

Knowledge and Information Framework
for Queensland regional NRM bodies

Queensland Regional Groups Collective
NRM Knowledge and Information Network Project



Foreword

“The better the information we have, the better we are able to address NRM issues effectively.”

“Better information and knowledge management is efficient and cost effective.”

Quotes from focus groups held with regional NRM bodies 2009/2010

The purpose of this framework is to outline how regional Natural Resource Management (NRM) knowledge and information needs across Queensland can be better managed. **This framework has been endorsed by the 14 Queensland regional NRM bodies.** The outcomes for the regional NRM bodies will be, the more efficient exchange of knowledge and information, within and between regional NRM bodies as well as other stakeholders including government agencies.

There has been a flexible approach to regionalised community-based natural resource management in Queensland, in response to State and Australian Government funding programs. Reflecting the diversity of the State, the regional bodies in

Queensland differ in terms of corporate structure, stakeholder interests, and their stage of planning and implementation of natural resource management activities.

Despite these differences, there are many issues that are best addressed in a coordinated manner. The **Regional Groups Collective (RGC)**, representing the state-wide interests of the 14 regional NRM Bodies in Queensland, provides a strategic approach and efficiencies in addressing challenges that cross regional boundaries.

Introducing a state-wide knowledge and information framework builds upon the acknowledged and largely accepted RGC role as the representative body for all of the regional NRM bodies in Queensland.

The RGC provides a single voice and a mechanism to reduce duplication, streamline processes, mentor and support, and advocate common issues. It is for the reasons of minimising duplication and streamlining processes that the RGC has been actively involved in the development of this framework.

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Version Control

Date	Version No.	Author (s)	Comments
15 th April 2010	1.0	R. Blackley, R. Sinclair, K. Kenyon, S. Gardiner, N. Fraser, A. Drysdale	Working draft circulated to participants attending KIN Workshop 28 th April, RB CEOs and key NRM stakeholders for comment
28 th April		KIN Statewide framework meeting	Updates from workshop comments.
5 th May	2.0		Revised draft for comment.
10 th May	3.0		Final comments received from stakeholders
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Contents

INTRODUCTION NEED	6
INTRODUCTION BACKGROUND	7
AIM	8
PRINCIPLES	9
FRAMEWORK ELEMENTS	10
STRATEGY.....	11
GLOSSARY	17
REFERENCE	19

Introduction need



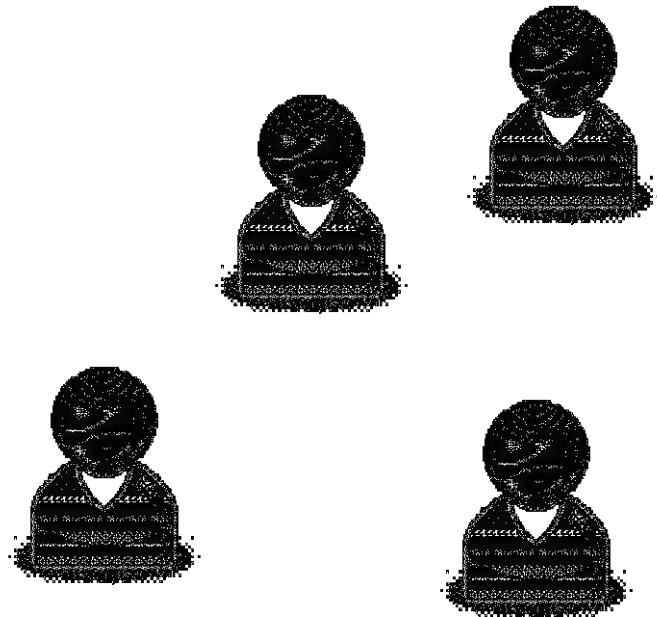
Regional NRM bodies in many cases are seen as centres of information and knowledge exchange for the broader community. They provide valuable information and knowledge services to state and Australian Government agencies, research organisations, landholders, school and tertiary students and the general public. Some regional bodies also engage in interstate networking to share information and knowledge, e.g. Rangelands Australia, Northern Alliance, Murray-Darling Basin etc.

There is an expectation that the management of our natural resources is underpinned by sound information, feeding greater knowledge which in turn enables wise decision making. This is at the heart of everything they are trying to achieve in natural resource management. It is not a question of 'should this be done' but rather 'how should this be done'.

