

A Knowledge Management Approach, to Unifying Key Operational & Strategic Plans for North Wales Health Authority, UK

Putting Knowledge Management into Context

What is Knowledge Management?

"Knowledge Management is a new focus on information and knowledge:

- It is about creating an environment in which information and knowledge is valued
- & an environment where **information and knowledge is shared, managed and used.**"

(Nigel Oxbrow & Angela Abell, TFPL, Health Management Librarians, London, February 1999)

Knowledge Management is an emerging global discipline which is beginning to become established within the NHS. The National Electronic Library for Health is establishing a virtual Knowledge Management floor as part of the project.

"Knowledge management is all the rage...As with any new term in widespread use, there is no single accepted meaning, but most of the books about knowledge management, even if they are not called that, emphasise the importance for organisations of producing, distributing, storing, appraising, making available, and putting into practice both the knowledge derived from the outside world and that created by their own employees."

([National Electronic Library for Health](#) Website "[Introduction to Knowledge Management](#)")

NHS Information Management and Information Technology (IM&T) Services; and Library Information Services

Traditionally, NHS data and information has been either of a numerical or textual nature. Numerical information has been largely the domain of traditional Information Departments, and textual information that of Library Services. During recent years it has been recognised in academic circles that changes to these traditional roles are required towards a more multi-disciplined approach.

"it is clear that broad-based skills are required to support the assembling, analysing and interpreting of numerical and textual data associated with health needs assessment"

(John Hepworth, "Staffing Intelligence Services: A Survivor's Guide". Health Libraries Review. 9. 52-61. 1992)

The most recent edition of the Oxford Text Book of Public Health provides the following background:

"Information is ... a resource no less essential to the survival of an organization than are personnel, material and natural resources. Information is a resource that must be conserved, recycled and protected. As with any other resource it must be managed.

Increasingly, organisations are coming to accept this premise and hence look for people who view information management from an 'information science' versus a 'computer science'

perspective. The two perspectives are related but by no means the same. People with computer science backgrounds tend to be more concerned with computer hardware and software. Their formal education had a strong theoretical and mathematical basis... They usually have had little exposure to information requirements analysis and organizational considerations. They have greater expertise in programming, system software and hardware. People with such a technical background tend to be more machine and technology focused.

People with an information science background or orientation tend to be more concerned with people and the nature of information and information processes in the organization. They are more likely to assess the value of information and its effect on the performance of the decision makers within the organization. In a health care setting, they are more likely to be aware of how and why information is communicated between patients, clients, health care providers, epidemiologists, administrators, evaluators, and planners. The use to which these people put information is, in the end, the most critical criteria of success of information systems, be they computer based or not."

(Oxford Text Book of Public Health. 1997)

Development of the intelligence function and the significance of the culture of the organisation

Some significant research, concerning the impact which the culture of the organisation has upon the development of the intelligence function, was undertaken in 1995 by Andrew Booth, then Senior Information Officer, Sheffield Centre for Health and Related Research and Sue Hey, Librarian, Northumberland Health Authority.

In "From Intelligence to Evidence-Based Healthcare: a purchasing odyssey" the authors refer to a number of related research works including the following extract from V Peel:

"organisational change is essential for the development of the intelligence function and....the nature of intelligence depends upon an organisation's characteristics. The priority is not, therefore, the training of information staff but organisational development."

The authors (who were involved in two independent though overlapping surveys of purchasing authorities and the extent of intelligence functions) also highlight the main components of organisational change as being structure, strategy, systems, staff, style and shared values.

