

CONNECTING KNOWLEDGE: A KNOWLEDGE LEADERSHIP FRAMEWORK FOR AUT UNIVERSITY

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Abstract

Knowledge Management (KM) is about recognising the value of intellectual assets, the information and knowledge available in an organisation and then finding a way to awaken and apply those assets to benefit the organisation - financially, physically and culturally. KM is therefore about strategic and tactical issues, in part systemic and technical, but also in part about changing individual and institutional behaviour.

Knowledge Management as a discipline has developed to a stage where real and tangible benefits are being achieved by organisations investing wisely in KM programmes. These benefits include:

- More informed decision-making
- Avoiding wasteful duplication of resources
- Avoiding loss of commercial opportunity, and loss of knowledge when staff exit
- Increasing accessibility to the organisation's recorded internal knowledge
- Improving information literacy of researchers, learners, administrators
- Increasing the discovery, transmission and use of recorded knowledge (learning)
- Increasing the dissemination of new knowledge (research)

The first four of these apply to any organisation. The last three apply particularly to universities. Although the application of KM has been common in business, it is not generally well developed in universities. Auckland University of Technology (AUT) has identified KM as a priority, focussing on KM for management, but also for learning and research. Managing information and knowledge environment, will bridge the gap between what AUT currently knows and what it needs to know.

Introduction

KM at Auckland University of Technology (AUT) is about empowerment of the university's stakeholders. In making information and knowledge more readily available, and by harnessing the rich repository of advice, information, research, reports and policies, KM promotes inclusivity and an information literate community.

The creation of a position of Director of Knowledge Management signalled an intention to adopt KM best practice across the organisation and to reap the

benefits of an integrated KM Framework. A Knowledge Management Working Group was established with the purpose:

“To create and maintain a framework in which all members of the University are encouraged to share and use knowledge for the benefit of teaching, learning, research and business goals and which allows them to seamlessly and easily connect to the information they need, whenever they need it and wherever it is located.”

Developing the Knowledge Management framework fits within the context of the University’s Strategic Plan. In order to consolidate AUT’s position as a university with a distinctive approach to knowledge management it has been accepted that the AUT Strategic Plan should include as a priority:

“Creating a framework for sharing and using knowledge, acquired through the University’s operations, to enhance learning, teaching, research and other activities.”

There are two inter-related organisational dynamics with which KM is concerned:

- governance: including standards, compliance, rules and regulations, and roles and responsibilities, including champions;
- deliverables: including the work processes conducted by staff, the knowledge and information that is created, stored, curated, accessed and communicated, and the Information Technology.

How governance and deliverables relate to each other is also addressed in this paper. The underlying framework required to move from one to the other is discussed.

KM Strategies in Higher Education

A university is primarily concerned with ideas and information for the creation of knowledge. The distinction between knowledge and information is important. Whilst knowledge is not managed in the way that information is, the environment in which knowledge is created, shared and used can be managed. Knowledge may have been derived from information, but it resides with the ‘knower’. Knowledge is either explicit or tacit. Explicit knowledge is more easily codified and transferred, but tacit knowledge, embedded in communities of practice - in offices, working groups and committees - where staff draw on skills and experience, is just as valuable to an organisation. Accepting knowledge as an organisational asset leads to the obvious conclusion that it should be managed just as other assets are (e.g. finance, property, human resources etc).

Although common in business, KM strategies are not universally apparent in higher education. Muthukumar and Hedberg (2005, p. 380) noted this and proposed a “knowledge management model for a research organisation that specialises in educational and pedagogical practices”. The framework proposed “encapsulates the knowledge management processes that capture

and augment the explicit knowledge resources of the research organisation. The framework also supports social networks that enable the sharing and encoding of tacit knowledge by facilitating online exchanges and feedback”.

As AUT moves from theory to practical implementation it has followed closely the experience of other universities in this area. The *Knowledge Management Strategic Plan* (2005) from the University of Edinburgh was one of the first KM strategies in an educational setting. More recently King's College, London, (2006) has published a five year strategy *Living Knowledge 2010* to “support the creation, use, sharing and preservation of information and knowledge in support of research, teaching and administration”. AUT has also chosen a three pronged approach, focussing on KM for management and administration, but also for learning and research.

