

The digital imperative: Catching up and staying ahead of the digital revolution

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Summary

For more than a decade, public and private sector business around the world has increasingly been conducted digitally and online. Australian and international experience points to information and records management failing to keep pace with these technological and social changes, resulting in serious risks to the sustainability of information. Without effective digital information and records management, organisations will struggle to manage the variety and volume of digital information they process every day. This paper considers the issues and challenges facing many government bodies and corporations with a focus on the National Archives of Australia's response to the challenges faced by the Australian Government and policy initiatives in this space.

Introduction

The digital revolution has brought sweeping changes in all aspects of society. Its impact has been likened to the ways the agricultural and industrial revolutions transformed society in previous centuries. History will judge whether or not this is an accurate assessment. Regardless, the use of digital technology has undoubtedly exploded in the last few decades (Brynjolfsson & Kahin 2002). Figures show that in 2010, less than 20 years after the World Wide Web was released to the public, 1.8 billion people or 26.6% of the world population were internet users (Internetworldstats 2012). And, again in 2010, less than 30 years after the first mobile phone was developed, 4 billion people or 67% of the world population were cell phone subscribers (Arms 2012). We live in the 'information age', in which the proliferation of information technology enables free and instant access to unprecedented amounts of information that are growing exponentially (Brynjolfsson & Kahin 2002). And, we work in the 'information economy', where the creation, distribution, and use of information is a significant economic activity (Frenkel et al 1999), and where access to reliable information is a critical factor for the success of any enterprise.

Both government and private sector business is reliant on digital information. David Fricker, Director-General of the National Archives of Australia stated at the launch of the Digital Continuity Plan in February this year that, 'Information is the lifeblood of government'.

Information underpins good decision-making, effective service delivery and accountability (Gunnlaugsdottir 2002) and it facilitates innovation. Hence, email, databases, websites, tweets, geospatial data and other forms of digital information which are created, stored and received by government organisations 'not only support and enable business operation, but also form an important part of government's collective memory'. However, the information in these vital records are vulnerable to change or loss, either by obsolescence, neglect or deliberate action. For digital information 'to be relied on for business, legal and other purposes digital records need to be meaningful and trustworthy. Achieving this is a significant challenge that requires resourcing, planning, coordinated management and a coherent strategy' (Cumming & Findlay 2010, p. 265).

This paper considers current and future trends and the impact of these on information and records management both in Australia and internationally. It also discusses the issues and challenges for digital information management in Australia, and outlines the strategy that the Australian Government, through the National Archives of Australia, has adopted to transition to effective digital information management.

Current and future trends

Recently the CSIRO, the Australian Government scientific and industrial research organisation, published a report from its 'Global Foresight Project' (Hajkowicz & Moody 2010). The report identifies five megatrends that may redefine how people will live in the future, including:

1. **More from less.** Competing priorities are creating a greater demand for resources but there are fewer natural resources available.
2. **A personal touch.** Services are being tailored and targeted to meet community expectations and demands.
3. **Divergent demographics.** The populations of OECD countries are ageing and have increasing lifestyle and diet related health problems, while poor countries face high fertility rates and food shortages.
4. **On the move.** People are changing jobs and careers more rapidly and moving house more often. They are travelling more often and commuting further to work.
5. **iWorld.** Everything in the natural world will have a digital counterpart. Computing power and memory storage are improving rapidly. Many more devices are being connected to the internet.

Within these megatrends are a number of trends that may affect the ways information and records are managed. These include:

- New technologies, almost certainly leading to new formats in information.
- Privacy and confidentiality concerns. Modern information technology is allowing governments and companies to capture and store vast amounts of personal information. This is creating a strong demand for technological solutions to ensure information is protected from improper use and tampering.
- Demand for information management. There will be a strong demand for technologies that provide a simplified and streamlined approach in accessing and using information and helping people deal with information overload.
- Exhaustion of internet IP addresses, growth in social networking and e-commerce, improvements in computer hardware and adoption of cloud computing (Hajkowicz & Moody 2010).

Other areas of concern, both now and in the future, include new and changing technologies, the dynamic nature of information and potential obsolescence. An example of this is cloud computing which is seen to offer considerable cost benefits, for example in storage. However, it has also received attention recently in relation to risks (Kundra 2011) and there remain many concerns over security and privacy of information.