Managing our knowledge better also provides an economic incentive to regional NRM bodies and investors by

ensuring we learn from the knowledge generated, learn from successes and mistakes made in previous projects and build on this knowledge for future decision making.

Introduction background



In 2008 Queensland regional NRM stakeholders identified that there was a need to better link, exchange and broker NRM data, information and knowledge and the RGC in conjunction with the Queensland Department of Environment and Resource Management conducted a scoping study to identify what was required.

The scoping study identified the need for dedicated “librarians or brokers” to be reintroduced back into the Queensland NRM knowledge system to search out information and exchange information and knowledge between stakeholders.

During 2009 a six-month pilot project (Queensland NRM DataHub Project provided through Queensland Government funding) was conducted with Terrain NRM, the Queensland Murray-Darling Committee (QMDC) and the Department of Environment and Resource Management (DERM) to test the use of knowledge librarians/brokers and employed part time knowledge coordinators.

The recommendations that came from this pilot (RGC’s NRM Data and Knowledge Hub Pilot Project (Data Hub) Phase 1 Findings and Recommendations Report) can be found at www.rgc.org.au/collective-projects.

In 2009/10 further state and Australian Government funding was provided to expand the project across the whole of Queensland and to focus on how to better support knowledge management and exchange with and between regional NRM bodies.

Four part-time “Knowledge Coordinators” are currently based in Desert Channels Queensland, Terrain NRM, QMDC and the Queensland Department of Environment and Resource Management until June 30, 2010.

Known as the Queensland NRM Information and Knowledge Network (KIN), this team has been working towards an agreed State NRM Knowledge Framework which articulates how regional NRM knowledge should be managed across Queensland.

Aim

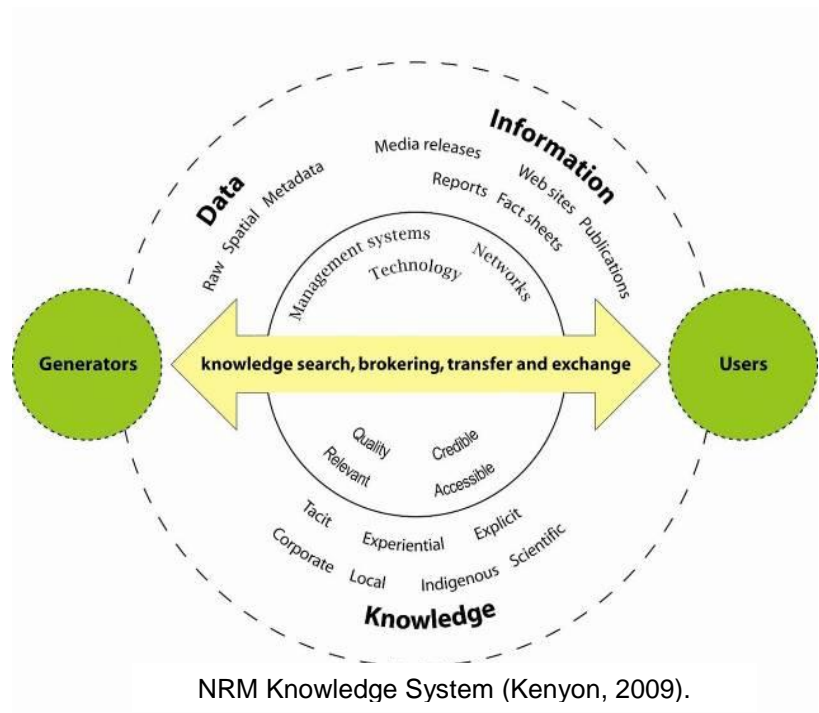
“The success of regional NRM processes is contingent on access to best available information, however despite considerable public investment in both the regional NRM process and NRM research there remains a risk that investments through regional arrangements may not be based on the best available knowledge due to the complexity and fragmentation of the NRM knowledge system.”

(Campbell, 2006).

The overall aim of this state framework is to **outline how regional NRM knowledge and information management can be improved across Queensland.**

Through this framework Queensland’s 14 regional NRM bodies embrace the need for further support, both individually and cross regionally, to manage and exchange knowledge and information.

This goal supports targets within the Australian Government as well as Queensland priorities by increasing community knowledge and skills to be able to access and share information, data and knowledge.



Principles

The Queensland regional NRM bodies have adopted the following principles to guide improved NRM knowledge and information into the future.

The need to:

- Accommodate Queensland's flexible approach to community-based natural resource management.
- Improve NRM knowledge exchange and information accessibility to meet community aspirations.
- Accumulate knowledge and information considered essential for future application.
- Make best use of existing tools, processes and resources.