AUT Knowledge Management Working Group

Managing the information and knowledge environment, will bridge the gap between what AUT currently knows and what it needs to know. This was encapsulated in the Knowledge Management Working Group purpose.

There are a range of issues, concerns and challenges in changing the design of management of information, which KM represents. This merits the same change-management as redesigning of the management structure: change needs to be managed. Similar rules of engagement apply:

- education - of ourselves (about KM);
- promotion - selling the benefits that KM will bring to colleagues and stakeholders i.e. the wider AUT community. Like all new visions, the idea of KM needs to be sold to the many by the few;
- consultation - involvement of colleagues;
- organisation - the programme of introduction of KM.

Reflexivity is an important feature of KM at AUT. The Working Group recognised that it had to shift its membership-base away from AUT's administration and broaden it out to include significant representation of academic staff. One concern was that membership had been populated by enthusiasts, which was important for the initial phase of getting a group up and running but KM at AUT needed to mature beyond enthusiasm. The Group had to correct the impression that KM was only about the centre, AUT's administration. It invited each of the four Deans of Faculties to nominate someone to join the Group. Additionally, an invitation was extended to teaching colleagues in the Centre for Professional Development (CEPD), to provide a nominee.

AUT Strategic Plan

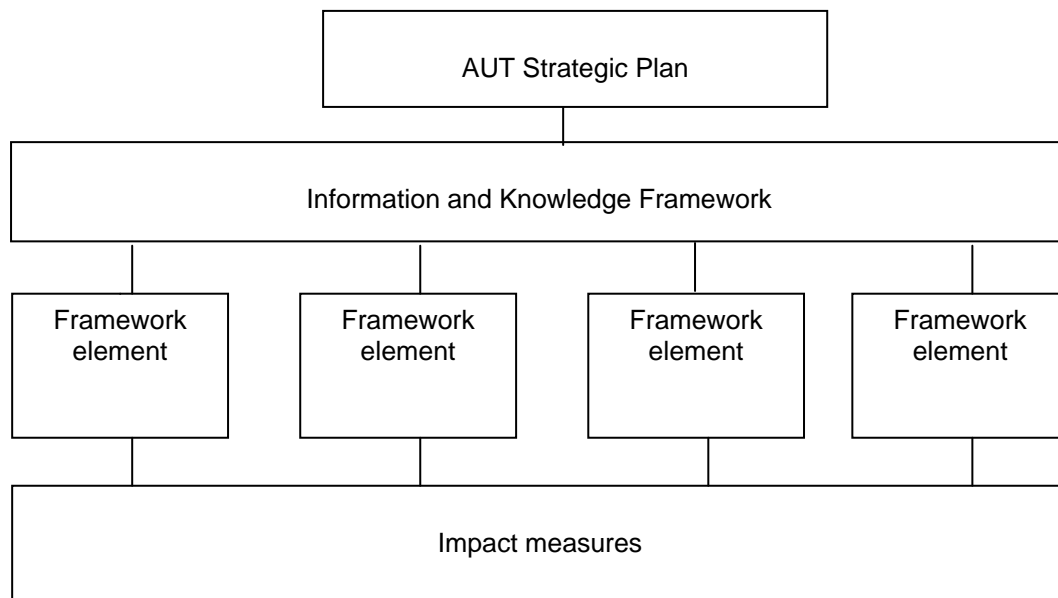
AUT's Strategic Plan and various other strategies, including the Learning and Teaching Action Plan, Research Development Plan, IT Services Strategic Plan etc, shape much of its business activities. The focus of the latter has been about delivering business benefits, the technical infrastructure of information technology services, such as standards, hardware and software, operating systems, the network and technical policies. However, there was a

recognition of a need for a wider framework which would provide strategic thinking about 'information' and 'knowledge' for the whole institution. Embedding KM in the revision of AUT's new strategic plan was very important. KM had to be positioned in terms that made sense organisationally in relation to AUT's Strategic Plan. The idea was promoted that AUT required an *Information and Knowledge Strategy* that sat underneath the Strategic Plan but would provide a framework for other business activities. The diagram below depicts this.