In order to meet community expectations and demands, and to ensure ongoing protection of information resources, robust policies, standards and legislation need to be developed (Hajkowicz & Moody 2010). Dealing with the issues and challenges on an *ad hoc* basis will

be too cumbersome and costly in the long term. Hence, policies, standards and procedures play a significant role in managing digital information and records, now and in the future.

Impact on government and business

The digital revolution has transformed business and government and for more than a decade, public and private sector business around the world increasingly has been conducted digitally and online. However, as technology has evolved and businesses have adapted, 'records management' as a discipline in its own right has been left behind (Choo 2002). Following well documented disasters due to information and records management failures, the 'digital imperative' is now immediate and significant. Delaying action further will result in ongoing failures leading to decreased accountability, reduced ability to carry out business effectively and, for governments, the possible erosion of citizens' rights.

The Government of Western Australia notes that 'In today's information driven economy, the community demands a higher level of accountability from the public sector ...' (Government of Western Australia Public Sector Commission 2010). Leadership in policy development, principles and practical advice are essential for guidance in business and for government agencies. As information professionals – whether we describe ourselves as information managers, records managers, archivists or something else – there is the risk that current standards and practices will fail to deliver the support needed for decisions made today about the management of our information. As a result, the accountability of government and the heritage such information provides may be compromised for future generations.

A recent report from the Australian National Audit Office (ANAO Audit Report no 53 2012) noted that each of the three Australian Government agencies being audited had more than 130 business systems with potential records being created in them. This highlights the complexity of managing the records within these agencies, as in many other organisations, both private and public, around the world.

Issues and challenges in the Australian Government

In the Australian Government context, the National Archives of Australia considers there are three key issues and challenges influencing information management in agencies. These are:

1. technology;
2. cultural issues including information management practices; and
3. increasing expectations for information availability and transparency.

Firstly, technology is one of the greatest influences on business. The volumes of information being produced are massive and increasing exponentially. Business is increasingly becoming more mobile. Digital information is becoming more diverse and complex, and technology is continuing to evolve rapidly.

Traditional records management practice is currently ill-equipped to deal with the sheer volume of information being created digitally, in particular via the internet, social media and mobile technology. The proliferation of formats and platforms adds to the complexity of managing digital information. Not only has the technology changed the way business is conducted but also it has changed the way information and records are managed in many

organisations. An example of this is the decentralisation of records management functions, resulting in a shift in responsibility from a centralised area to the end user. In effect, technology means every individual employee is now also a records manager. Each employee is responsible for managing digital records, many without realising the implications of this change.

Secondly, cultural issues present particular challenges including resistance to change. It is well accepted that senior management support is essential to affect change, but in many agencies senior management support for improving information and records management is limited. While most information is now created using digital technology, many of the practices and policies for its management remain immersed in paper-based thinking. David Ferriero, Archivist of the United States, has stated that, 'recordkeeping practices need to change with the times... Agencies cannot ignore their recordkeeping responsibilities because content appears in a system or platform that is not easily captured by their current recordkeeping practices' (Garrettson, 2011). Yet, it appears that many Australian agencies have failed to grapple with the changing times.

To some extent, this may be attributed to lack of understanding by key stakeholders – but information professionals must share the responsibility for this. We often assume that people outside the professions share our concerns and we expect them to understand when we use our professional language or jargon. For example, key stakeholders may not have any understanding of terms such as 'sentencing', 'appraisal' or 'disposal'. Even the term 'records' is not well understood. Senior executives and ICT and business managers often consider that 'records' are all contained in 'the' corporate records management system, and fail to realise that emails, websites, datasets and other types of business information are digital records. Hence, many business systems are not developed with the functionality required to manage digital information. As further evidence of this, one agency recently reported to the Archives, through an online application, that *'we don't have any digital records'*.

The National Archives considers that to communicate effectively we need to stop talking to our stakeholders about 'records' and to talk about 'information' instead. It is important that information management professionals understand the characteristics of records. However, it may be more appropriate to communicate with other stakeholders about 'information' rather than 'records'. 'Information' is seen as an asset, something that has value to current and future business, whereas 'records' are often seen as having only historical or cultural value, and are of considerably lower importance when making business investment decisions.