Listed below are some key points highlighted in the report, and which are also very similar to the conclusions and recommendations arising from the work undertaken on the MSc. dissertation "Beginning to Make the Connections" (Clare Robson. 1997):

- skills in information transformation must be acquired by all staff in purchasing authorities and intelligence must be a concern of all who work within the purchasing organisation
- purchasing authorities were unwittingly gravitating towards a "library" rather than a "business" model of information management. Useful parallels can be drawn with the use of intelligence in the business sector
- the biggest challenge is to move away from collections of books towards a role of knowledge broker utilising networks and various sources to support the creation of local

intelligence. Suitable activities include abstracting, summarising, analysing and synthesising leading to the production of intelligence reports, analytical alerts and intelligence assessments and estimates. The intelligence co-ordinator should become multi-skilled including e.g. acquiring and passing on critical appraisal skills

- the potential use of NHS networks was recognised not only for accessing intelligence but also for knowledge and resource sharing
- a database of skills and expertise should be a prime example of an intelligence gathering activity

An important point to note, is that to date, the NWA Finance and Information Department have implemented the **core foundation only** of a Health Intelligence Function via the IRC Cymruweb site. The more sophisticated potential elements of the service, as noted above have not been achieved. This is due to the current organisational structural constraints, which centre around the separation of HA functions into different Departments/ LHGs. These structures result in the separation between the traditional IM&T Department and the users of information and knowledge. The work of the IRC has been an attempt to bridge this gap.

Knowledge Management (KM) and Key Operational & Organisational Frameworks

All Knowledge Management Strategies and initiatives must begin by identifying (initially core) business objectives. As described in the existing literature, Knowledge Management can easily become intimidating because it's too overwhelming. This is where the "Knowledge Audit" can assist in breaking down KM into digestible, manageable projects without losing sight of the "big picture".

Jerry Ash of the [Association of Knowledgework](#) offers the following basic questions of the knowledge audit:

- "What does your organization know?"
- What doesn't it know?
- Who needs to know it?
- Who knows what?
- Are they inside or outside the organization?
- Do your leaders understand knowledge?
- The value of knowledge?
- Are they leading by example?
- Does your organization systematically organize and transfer knowledge internally?
- Is it systematically acquiring and sharing knowledge outside the organization? Are you creating new knowledge?
- Are you leveraging knowledge to benefit your members and the organisation? Do you measure, assign value to the knowledge asset?
- Is your work environment knowledge friendly?"

(Jerry Ash, "[A Short Course in Knowledge Management](#)")

Once a Knowledge Audit has been undertaken, information can be identified which provides a map of the roads leading to corporate success.

Knowledge Management Forum

The Knowledge Management Forum has been established as an informal mechanism to raise awareness of the potential impact of KM solutions. One example of this is that; currently preliminary discussions are underway with the Health Promotion Unit regarding the potential of web-based developments in relation to Breast Feeding Services and initiatives.

Potential areas include:

- extranet developments to encourage and facilitate joint working and information and knowledge sharing
- establishment of an internet web site to:
- raise awareness and understanding of breast feeding issues
- encourage the sharing of ideas, experiences and knowledge amongst the public via such mediums as discussion forums
- investigate ways of increasing public access to and use of internet resources e.g. in clinics and GP surgeries

The pilot work undertaken to date on the Knowledge Management Forum provides many practical and theoretical examples of using KM approaches to traversing traditional health and social care organisational boundaries. The early results of this work are indicating a widespread need for the following support from central HA services:

- an understanding of the users' perspective (objectives, skills, difficulties etc.)
- training and awareness in relation to currently available information and knowledge sources; and information technology resources and capabilities
- education in, and awareness of, the movement which is currently taking place within IM&T services away from a service provider approach towards a user facilitator and enabler role
- introduction to basic information management concepts and raising awareness of the existence of widespread information owned by all users
- encouragement towards the creation, management and delivery of information by the most appropriate "data / information owners"
- IM&T training and awareness programmes

Organisational Development

Dr. Muir Gray has written a useful paper entitled "[Developing Knowledge Management in Organisations](#)"

"It is the responsibility of every healthcare organisation to deliver knowledge when and where it is needed to clinicians, patients and managers. To do this it needs to:

- *develop its library and support its librarians;*

- *clarify responsibility for knowledge management;*
- *change the culture;*
- *create systems for distributing knowledge;*
- *remove the structural barriers to good knowledge management."*

Knowledge / Information Sharing Culture

Data, information and knowledge sharing needs to be actively encouraged and promoted towards becoming an integral part of health and social care organisations' cultures. This is already being done via the Information Resource Centre Health Intelligence website and through the KM Pilots.