A fundamental question in assessing the potential contribution of the KM Framework to AUT's success involves testing the KM goals identified by the Working Group against AUT's Strategic Goals. The five strategic themes which have been proposed to guide the future development of the University are that it will:

- provide excellent education that inspires students to reach their full potential;
- conduct excellent research, advancing knowledge and practice in its areas of expertise and supporting its higher education programmes;
- actively engage with the communities it serves, and contribute to their social and economic development;
- attract, develop and retain excellent staff;
- ensure its sustainability through good management, strong performance and reputation.

Each theme is supported by key objectives and priorities. The relationship between the University Strategic Plan and the KM Framework may be represented as:



KM Goals at AUT

Knowledge enhanced-governance is a desired outcome. What does this mean for a university? Knowledge is an end product for a university but it does not end there: knowledge management is about creating the environment in which the end product is reusable for the creation of another end product, and so on. It is both a source and resource of business activity.

The diversity of AUT's business leads to differing, but complementary goals relating to the objectives of individual functional areas. A set of initial goals agreed by the KM Working Group was:

KM1 Establish a framework, culture and infrastructure to support ready access for staff and students to all AUT held recorded information they require and are authorised to access. A learning organisation.

KM2 Use knowledge to promote innovation within AUT

KM3 Enhance the ability of AUT to respond to commercial, academic and research opportunities through having improved access to the information assets of AUT. A nimble organisation.

KM4 Enhance the reputation of AUT through providing access to and facilitating engagement with external organisations and partners. An accessible organisation.

KM5 Provide the facilities across the organisation for researchers and students to readily access research knowledge and collaborate both externally and internally.

KM6 Achieve efficiencies through providing self-service facilities to access information for all AUT stakeholders.

KM7 Achieve efficiencies through adopting a common framework across the organisation avoiding disparate and duplicated knowledge initiatives.

KM8 Establish the KM base to underpin AUT Business Improvement initiatives. KM will enable improved processes.

KM9 Align AUT with accepted KM Best Practices in the university sector and assure compliance with legal and ethical obligations related to information stewardship, to reduce risk.

These goals were considered in the context of addressing the following identified challenges:

- Avoid wasteful duplication of resources
- Eliminate silos of information, where possible
- Avoid staff working with incomplete or outdated information
- Avoid loss of opportunity

- Inform decision-making
- Improve information literacy skills of the researcher, learner, administrator
- Increase accessibility of recorded internal knowledge
- Discover and use and share recorded, worldwide (external) knowledge
- Assess when integration of knowledge sources is appropriate

A poll of key staff from across the organisation identified the following desired outcomes:

- Ready access to research information, assurance of access policies and acknowledgement of Intellectual Property.
- Support for access to information, collaboration, publication across diverse communities of interest
- Information literacy as a core capability for participating in a knowledge society
- Information available anytime, any place and anywhere
- Confidence in the completeness, quality and security of information
- Ability to access all information AUT already holds and make it available as and where required
- Ability to manage the stewardship of information including integrity, policy and legal compliance requirements
- Ready access to information required to achieve goals, especially to help support and facilitate Business Change and Business Improvement
- Relationship management providing authorised access to information which can be used to enhance interaction and facilitate consistent, high-quality experience
- Interoperability between standards-based information systems

KM for Learning, Research and Management

Development of KM, in any organisation, is a complex undertaking. There are however, three basic questions that are critical for the development and implementation of KM. These are:

- what are the knowledge assets?
- how are they created, disseminated, shared and retrieved?
- what technology is required?

In that context, knowledge management is about strategic, tactical and technical issues concerning knowledge assets at AUT. Translating the desired outcomes which staff had articulated, into 'management', 'research', and 'teaching & learning', the following actions were proposed:

Management

- Confirm governance arrangements for KM at AUT;
- Map the current knowledge assets and identify gaps and overlaps;
- Revise information architecture to ensure that management information may be accessed and integrated in a seamless manner;

- Where possible, store information in central integrated administrative system with data capture being performed once and as close to the source of the information as is consistent with ensuring data integrity;
- Ensure all management information systems are transparent, timely, user friendly, linked to reporting requirements and integrated;
- Implement records management to comply with statutory requirements of Public Records Act;
- Provide staff development to keep staff up to date in the use of IT;
- Consider the potential of Web 2.0 to improve administrative workflows.