- Build knowledge and information management approaches into current business practices.

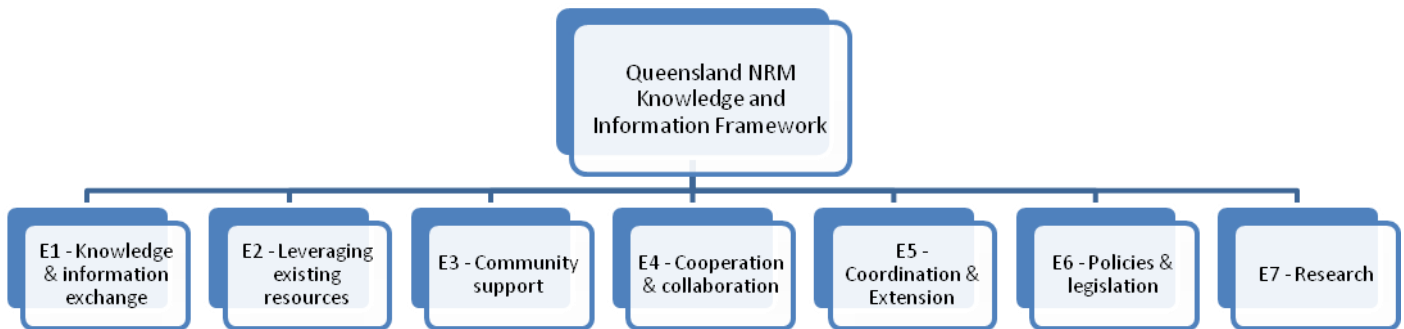
In adopting these principles it is recognised that:

- Core to the framework foundation are the people and the networks used.
- The regional bodies reflect diversity within the State, in their corporate structures, community interests, and stages of planning and implementation of NRM.
- Some regional NRM bodies favour centralisation of staff, whilst others have multiple offices and partners.

- Although human networks and face-to-face contact are an essential part of knowledge transfer, the more remote stakeholders often have significant resource limitations.

- It is in everyone's best interest to exchange knowledge and information where appropriate. However, there is much work to be done in determining the amount, source and allocation of resources to achieve this effectively.

Framework elements



The main elements of the framework provide guidance for the more specific priority actions in the *Strategy: Priority actions*.

E1 Knowledge and information exchange

Pursue a culture of sharing of NRM information and business processes between regional bodies.

E2 Leveraging existing resources

Ensure that the organisational structure and systems for knowledge management in regional bodies are properly resourced to facilitate the aims of the strategy.

E3 Community support

Develop and foster support for knowledge and information management and exchange.

E4 Cooperation and collaboration

Create opportunities for regional NRM bodies to network and share knowledge with NRM stakeholders at all levels.

E5 Coordination and extension

Establish and maintain active knowledge management extension and advisory programs which encourage and facilitate the adoption of good practices.

E6 Policies and legislation

Increase awareness and ensure that existing legal requirements have been met.

E7 Research

Support mechanisms for access to best available research information

Strategy priority actions

The following table identifies strategies and their measure of success for each of the elements identified in the previous section. Potential actions that have, or may be used to implement strategies have been identified through the consultation process.

An estimate of the potential cost is factored against the organisation(s) as stated in the “Who” column and the potential priority was assigned based on discussions with regional bodies. The following symbols in the were used in the table to identify the approximate cost and priority.

Cost

- \$100s, but may include staff time
- \$1,000s
- + \$10,000s
- Open circle indicates costs have been included in other line items