The fact that information comes in many different formats in a wide variety of systems simply makes deciding 'what are records' more complex. In addition, suggesting that records should be managed differently or in separate systems from other business information makes it more difficult and expensive to do so. The definition of a record in the Archives Act is very broad. The view of the National Archives is that, rather than determining what is or is not a record, for practical purposes all business information should be regarded as a record and should be managed well, according to its value.

Thirdly, we are experiencing increasing expectations for information to be readily available, to support accountability, transparency and entitlements, and to assist us in doing our

business more efficiently and effectively. In Australia these expectations have been reflected in a number of open government reforms in the Australian Government.

Expected benefits of these reforms include allowing government information to be reused in economically and socially valuable ways; building internal capability within and between agencies; helping achieve a more consultative, participatory and transparent government; and public sector innovation (Australian Government Information Management Office 2012).

The open government reform agenda, and the legislative changes that have accompanied it, follows similar movements in many countries and other Australian states. In July 2010 the Australian Government issued a Declaration of Open Government. The declaration pledges greater participation in Australia's democracy through a culture of engagement with citizens, better access to and use of government-held information, and the use of new internet-based technologies.

The Declaration of Open Government followed a number of significant legislative reforms. Major changes to freedom of information (Fol) legislation came into effect in 2010. These changes were intended to strengthen public rights of access to government information and, importantly, encourage agencies to proactively release information through agency websites rather than wait for it to be formally requested under Fol legislation.

There were also consequential amendments to the Archives Act. The most significant of these was the reduction in the eligibility for open access to records from 30 years to 20 years. This requires records to be transferred to the National Archives just 15 years after they were created and means that records could potentially be released to the public within the working life of the person who created them.

The reform agenda also saw the establishment of the Office of the Australian Information Commissioner (OAIC) in November 2010. The Freedom of Information Act and the Privacy Act — two important laws that govern how information should be handled — both come under the umbrella of the OAIC, which also has a role in overseeing a principles-based framework for government information policy.

Many of the governments which have adapted their information and records management regimes to meet the changing environment have done so in response to legislative reform in the areas of Fol and privacy. The UK, Canadian and Finnish governments are examples of this. Australia's information reforms are more recent but, again, have highlighted a need to ensure effective information management to enable initiatives such as Fol reforms and the proactive release of information.

International approach

Effective management of digital information is a global issue, across both the public and private sectors. One area that has been the focus of attention recently is digital continuity, or ensuring that information remains accessible and usable for as long as it is needed.

New Zealand developed the Digital Continuity Action Plan approach in 2009 (Archives New Zealand 2009). The UK (The National Archives 2011) and New Zealand have emphasised the use and value of information as a business resource. Other countries have focused their attention on digital continuity or digital preservation in archival contexts.

Both the UK and New Zealand based their approach on an action plan outlining steps to be taken to ensure digital continuity. Other government, academic research, cultural and industry bodies have recognised that the absence of digital continuity poses a risk to the ability to conduct business and have implemented projects to address this risk.

Projects in Europe include the Digital Preservation Europe (DPE) and the Cultural, Artistic and Scientific Knowledge for Preservation, Access and Retrieval and Open Planets Foundation. In 2002 the European Union joined more than 90 countries that either accept or require the International Financial Reporting Standards (IFRS) by 2005 – further increasing the demands on financial records management and access.

In the US, the National Archives and Records Administration National Electronic Records Archives project aligns with the *E-Government Act 2002* requiring the accessibility, usability and preservation of government information. In the Pacific region the Australasian Digital Recordkeeping Initiative promotes a single Australasian approach to digital public records management across all jurisdictions, and provides a space for communication and information sharing between the members.

The Open Government Partnership (OGP 2012) was launched in September 2011 at the United Nations meeting in New York. Over 50 countries are members of the partnership, which is a new multilateral initiative that aims to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance.

In addition, international and national standards bodies are working on a number of initiatives to address the challenges of digital information management, including ISO 16175 *Principles and Functional Requirements for Records in Electronic Office Environments* which is based on ICA Requirements and has been endorsed by the National Archives for use in Australian Government agencies. The international records management standard 15489 is also being reviewed in light of the changing environment.