Research

- Use the advanced network to develop the next generation of infrastructure which will accelerate global collaboration in research and innovation;
- Acquire, organise and make available a range of library information resources appropriate to research;
- Develop and populate institutional repositories of published research outputs that conform to international standards and architectures;
- Subject to copyright requirements make all research outputs, and statements of work-in-progress, available on open access;
- Develop policies and good practices related to the accessibility, use and management of research data, in line with OECD recommendation on “Access to research data from public funding”;
- Provide support for the storage, management and access to locally created digital objects ;
- Ensure provision of information literacy tailored to research needs;
- Consider the potential of Web 2.0 to improve research workflows.

Teaching and Learning

- Maintain systems and facilities required for an innovative contribution to learning and teaching;
- Acquire, organise and make available a range of information resources appropriate to learning and teaching;
- Use content management system and consistent metadata standards to provide easy access to learning resources;
- Provide the full suite of software required to access and manage licensed electronic resources, provide federated searching and deep linking at the digital content level;
- Use the advanced network to produce sustainable, open standards based, service oriented e-framework for education and research;
- Consider the potential of Web 2.0 to improve learning workflows.

Technology Issues

Underpinning the development and implementation of KM is information technology (IT). However, KM is much more than an outcome of IT. Information technology should be used as a means to an end; but it needs to be recognised that without significant input from IT, the effectiveness of KM would be severely curtailed.

Technology has a service-role. It is the potential of that role that KM seeks to tap, in order to enhance access to the full range of information and knowledge resources at AUT. A range of co-operative technologies are available that can be used to advance KM and their potential is being evaluated.

Developing the KM Framework

KM initiatives in various forms have been implemented within AUT for some years. However a KM Framework formalises the planning and development of KM on an organisation-wide basis with appropriate sponsorship, management, roadmaps, standards, resourcing and reporting.

Implementing KM within AUT presents some very real challenges. It is therefore appropriate that a sound framework, based on current theory and practice be tailored and adopted to support KM within AUT. Wong and Aspinwall (2004, p. 94) express a framework as “a set of basic assumptions or fundamental principles of intellectual origin that forms the underlying basis for action”. They go on to explain that it addresses “not only the question of ‘what is’ but also ‘how to’ because it prescribes and suggests ways for organizations to engage in KM activities” (p. 95).

In the AUT environment this means having to:

- Define and understand existing organisational knowledge (knowledge assets)
- Establish the ability to manage knowledge (collecting, presenting, transferring, enhancing, sharing)
- Support activities to extract value from institutional knowledge (review, conceptualise, reflect, act)
- Determine the scope of KM projects and manage projects within this
- Assess the value of KM projects, both proposed and ongoing, to AUT

What elements of a framework are important to AUT? It must:

- Be pragmatic and achievable with existing AUT frameworks and practices;
- Align with accepted standards and best practice;
- Be capable of being implemented progressively as resources and priorities dictate;
- Align with other AUT strategic initiatives;
- Be responsive to strategic priorities.

Wong and Aspinwall (2004, p. 95) stress the importance of laying the groundwork by addressing the points noted above and warn that “without proper guidance, organizations may focus too heavily on the use of information technology without bringing a correspondent change to the human and cultural aspects”.

Cultural Considerations

To succeed a KM Framework must carry people with it and encourage them to embrace the opportunities provided. AUT, like all universities, operates as a

relationship organisation and must therefore persuade people that KM initiatives will enhance their own goals and objectives (unlike, say, in manufacturing industries where KM may be more prescriptive). Nonetheless, challenges arise with the breadth and complexity of the organisation's functions and personalities. In addition to knowledge being a resource, the product of universities is knowledge. It is a fair comment to state that what would be needed is a quantum leap of change, a cultural shift in which staff move from 'ownership' of information and knowledge to 'stewardship' of information and knowledge, and to sharing it. For example, at its most basic level this is not about informing researchers at AUT that there are a range of databases available to which they have access, it is about changing the way information and knowledge is created, re-created, stored and accessed, and that is also about changing the way research may be conducted.

A cultural strategy aligned with and supporting the KM Framework needs to be developed and resourced. Its key elements include:

- A formal communications plan to ensure awareness and to facilitate the dissemination and soliciting of information about KM.
- Strong visible sponsorship and management of the Framework.
- Working Group members and others acting as KM champions
- Visible and acknowledged early successes
- Ensuring that the benefits to individuals and groups are clearly enunciated and are achieved.
- Providing training to staff to assist them to understand how to achieve the benefits.
- Providing the tools for staff to readily benefit from KM opportunities.

