace where those interested in education technology can locate relevant news and views, media releases, key reports, DETYA and external papers, meetings, conferences, and sites designed to provide interaction through a discussion forum, seek assistance, or post information on a bulletin board.

Key Stages and Components

- *The Challenges* – Responsibility and working relationships on education technology issues within the Department are decentralised, with different initiatives and responses arising from different groups. Because ICT creates so many new linkages, it was considered that there was a strong and growing risk that initiatives undertaken unilaterally will create duplication, or at best sub-optimal outcomes.

  Furthermore, there was a need for:

- coordinating Departmental input to whole-of-government initiatives such as the Education and Training Action Plan for the Information Economy;
- ensuring cross-fertilisation and coordination within the Department on information economy issues; and
- promoting the development of unified Departmental perspectives on programmes and initiatives and issues being dealt with by other Commonwealth portfolios that impinge on ETYA portfolio interests.

- *The Champions* – Ian Lucas, Janette Lenz, Vivienne Teoh, with encouragement from Tony Kwan.

- *Design and Development* – EdTAC was formally established by CLG as an advisory committee, reporting to the People and IT Committee (PITC); but in practice it is designed to operate less as a formal committee, and more as a 'community of practice', involving those at whatever level who have a strong interest or responsibility in education and technology issues.

   The Education Technology Team has been established without line management responsibilities. Hence it has considerable freedom to innovate, but needs to work with and persuade the line managers, who have the resources, to invest in IT-related projects. The individuals in the team are, by disposition and career history, committed change agents. Their perspective is not that of the technology specialist.

   The Education Technology Portal was designed and developed through a process of intensive interaction between the Education Technology Team, strongly influenced by substantial input from many staff. The categories grew out of the expressed needs of potential users, and were then translated into working IT systems by the specialist technical team, who were very keen and dedicated.

- *Technology* – an internal site linked through the DETYA Intranet, and email system, using AGLS Metadata.

- *Promotion/Training/Adoption* – Extensive training and promotion effort; periodic demonstrations and information sessions (at the request for particular groups in the Department), user manual, seminars, email 'attention grabbers'– future areas include tutorials (for groups of 8) and one-to-one training.

- *Culture and Management Style* – the Educational Technology group have a tight, shared ethos. By establishing the team outside line management, they have the capability to take whole-of-Department views and propose innovative initiatives relatively easy. The challenge is to do this in a way that does not provoke resistance from line Divisions.

   With regard to use of the EdTech Portal, there has been evidence of reluctance among some staff to contribute to Discussion Forums in which their contribution is attributed. Apparently, the fear of making a mistake is greater than the incentive to join in collegiate learning. This suggests that the Department still has some way to go in terms of fostering a genuinely collegiate ethos and culture.

- *Capability/Impact* – since the launching of the EdTech Portal, there has been a steady increase in interest and use, with evidence of significant sharing of education technology interests. This would suggest that both stocks and flows of information about education technology have increased.

- *Wider applications/implications* – this system based on developing a self-selected community of interest, a small dedicated team to drive the process, and a useful intranet-based information database, provides a useful demonstration of how a special interest which crosses structural boundaries can be facilitated in a non-centralised and relatively non-costly manner.

Applying the Knowledge Management Perspective

- *The work model of both EdTAC and the EdTech team is collaborative; key KM elements, which seem to have been largely present in this case, are high creativity, deep and broad expertise, teaming, face-to-face knowledge exchange, and recognition of the high tacit component.*

- *The design, implementation and promotion processes reflect an adherence to the provision of a service which assists and expands the capabilities of others, as opposed to a technology driven solution designed for a wide range of possible uses to which users must adapt.*

- *The close interaction between people-based knowledge sharing (the community of interest around EdTAC) and systems-based information (the EdTech Portal) provides a strong exemplar of an effective knowledge management approach to address needs which cannot be precisely articulated, and which are expected to change and develop rapidly.*

- *One potentially valuable feature to add to the EdTech Portal is a Directory of interests and expertise; the BILL case study provides an exemplar.*

- *The concept of constructing a virtual workspace to encourage and facilitate collaboration across the Department is worth further examination.*

- *Senior management will need to actively support and encourage innovative models; just supplying a hands-off environment to see if initiatives can 'stay the course' is insufficient.*

Case Study 4

BILL

Bureau Information Links and Library

Youth Policy and Review Section

Synopsis

Interviewees: Joy Manly, Ben Clews and Peter Boege

BILL provides access for staff in the Youth Bureau to:

- A library focussed on the broad range of interests of the Youth Bureau, in the form of a series of interlinked spreadsheets containing a listing of documents under specific categories, document location, and where available, direct URL links;
- Contact details and websites of the Bureau's stakeholders and other relevant organisations;
- Links to frequently used information, such as briefings, speeches, agendas and outcomes of meetings with the Minister, etc;
- A Staff Directory which provides contact details of all Bureau staff, what they are working on, special initiatives they are involved in, and forthcoming significant events;
- Instructions on processes and procedures eg. how to book a telephone conference, how to process a Ministerial, how to request and ISBN number.