It has been easy to "recruit" potential pilot projects and members of the KM Forum. Through the exploitation of web-based developments, the traditional tendency to hoard information, can begin to be turned around.

Currently there are no clear mechanisms in place to share information. The development of robust corporate strategies, incorporating clear guidance and quality standards and utilising web-based approaches, would progressively develop this vital information and knowledge sharing culture.

Clinical Governance

The work of Dr. Muir Gray on the [National Electronic Library for Health](#) is showing the importance of KM in relation to providing health care professionals and the public (through NHS Direct Online and the New Library Network) with knowledge and know-how to support health care related decisions.

In 1999 a Scoping Study "[Building on Strong Foundations](#)", into the existing and potential contribution from libraries and information units to networked electronic health care information, was commissioned by the National Electronic Library for Health.

Comprehensive information was collated about relevant activities in each region including Wales. The work of the Information Resource Centre was included in the study:

"North Wales Health Authority Information Resource Centre

The IRC has established a site on Cymruweb including statistical materials, reports, other health indicators as well as the more common links. The Centre has been instrumental in developing the pivotal role of Gatekeepers within the Authority, liaising closely with the IRC in relation to training, the management of health intelligence resources and further extension of the NWhA intranet site. The IRC also produces "Surfing the internet for health information" on floppy disc, which is intended for users to take home and use as a guide when accessing health sites on the internet."

The work of Andrew Booth and the Sheffield Centre for Health and Related Research (SchARR) continues to be cutting-edge and of great value to the NHS. A newly published book "Managing Knowledge in Health Services" edited by Andrew Booth and Graham Walton has now been acquired by the IRC. The work of SchARR & Sheffield University internet websites are most

impressive in scope and value:

- Netting the Evidence

<http://www.shef.ac.uk/~scharr/ir/netting/>

- The Trent research Information Access Gateway

<http://www.shef.ac.uk/uni/academic/R-Z/scharr/triage/>

- Nursing & Healthcare Resources

<http://www.shef.ac.uk/~nhcon/>

The Role of Chief Knowledge Officer

In addition to countless KM consultants and practitioners internationally, Dr Muir Gray has been actively promoting the need for all health organisations to appoint [Chief Knowledge Officers](#).

"Clarifying responsibility

The Chief Executive of any organisation is responsible for knowledge management, as they are for all activities within the organisation, but the wise Chief Executive recognises the magnitude of the task and identifies one person at Board level, analogous to the Chief Knowledge Officer in certain commercial companies. Obviously this person has to relate to a number of other individuals, notably the librarian of the organisation, although it must be recognised that many healthcare organisations do not have a librarian on the staff, but it is essential to have someone at Board level who will, in the words of the Director of the UK Cochrane Centre, "press the What's New button on the Cochrane Library every quarter" and draw the attention of the Board and Chief Executive to the new knowledge to make sure that important knowledge of what should be started and what should be stopped does not whizz down the knowledge bypass where much good knowledge goes."

Dr Gray's views on Chief Knowledge Officers were also included in a BMJ article "[Where's the Chief Knowledge Officer?](#)" BMJ 1998; 317: 832-840. In response to this the following eletter was published on the BMJ website: "[Why are we still waiting for the Chief Knowledge Officers?](#)" Clare Robson, February 2000.

Communications Strategy

An effective communications strategy would play an instrumental role in the development of a Knowledge Management Strategy. Jerry Ash of the [Association of Knowledgework](#) offers the following [white paper](#). The creation of the Communications Manager post is a much needed development. The Operational Plan emphasises the importance of effective communications systems:

"The importance of good communication is the responsibility of all Board Members and staff of the Health Authority, and the development of a particular function to co-ordinate the Authority's approach will redefine its focus. This is particularly necessary to meet the new spirit of openness, working in partnership and to take advantage of the opportunities provided through new technology"

The Communications Manager

The HR Plan includes little detail concerning the development of this important new role and function. The creation of this function would provide an ideal opportunity to include within the role, responsibility for the strategic development of the Knowledge Management Function within the Health Authority, primary care contractors and partner agencies. The following are the threads which currently exist on the the Discussion Forum set up by the Welsh Assembly for the NWhA Knowledge Management Forum.