One approach is to recognise that management of information and knowledge is something that is already done in a variety of ways across the university and to demonstrate that it can occur more effectively by following the agreed guiding principles. Knowledge management at AUT would formalise current practices, extending them, by managing the information and knowledge environment for the benefit of all stakeholders.

KM Framework Principles

A number of universities, are developing knowledge frameworks to represent how and by whom information and knowledge is created, communicated, curated and managed. This is seen as a matter of urgency for institutions that wish to demonstrate leadership internationally (e.g. University of Edinburgh, King's College, London). These frameworks encompass both paper and electronic-based sources, and tacit and explicit knowledge.

AUT is an information and knowledge-based institution. The primary role of information at AUT is to advance teaching, learning and research. All functions by all stakeholders are related to that through a variety of means and in a variety of ways. The AUT Knowledge Framework, therefore, is concerned with how AUT creates, manages, and communicates information and knowledge, and to whom and how that information and knowledge is made available. As such it is based upon the following principles:

- data, information and knowledge are assets; they are resources that may be managed and exploited, for the benefit of all stakeholders;
- appropriate sharing of data, information and knowledge is a collegial benefit;
- managing the protection of information assets is a fiduciary duty;
- data, information and knowledge should be appropriately managed to avoid unnecessary duplication;
- information should be fit for its purpose: accurate, current and transparent;
- there should be seamless access to data, information and knowledge, with
- appropriate security embedded in its storage, retrieval and dissemination;
- information literacy should be effective and maintained across the University;
- information should comply with all legal, regulatory, and ethical requirements;
- information technology, used to store and disseminate information, should be constantly reviewed and replaced with reference to, among other things, the knowledge framework;
- interoperability of new technology should be maintained to support the knowledge framework.

These principles help to scope the “what is” question, while the more specific “how to” issues are included in the following activities:

- the provision of pervasive repositories of data, information and knowledge across AUT;
- application of indexing and metadata standards to allow easy discovery of data information and knowledge assets;
- seamless access to data, information and knowledge assets;
- infrastructural support for management, research and learning at AUT;
- maintaining appropriate policies and procedures for disaster recovery.

Putting the Framework into Practice at AUT

The Framework identifies appropriate strategies taking into account organisational resources, priorities and skills. A three-pillar approach concurrently addressing KM from three directions has been proposed.

Understanding	KM Framework	Practical Execution
<ul style="list-style-type: none"> • Knowledge Audit • Knowledge mapping pilot (functional areas) • GAP analysis 	<ul style="list-style-type: none"> • Develop the KM framework • Develop the tools to implement KM projects • Develop the infrastructure (physical and people) to support KM initiatives 	<ul style="list-style-type: none"> • Include KM considerations in all IS Projects approval process • Maintain a register of projects • Evaluate pilot projects and sponsor where benefits are identified.

These activities need to be progressed in concert with the sponsorship, communications and cultural strategies discussed above. The knowledge audit (including a survey, inventory and mapping of knowledge) may be undertaken as a one off external consultancy.

Information Architecture

TFPL (2005), *Information Matters*, note six key elements of an information or knowledge strategy, which must be driven by the organisation's business goals. These are:

- Information policies;
- Skills, behaviours and attitudes;
- Information needs and information assets;
- Information architecture;
- Roles and responsibilities;
- Impact measures

The current information architecture at AUT has grown incrementally over many years. This has resulted in a disparate structure with several discrete, uneven areas of 'owned' silos of information and knowledge. There has been a corresponding expectation that Information Technology Services would provide maintenance, storage and access to these silos, but that approach is no longer tenable.

In this context, consideration of a knowledge management framework necessitates asking three basic questions. These are:

- a) is the current information architecture supporting and adding value to AUT?
- b) based on what we know about what AUT wants to accomplish in the future, will the current architecture support or hinder that?
- c) how might the architecture be modified so that it adds more value to AUT?

The answer to (a) is that the current architecture could be enhanced to add value to AUT. The answer to (b) therefore is that the current architecture needs revision in order to facilitate the imaginative use of data, information and knowledge. So, the answer to (c) is not to modify the current structure but to take a holistic approach and change the structure of the architecture. A review of the existing information architecture has been initiated by the KM Working Group, using the expertise of IT Services and the Library. It is agreed that the information architecture needs to be fully integrative, widely accepted and embedded in AUT culture.