Priority

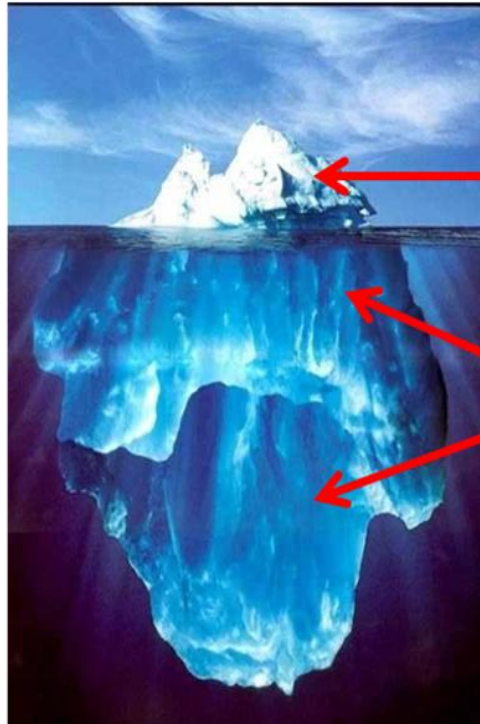
- Low
- Medium
- High

Element	Strategy	Measure of Success	Potential Action	Who	Cost	Priority
E1 Knowledge and information exchange Pursue a culture of sharing NRM information and business processes between regional NRM bodies.	1. Create opportunities and improve processes for exchange and management of information between regional NRM bodies.	Theme based cross regional networks established and supported.	1. Facilitate (RGC) forums around areas of interest e.g. science forums, business management etc.	All regional bodies	●●	●●●
			2. Conduct an annual RGC Qld regional NRM body conference with concurrent themes on various aspects of business (e.g. NRM showcase).	RGC	●●●	●●●
			3. Pursue and implement recognised standards for information and knowledge management.	All regional bodies	●●●	●●●
	2. Share information in a timely and collaborative manner.	RGC website review document developed by end of 2010.	1. Review functionality of RGC website.	KIN project team/RGC	●	●●
			2. Published material and grey literature in a searchable annotated bibliography or online library catalogue e.g. LibCode library management database.	All regional bodies	●●	●●
			3. Review options for online state- wide knowledge sharing. For example an external 'looking' server for sharing of information to registered users e.g. similar to NQDT wiki .	KIN project team (wiki established at www.collections.org.au)	●	●●●
	3. Maximise cross regional sharing of internal regional body staff skills through collation of searchable database of Queensland regional body staff and skills.	Database of skills being utilised.	1. Information about staff skills (with a focus on knowledge/librarian responsibilities) available to other regional bodies to encourage cross regional knowledge sharing (e.g. biographies on www.collections.org.au wiki).	All regional bodies	●	●●
	4. Improve access to scientific knowledge.	Expanded access to scientific publications.	1. RGC with support from regional NRM bodies to negotiate access to online journal subscriptions and university library facilities to allow regional NRM bodies to have access to the latest information.	RGC/regional bodies	●●	●●
			2. Increasing library/research skills within regional bodies (undertake skills training).	All regional bodies	●●	●●
	E2 Leveraging existing resources Ensure that the organisational structure and systems for knowledge management in regional bodies are properly resourced to facilitate the aims of the strategy.	1. Regional NRM bodies to have formalised knowledge management policy and strategies in place to ensure the best management, sharing and legacy arrangements.	100% of NRM groups developed Knowledge Management Strategies by end of 2011.(note: at time of writing 30% of regional bodies have knowledge management strategies in place or are in progress - Condamine Alliance (CA), North Queensland Dry Tropics (NQ DT), QMDC and South West NRM (SWNRM)	1. Identify librarian or knowledge and information broker function and position responsibilities (partially completed as part of KIN project).	All regional bodies	●●●
2. All regional bodies to have developed knowledge management strategies that incorporate knowledge management practices that align to existing processes and improve efficiencies.				All regional bodies	●●●	●●●
2. Improve regional body succession planning – to include recruitment and induction, skills and training, documenting knowledge, project close-out procedures.		100% of NRM groups developed Knowledge Management Strategies by end of 2011.	1. All regional bodies to have developed knowledge management strategies (Budget & item already included at E2, strategy 1, action 2).	All regional bodies	○○○	●●●
			2. Write and or share procedures that improve succession planning.	All regional bodies	●	●●
3. Support and provide collaborative input into knowledge management tools and programs.		Tools to include regional body input	1. Support, or provide input in to tools such as Land Manager website, Information and Knowledge Resource Kit (IKRK), Infonet etc.	All regional bodies	●	●
4. Systematic access to resources or publications, reducing reliance on project/issue specific requests.		Real or near real time access to complete project and research.	1. Research organisations (university research facilities, GRDC, government agencies etc) to submit final reports and other publications for legal deposit.	All organisations	○○○	●●
			2. Legal Deposit procedures to include copies of work sent to 'reciprocal libraries'. Where research relates to a particular region that regional body library (or other) gets a copy of the publication at the same time they are submitted for legal deposit.	All organisations	●	●●