Key Stages and Components

- *The Challenges*
  - to address internal knowledge/information needs,
  - to make collected documentation more readily identifiable and accessible,
  - to develop an effective mechanism to find out 'who does what' and 'who knows what',
  - to develop the capacity to rapidly brief the Minister on the very wide range of organisational stakeholders in the area of youth, and
  - to turn individual knowledge and information resources into effective Section and Branch resources.

- *The Champion* – Joy Manly, with encouragement from Ian McKay.

- ***Design and Development***
  Library – initially developed by Joy Manly and Laura Santini, (who had necessary computer skills) in 'after hours' time, after Department Library was unable to assist in cataloguing the Section's and individual's document collections on youth issues, and was unable to isolate youth-specific literature.

  They had no specific library expertise, but JM's knowledge of what people in the Bureau need, based on experience in research and policy, and a 'see what emerges from the data' approach, has produced a stable and apparently useful working classification.

  Links and contacts – also developed by JM and LS, but with management support (ie time to do it); built on Youth Bureau's research network, but had to do significant information collection to establish detailed contact list; links to important documents edited by JM.

  Staff Directory – developed by Ben Clews as an Access database for HTML functionality. Initially not planned for BILL, but JM saw the advantages of delivering it through the BILL vehicle. It was designed so staff can update their own information (cf LRS). But because precision of data entry is required to match Access search criteria, input sometimes needs to be formatted by an editor. BC had to 'learn his own way into the software' because specialist support was not available.

- ***Technology*** – 'Front Page' for pages with links to three BILL segments. Excel for Library – hyperlinked to abstracts (in Word), web pages and URLs. Front Page for Links and Contacts - hyperlinked to web pages and URLs. Microsoft Access database for Staff Directory – hyperlinked to web pages. Mindit – service that provides regular information regarding changes to links to websites.

- ***Promotion/Training/Adoption*** – significant reluctance from staff who saw disadvantages in sharing information, and those who believed IT systems were their responsibility; like all inter-connected systems, effectiveness increases exponentially with the number of people who use it ("lack of input means lack of applicability, lack of applicability means lack of use, lack of use means lack of input")

  Promotion has been through email ('What's New on BILL'), announcements at Branch and Section meetings, and much assistance and one-on –one training by JM and her team. Use has been increasing, particularly since the addition of the Staff Directory feature, for which there is no alternative source, and use is spreading increasingly across the Branch.

- ***Culture and Management Style*** – BILL is another example of a 'bottom-up' knowledge initiative, designed to meet direct and immediate needs of staff in meeting their responsibilities. Such bottom-up initiatives may clash with those seeking to establish uniform IT systems across the Department. In addition, there is not an established culture of sharing knowledge in some parts of the Department, which will need to be addressed.

- *Capability/Impact* – BILL has provided the means for rapid briefing of the Minister on youth issues and youth stakeholders; increasingly, it is being used *as* an information and expertise location mechanism, though there is still the regular cry of 'who knows this'.

- *Wider applications/implications* – Inquiries from other Divisions – Higher Education Division are looking at using BILL as a model for their information/knowledge management needs and intend to implement this soon. The idea is that BILL can be 'cloned' across the Department, with all staff being able to link into each clone. Current IT environment would need to be revamped to enable access between clones. Possible system for a Department wide Directory and Contacts perhaps organised by each Division.

Applying the Knowledge Management Perspective

- *This knowledge management approach is strongly user-driven, and might be considered to have been developed on the basis of an expert model, though the expertise was in the information needs of staff rather than in system design.*

- *The operation of BILL is largely in transaction terms, though the evidence of take-up suggests that a more active application of an integration model approach might be more effective. This would place greater emphasis on cross-functional skills, strong communication processes, and greater investment in location of relevant knowledge inside and outside the organisation.*

- *Ownership of new information/knowledge systems is a crucial stage in their development and use; where there is real or apparent competition, there will be conflict.*

- *An effective champion is also crucial.*

- *Different parts of the Department have different intelligence needs; it is therefore inevitable that 'intelligence islands' will develop; an appropriate KM approach would support the effective operation of these specialist intelligence needs and capabilities.*

Case Study 5

State Education Group

A Cross-Departmental Rapid Briefing Capacity

Synopsis

Interviewees: Adrian Fordham, Robyn Bergin, Frances Hetherington, Chris Evans

- The State Education Group (an ad hoc cross-Departmental group) has been established to enable the Department to provide the Minister with more accurate, reliable, relevant and timely intelligence on developments in education in each State/Territory particularly in relation to budgets, policy developments and priorities.

Key Stages and Components

- *The Challenge* – providing the Minister with more accurate, reliable, relevant and timely intelligence on developments in education in each State/Territory particularly in relation to budgets, policy developments and priorities.

- *The Champion* – Adrian Fordam was delegated responsibility by CLG to oversight the operation of the mechanism.

- *Design and Development* – a small working group was established to prepare a recommended strategy to CLG; they considered that there would be a need to provide intelligence on *regular and predictable* matters (eg State Budgets), *irregular but predictable* matters (eg release of reports) and *unpredictable matters*. Predictability evidently applied to timing rather than content).