- Communications
- Communities of Practice
- Human Resources
- IM, C&T
- Involving the Public
- KM Approaches
- Knowledge Management Forum
- Knowledge Sources
- Learning Organisations
- Organisational Culture
- Quality Issues
- Sharing Knowledge
- Web-based Technologies

This screen print shows the key subjects of relevance to the development of a KM Strategy. These issues could all be taken forward through the role of Communications Manager and their KM Strategy. The role could be responsible for:

- Producing a Communications Strategy and a Knowledge Management Strategy and
- Ensuring that the other Key HA Strategic Development Plans are aligned with the KM Strategy

Key Stages in the Development of the Information Resource Centre

The development of the IRC for North Wales Health Authority resulted from work begun in 1994 (as part of an MSc. in Health Information Management by Clare Robson).

Date	Description	Key Findings / Proposals / Developments
1994	Joint Commissioning Information Study, Clwyd DHA / FHSA	Senior Managers required easier access to, and more guidance on, existing information sources. The establishment of a central Health Intelligence Library was proposed (incorporating a computerised directory of information sources). It was also recommended that the survey results be used to feed into a review of commissioning information requirements.

1995	HIES Project Clwyd DHA	The Health Intelligence Enquiry System Project was established to investigate ways in which a health intelligence function could be established for the soon to be created North Wales Health Authority. Research was collated from the experiences of other health authorities and various models of intelligence facilities and systems presented.
1996	Creation of the IRC, North Wales Health Authority	On the 14 th October 1996, the IRC was created through the allocation of a large room and the deposit (by the previous four authorities) of a large amount of "library" materials. A manual system was established for the efficient storage and retrieval of resources. A service was offered to users based on a " How can the IRC help you? " approach. 527 requests were received during the first year.
1997	Snr. Managers' IM&T User Requirements Survey, NWAHA	Comprehensive data from 22 senior managers was collected; the main results of which were incorporated into the NWAHA IM&T Strategy , particularly relating to information required at the point of access and the associated potential increased use of Information Technology .
1997/1998	Consolidation of the IRC	During the second year, a further member of staff was allocated to the IRC, which responded to 1,401 requests during the year, covering a wide range of health subjects and from a variety of users. This second phase of development was based on a " Are you able to help yourself? " approach, with users being encouraged to attempt to retrieve more routine information for themselves.

1998/1999	Development of the IRC Cymruweb Site	Commenced in April 1998, the IRC has now developed a high profile presence on the Cymruweb intranet system. This has been undertaken within the constraints of the minimum allocation of IT support resources. Consequently, the IRC staff have undertaken the highly technical development of the IRC site using a self-sufficient and proactive approach. In addition to facilitating easy access to a wide range of health intelligence resources via the intranet site, the IRC has now responded to over 4,000 requests to date. In early 1999, the Gatekeeper Initiative commenced to introduce knowledge management to the health authority.
1999/2000	Knowledge Management for North Wales HA?	A discussion paper to put knowledge management on the agenda for NWAHA and the wider "health family" in N Wales. A presentation of the opportunities which now exist for a Knowledge Management Strategy to be devised and implemented but only with full support from all staff and the board .

As can be seen above, the work of the IRC has effected changes in the corporate culture moving away from a service provider towards a service enabler approach. The number of monthly requests increased progressively to a peak of around 200 per month in mid 1999.

The number of monthly requests has now been decreasing during 2000. Currently requests handled by the IRC are 50% from the NWAHA / LHGs and 50% from outside users.

Most external requests are of a very routine nature where the IRC is in effect acting as a clearing house to redirect requests to the most appropriate officer.