Element	Strategy	Measure of Success	Potential Action	Who	Cost	Priority
E3 Community support Develop and foster support for knowledge and information management and exchange	1. Understand motivations/needs for knowledge and information exchange of potential supporters.	Knowledge management strategies in place by end of 2011.	1. Regional bodies to undertake analysis within their regional body and with stakeholders to understand current information and knowledge networks and gaps (e.g. social network analysis).	Regional bodies/DERM technical support	●	●●
	2. Increase awareness of potential supporters and sharers about value/importance/and practices of knowledge management.	KIN (Knowledge and Information Network) Communications Plan implemented.	1. Communicate to stakeholders about the value of better knowledge management processes and enlist support, through e-news and other media opportunities.	All regional bodies/DERM	●	●●●
			2. Incorporate community organisations into access /distribution systems.	All regional bodies	●	●●
	3. Progress knowledge sharing partnerships that are mutually beneficial.	Where appropriate document existing partnerships and progress key knowledge and information stakeholder partnerships.	1. Opportunity to document some knowledge sharing partnerships on the www.collections.org.au wiki.	All regional bodies	●●	●●
			2. Recognise and valuing diverse knowledge sources. E.g. landholder knowledge, indigenous knowledge	All regional bodies	●	●●●
		3. Keep asking what, how, when, where information is needed (Expand questionnaires and focus group discussions to other stakeholder groups).	All regional bodies	●	●	
E4 Cooperation and collaboration Create opportunities for regional NRM bodies to network and share knowledge with NRM stakeholders at all levels.	1. Improve collaboration and communication at a state and national level.	Issues of data, information and knowledge flow resolved.	1. Formalise a state-wide steering committee which builds from the former Datahub State Steering Committee of regional body and state agency representatives. Committee to work across federal/state/local agencies, regional NRM bodies and other targeted stakeholders. 2. Support collaborative online repository of information.	RGC/DERM	●	●●●
	2. Improve collaboration and communication at a regional level.	Issues of data, information and knowledge flow resolved.	1. Regional working groups (could be cross regional and multi-stakeholder) established to address knowledge sharing systems and gaps.	Regional bodies	●	●●●
	3. Access funding to address gaps in priorities for knowledge management type activities.	RGC meetings have a knowledge and information agenda item at each meeting.	1. Knowledge and information issues with a statewide benefit tabled at RGC meetings.	RGC	●	●●●
			2. RGC meetings to have a standing agenda item about improvements in information and knowledge exchange and how to seek funding.	RGC	●	●●●
			3. RGC meetings to have an standing agenda item to where regional bodies can discuss information and knowledge management issues and opportunities.	RGC/regional bodies	●	●●●
	4. Ensure that all staff involved in NRM, including research and extension officers in regional bodies are adequately and appropriately trained and resourced in knowledge management.	100% of Knowledge management strategies in place by end of 2011 which incorporate training opportunities.	1. Staff training conducted within regional bodies	Regional Bodies/DERM support if required	●●●	●●●
	5. Ensure that various organisations have a clear understanding of their responsibilities to achieve knowledge management and that there is a readily identifiable public contact point.	Regional working groups established.	1. Through regional working groups identify best point of contacts for regional knowledge exchange.	Regional Bodies	●	●●●
E5 Coordination and Extension Establish and maintain active knowledge management extension and advisory programs which encourage and facilitate the adoption of good practices.	1. Establish and/or continue active knowledge and information networks to encourage sharing.	KIN is a functioning network.	1. State-wide Knowledge and Information (KIN) Network continues.	Regional Bodies/ RGC/DERM	●●	●●●
			2. Include information about KIN in staff induction process across multiple organisations.	Regional Bodies	●	●
	2. Develop regional delivery models for knowledge coordinators/mentors which foster cross stakeholder engagement.	Regional KIN coordinator(s) in place regionally/or cross regionally, funding proposals developed.	1. State Government supported KIN state coordinator (Regional NRM Programs, DERM).	DERM	●●●	●●●
			2. Pursue funding from State and Commonwealth Government for regional body coordinators.	RGC/Regional Bodies	●	●●●