From Governance to Delivery

Structuring and understanding the governance of KM is essential to its success. At AUT the following roles have been identified:

Leadership and Sponsorship

- KM leadership is provided by the AUT Director of KM
- KM sponsorship within AUT is provided by General Manager, Services & Operations;
- The initial KM proposal was approved by the Vice Chancellor's Advisory Board, and supported by the Senior Management Group;
- "KM Champion" roles are undertaken by various senior leaders within AUT.

KM Working Group

- A multidisciplinary group representing AUT's best expertise in KM;
- Thought leadership in KM;
- Development of the KM Framework;
- Advocacy and championing of KM;
- Liaison with other AUT strategic initiatives;
- Monitoring and review of achievements.

Executive Management Team

- Review and adoption of the KM Framework;
- Alignment of the KM Framework with AUT strategic initiatives.

KM Framework Coordinator

- Day to day planning;
- Managing, liaising and reporting of progress against plans.

KM Office

- Providing the resources and skills to stakeholders to support delivery of the Framework.

Impact Measures

Development of quantifiable impact measures is a challenge yet to be undertaken. The major benefits from KM come from better integration of what already takes place rather than necessarily requiring investment in an expensive technology solution.

Adopting KM within any organisation is challenging, but especially in a university setting with the complexities of teaching, learning, research and administrative functions within a dynamically changing tertiary education sector. The options are diverse and need to address questions such as:

- What are we trying to achieve?
- How closely is KM aligned to and supportive of AUT's strategic goals and strategies? How can this be measured?
- How can the maximum benefit be achieved for the investment made. How can this be measured?
- What type of formal framework and methodologies are appropriate for AUT?
- Is the approach KM bottom up with pilot projects or top down with a holistic approach?
- What are the existing capabilities and gaps relating to KM?
- How can a KM Programme be established that is supported by the cultures throughout AUT?

A cost-benefit analysis would need to include not only resources to develop KM but also costs and impact of it not being developed.

Deliverables to Date

Progress to date has been documented by the KM Working Group and publicised through a number of committees and groups across AUT. It has included:

- Establishing the Working Group of key KM players from across the organisation
- Developing a mission statement that reflects AUT's vision for KM
- Raising awareness of KM and what it offers to AUT
- Researching KM both within academic institutions and more broadly
- Identifying specific KM opportunities that could make exemplary pilot projects
- Planning how KM can be successfully integrated into the fabric of AUT
- Scoping the KM Framework
- Developing an improved information architecture
- Establishing a KM website accessible to AUT staff

The activity to date has raised the profile of the Group within the university, while at the same time working toward achieving its goal. Knitting the group together has not always been easy, if only for the reason that members are often separated by a common language (library terminology, IT terminology, sociological terminology). However, commitment to the collegial-good is a definite strength and has provided ample opportunities to develop ideas and understanding of critical areas of work. The advancement of AUT's information architecture is testimony to that. Colleagues from the Library and ITS worked on clarifying what was meant by information architecture and on promoting an understanding of it to the University.

The development of a presence on the University web site has also been a significant step and a useful means by which to present an understanding of KM, to the wider AUT community.

Conclusions

The rationale for a university to address knowledge management is expressed eloquently by Muthukumar and Hedberg (2005):

“For a research intensive organization, knowledge is its most profound asset and so it is imperative that efficient knowledge management be one of its priority strategic concerns”.

The implementation is much more problematic as there is no ‘off the shelf’ solution. However, the process of developing a KM Framework that is aligned with the strategic priorities of the organisation is a benefit in itself. All organisations embarking on this activity are feeling their way. Schroeder and Pauleen (2005, p. 393) observe that:

“The few studies that have been carried out so far suggest that organisations have adopted a wide variety of KM governance forms; however to date very little is known about the effects these configurations have on development and success of KM in the organisation. At this point organisations are still experimenting on how to institutionalize KM in order to create maximum benefits”.

AUT is part of this experiment but confident that the benefits will be realised. A knowledge framework at AUT will contribute to the strategic understanding required to strengthen AUT's abilities and capabilities in teaching, learning and research, and the management infrastructure which underpins all three.

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