Web-based Developments

During the past two years the IRC has been pioneering various web-based systems:

- General Health Intelligence System
- Executive News Briefing Service
- Welsh Assembly Monitoring Service
- NWAHA Internet site
- Knowledge Management Forum

User Requirements

The primary focus for these developments has been based upon an awareness of **user requirements**. This has been achieved through:

- Daily contact with users, acting as the "shop front" for the IM&T Department
- User requirements surveys
- Regular user-feedback surveys and feed back forms
- Request monitoring forms
- Requests database
- User profiles and selective dissemination of information

Computer Science versus Information Science Approaches

Please see above for further explanation from the Oxford Text Book of Public Health of these two approaches. Prior to undertaking an MSc. in Health Information Management, the author's background related to largely handling statistical information projects. The MSc programme made a significant impact to the author's perception of health information management issues and on any subsequent research proposals and implementation.

This particularly related to the following areas:

- **Information behaviour** of users (encompassing information needs, information flows and patterns of information use)
- The advantage of using "**Soft Systems Methodologies**" (**SSM**) compared to more **formal "Structured Systems Analysis and Design Methodologies"** (**SSADM**). Instead of seeing the design of an information system as being a solution to a single problem, SSM views the design of a system as a means of improving a whole range of problems – of improving a problem situation. It is argued that because people feature greatly in these problem situations, that SSM achieves a greater understanding of the situation than a data-oriented methodology would. Furthermore, SSM views the sum as being greater than the parts and rejects the more traditional approach to problem solving and system analysis that relies on functional decomposition.
- The contribution made by traditional NHS Librarians particularly related to textual information and their proactive Selective Dissemination of Information (SDI) techniques.
- Developments in Health Intelligence and Business Intelligence (in the private sector)
- The importance of quality initiatives and user feed back in IM&T services

Future Strategic Direction of the IRC?

As can be deduced from the comments above, the work of the IRC has now become stretched too thinly to continue in an effective manner (given current resources). However some recent developments are helping to shape a future potential development path:

Current IRC work areas:

- The necessity to **migrate the IRC website to a new server** presents the opportunity to have a full strategic review
- The web development **templates** produced by the **Welsh Assembly** (which were initially used for the NWAHA internet web site) have now been adopted as the template for future web developments

Corporate Knowledge Management Work areas:

- The informal work on the KM Discussion Paper 1999 and Knowledge Management Forum 2000 has demonstrated the potential for:
- changing the prevailing corporate culture towards much greater cross discipline and interagency working as regards **sharing information and knowledge** and
- utilising web developments to create a series of **intranet, extranet and internet** web sites
- piloting a change in the strategic direction of the management of specialist IM&T resources towards the Data / Information Owners creating, managing and delivering their own information

A Proposal for Implementing Knowledge Management for NWA

The most important point contained within this paper is that whilst the work of the IRC may have introduced the HA to the new discipline of Knowledge Management it would be entirely inappropriate and unsuccessful to try to incorporate KM as a subsection of the work of the IRC.

The all-encompassing and complex nature of KM requires it to be taken forward at a senior strategic level. As discussed above, Dr. Muir Gray promotes the concept of a Chief Knowledge Officer at Board level. Whilst such a development may be deemed appropriate for NWA in the future, there currently exists an opportunity to take KM forward as part of the new Communications Manager post.

Proposal for the Establishment of an Inter-Departmental Knowledge Management Unit

The informal work to date of the Knowledge Management Forum could form the firm foundation for the development of a KM Unit under the strategic lead from the Communications Manager but accountable equally to the Directors of Finance and Information and Corporate Services. Such a unit could be established and developed as an integral part of a KM Strategy. Early projects and priorities could be centred around:

- The Welsh Assembly Monitoring Project on behalf of all 5 Welsh HAs
- The introduction of advanced health intelligence services e.g. executive news briefing services, sharing intelligence and briefing papers.

Medium / long term projects could concentrate on:

- Further research, recommendations and implementation of KM approaches and techniques
- Incorporate lessons learned from previous purchasing and business intelligence initiatives
- Strategic development of corporate web-based developments incorporating quality standards and editorial controls towards the "Utopian Vision" and the development of a **"Corporate University"**