Element	Strategy	Measure of Success	Potential Action	Who	Cost	Priority
E6 Standards, Policies and Legislation Increase awareness and ensure that existing legal requirements have been met.	1. Implement/expand material submitted for legal deposit procedures.	100% of regional bodies contributing publications for legal deposit.	1. Share and communicate requirements of the copyright and other relevant acts at public forums.	KIN team	●	●●●
			2. Procedures shared at statewide workshops (KIN & GIS).	KIN team	●	●●●
	2. Where appropriate share contracts, policies and other templates across regional NRM bodies.	Regional bodies sharing contracts, policies and templates cross regionally.	1. Develop and share templates for contracts and policies across regional bodies (eg. some documents shared in 2005 through informal processes).	All regional bodies/RGC	●	●●
	3. Make sure metadata is complete and accurate and the end user understands how to use it.	Metadata attached to significant files (spatial, reports, photographs etc).	1. Ensure spatial metadata uses the ANZLIC standard for spatial information and library standards for reports.	All regional bodies	●	●●●
			2. Investigate the use of creative commons to improve data sharing.	KIN team	●	●
			3. Ensure appropriate meta data is captured for any resource condition monitoring.		●	●●●
E7Research Support mechanisms for access to best available research information	1. Advertise/make people aware of researchers / guest speakers visiting regions.	Increase media opportunities / identify where participants heard about the training/event.	1. Use the statewide wiki to highlight to regional bodies about opportunities.	All regional bodies	●	●●
			2. Use existing communication networks.		●	●●●
	2. Establish or maintain formal mechanisms to share NRM science information between regional bodies, agencies, industry and research organisations.	Document existing formal mechanisms for scientific collaboration.	1. Review functions of previous initiatives (such as the NRM Science Panel) and/or establish new mechanism.	RGC/State agencies	●	●●
	3. Keep up to date with new research developments (with regards to advances in knowledge management).	3 new developments identified and shared amongst regional bodies.	1. Continue to investigate technologies for information collation, access and sharing.	All regional bodies	●	●
			2. As a network share information about knowledge management research and professional development opportunities. Opportunity to include information in the www.collections.org.au wiki.	All regional bodies	●	●●
4. Two way knowledge exchange between regional bodies and researchers.	Document processes about engaging researchers.	1. Regional bodies to ensure researchers are engaged in projects to ensure linkages to external research.	All regional bodies	●	●●	
		2. Systematic access to publications see E2, strategy 4, action 2.				

Glossary



Data & Information
Analysed and interpreted to tell a story about a situation

Knowledge
The synthesis of facts, information, opinion, learnings and interpretation according to one's own experiences

There are numerous and sometimes complex understandings to describe the separation between information, data and knowledge. In this Framework document the term information also refers to data.

For the purpose of this project it is helpful to define what we mean in the terms of Information, Data and Knowledge.

Information refers to hardcopy and digital information products such as books, maps, publications and multimedia.

Data refers to digital information that is tabulated i.e. information stored in a table/spreadsheet under a set of rules. Data can be measured and can be further broken down into two types of data; spatial data and non spatial data. **Spatial data** can be described as any information about the location and shape of, and relationships among, geographic features; a piece of data that can be referenced to a particular geographic location. This includes remotely sensed data as well as map data. **Non spatial data** refers

to information stored in a database or dataset with no geographical reference. This term is often applied to statistical data.

Metadata is data that provides a description of other data. Typically known as a separate file or piece of information used to describe the origin, purpose, terms of use and accuracy of spatial and non-spatial data but also in a broader sense can refer to a synopsis or tag to any information type or source. This provides a publisher or author point of view or peer review of the quality or usefulness for any particular application of that information.

Knowledge is defined by the Oxford English Dictionary as

- (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject,
- (ii) what is known in a particular field or in total; facts and information or

- (iii) awareness or familiarity gained by experience of a fact or situation.

So for the purpose of this framework, data and information are any material that can be digitised and knowledge is what is in people's heads that enables them to do things.

Campbell (2006) and Marwick (2001) make further distinctions between knowledge management, brokers and systems below.

Knowledge Management - Systematic or disciplinary actions to obtain the greatest value from information and knowledge available. Effective knowledge management enhances the capacity of knowledge to be exchanged. Knowledge Management Systems (KMS) can be expanded to include the storage and retrieval of work practice or procedures, listing of input or derived data and operational processes.

Knowledge Broker/Coordinator -

Intermediaries who facilitate the transfer of knowledge between sources and users of the information or knowledge. Sometimes called a “boundary rider” to describe the connection between disciplines.

Knowledge Brokerage - people-based actions to help exchange knowledge work better for the benefit of all parties. Processes that encourage the use of outcomes in planning, implementation, decision making. Using the definition of knowledge, this includes the processes by which knowledge is transformed between its tacit and explicit forms.

Knowledge System - Identification and connectedness of the components, processes and people required to improve the transfer of knowledge to assist decision making.

Reference

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