  It was recognised that much information is readily available, but an effective response would require the extraction of meaning, and hence have to rely on accessing relevant knowledge through networks.

  A decentralised model was favoured, requiring each Division to organise its own input into the process, though it was recognised that different Divisions had different approaches, and degrees of systematic scanning. For some Divisions, this required the development of new methods of analysing and presenting budget-based data, to allow

- *Technology* – not applicable.

- ***Promotion/Training/Adoption*** – the decentralised reporting system was adopted, and given its first test in a 'live' briefing on the Victorian education budget; there were some organisational hitches, and lack of comparability or standardisation between the inputs from the Divisions, but that has rapidly been normalised.

- ***Culture and Management Style*** – not applicable

- ***Capability/Impact*** – the capability to provide a fast-response briefing on State/Territory Budgets has now been established. Extending this capability to addressing more diffuse and unpredictable issues is yet to be developed.

Applying the Knowledge Management Perspective

- *The work and knowledge management style applied to this challenge was a mix of integration and collaboration. Some of the key issues to be considered include, ensuring an adequate range and breadth of expertise in designing the 'mechanism', the value of a brainstorming approach prior to narrowing to preferred alternatives, establishing means to ensure fast learning, and a sharing of that learning, between participants, and building in an encouragement for incremental innovation.*

- *Once the immediate pressure of State/Territory Budgets are passed, it may be useful to stage one or more simulations, which would allow an in-house test of the adequacy and responsiveness of information systems and knowledge networks, with an emphasis on learning rather than error detection.*

- *Some staff regards knowledge networks as a private resource, which confers individual advantage. This is an inevitable response in an environment that is highly competitive at the individual level. There may be a need to balance the benefits of such a competitive environment by encouraging and rewarding a culture in which sharing of knowledge networks is valued.*

- *One key weakness of the decentralised model adopted is quality control; appropriate procedures will need to be developed to ensure common quality assurance processes and standards.*

- *There is an inevitable tension in this 'fast intelligence' process between encouraging learning and innovation (in order to get better) versus output (giving the 'right' advice every time); the tension needs to be creatively maintained and managed.*

Conclusions

Specific recommendations for consideration by those responsible for each of the case studies have been included in the case study analysis. Some issues that have general application to the Department are explored below.

1. The application of the work model framework, augmented to address the knowledge management requirements, appears to be an effective tool for knowledge work analysis and management. This framework appears to be useful in clarifying the appropriate kind of knowledge work to be adopted for a particular need, and in designing the knowledge and work management.

2. Different parts of the Department have different intelligence needs. It is therefore inevitable that 'intelligence islands' will develop. An appropriate knowledge management approach would support the effective operation of these specialist intelligence needs and capabilities, rather than attempt to impose a 'one-size-fits-all' model.

3. The work model that seems to be most effective in the development of a knowledge management system is collaborative. Key knowledge management elements are high creativity, deep and broad expertise, teaming, face-to-face knowledge exchange, and recognition of the high tacit component.

4. The close interaction in *'The Edtech Package'* (Case 3) between people-based knowledge sharing (the community of interest around EdTAC) and systems-based information (the EdTech Portal) provides a strong exemplar of an effective knowledge management approach to address needs which cannot be precisely articulated, and which are expected to change and develop rapidly.

5. Transaction-based information systems can be an efficient way to capture and deliver prescribed information. However they may have limitations in:
   - providing a sufficiently broad and flexible information base on which to build an adequate intelligence system;
   - integrating with other aspects of a knowledge management system, which will involve higher levels of interaction and collaboration;
   - take-up by staff; a more active application of an integration model approach might be more effective, placing greater emphasis on cross-functional skills, strong communication processes, and greater investment in location of relevant knowledge inside and outside the organisation.

6. A strong champion can be very important. This can either be a committed individual with responsibilities at the task level, or a senior member of staff, who relies largely on persuasion, and the value of the system, to promote adoption.

7. The design, implementation and promotion of information management systems appear to be more effective when they adopt a user-perspective rather than a technology-perspective. Commonly they used relatively simple technology and were under-designed, in contrast to the over-design common in technology driven solutions. The emphasis was on the provision of a service that assists and expands

the capabilities of others, as opposed to a technology driven solution designed for a wide range of possible uses to which users must adapt.

8. A supportive culture, with active encouragement from senior staff for self-responsibility is essential in the effective adoption of a knowledge management system.

9. Achieving ownership of new information and knowledge systems is a crucial stage in their development and use. Where there is real or apparent competition, there will be conflict.

10. Some staff regard knowledge networks as a private resource, which confers individual advantage. This is an inevitable response in an environment that is highly competitive at the individual level. There may be a need to balance the benefits of such a competitive environment by encouraging and rewarding a culture in which sharing of knowledge networks is valued.

11. The concept of constructing one or more 'virtual workspaces' on the Intranet to encourage and facilitate collaboration across the Department in selected areas is worth further examination.

12. There is an inevitable tension in 'rapid response' processes between encouraging learning and innovation (in order to get better) versus output (giving the 'right' advice every time). The tension needs to be creatively maintained and managed.