The Australian Government approach

Fifteen years ago in 1997, then Australian Prime Minister Howard issued a policy statement that committed the Australian Government to providing services online. Today office productivity software is used daily; most government business is conducted digitally and most information is 'born digital', or created using digital technologies. Yet, often information is not managed to ensure that it remains accessible, usable and available.

In many Australian Government agencies – as in other countries – considerable information is printed 'for the record' or for storage or other management purposes. Printing digital information significantly reduces its value. It becomes difficult to share or reuse and it loses much of its context, making it more difficult to fully comprehend.

The National Archives has a strong commitment to encouraging agencies to manage their information digitally and has been advocating this for some years. Previous projects and collaboration demonstrate this commitment. At the strategic level, the National Archives has been involved in a number of initiatives in partnership with other government agencies, with standards bodies and professional associations. We have liaised with vendors to encourage them to develop products that meet the needs, and we have worked with tertiary institutions

and professional organisations to influence the courses and professional programs that are being offered. At a practical level, the National Archives has revised standards, provided advice and developed guidance on many aspects of digital information management.

Despite this, many agencies still rely heavily on paper and have not realised the benefits available from transitioning to managing their information and records digitally.

This transition received a substantial boost in July 2011 when a new policy, known as the Digital Transition Policy, was released by the Australian Government. The policy is targeted at all Australian Government agencies, which equates to more than 200 bodies of various sizes. The aim is to move agencies towards digital information management for efficiency purposes. The National Archives is the lead agency for the implementation of the policy.

Managing information digitally means that:

- the majority of information and records are created, stored and managed digitally – that is, they are not printed ‘for the record’ or for storage purposes but are managed in digital systems with appropriate functionality;
- incoming paper information is scanned so that it can be stored digitally; and
- new paper records are not created.

The policy also requires the following actions from agencies:

- Reduce paper stockpiles. There is a huge backlog of paper records in agencies – much of it temporary records that are overdue for disposal.
- When acquiring new or upgraded systems, give preference to ones that have the functionality needed to manage the information created within the system.
- Complete and submit to the Archives three annual Check-up 2.0 assessments. Check-up 2.0 is an online questionnaire that allows agencies to assess their information and records management capability. These assessments will help to identify key strengths and weaknesses, plan improvements and monitor progress.
- Secure leadership support to drive change.
- Provide adequate resources including suitably skilled staff and the systems needed to support the transition to, and ongoing management of, digital information and records.

The Digital Continuity Plan

Under the policy, the National Archives was also tasked with producing a Digital Continuity Plan for Australian Government agencies.

It is worth noting that there is a distinction between digital transition and digital continuity. Digital transition concerns changing business processes to reduce the reliance on paper and managing information digitally rather than printing and storing paper. Digital continuity concerns keeping and managing digital information to ensure it can be used in the way that is required – that is, ensuring business information remains accessible and usable for as long as it is needed.

The National Archives’ Digital Continuity Plan draws on a range of sources, including those from other jurisdictions. It also emphasises the use and value of information as a business

resource. The project team worked closely with a reference group comprising representatives from a number of agencies and consulted with many other agencies.

Australian Government agencies range in size from less than 20 to more than 20,000 employees; with different business requirements; and working at different levels of information management capability. The plan therefore needed to be adaptable and flexible to suit the range of requirements across government.

To provide this flexibility, the plan is based on six Digital Continuity Principles that outline the critical features of effective digital continuity. They are:

1. The value of digital information as a business, evidentiary and community resource is understood and the information is managed accordingly.
2. The governance of digital information is integrated with agency governance, with roles and responsibilities clearly defined and allocated.
3. Digital information is authentic and reliable.
4. Digital information is discoverable, accessible and usable.
5. Digital information is managed digitally.
6. Digital information is managed, protected and preserved for as long as required and then disposed of appropriately.

Adopting and implementing these principles will lead to three high-level outcomes:

- The benefits of information to agency business, the government and the community are optimised.
- People, processes and technology are aligned to support effective information management.
- Information is fit-for-purpose over its life.

The Digital Continuity Plan identifies 12 key actions, recommending agencies take an incremental or staged approach, as there is no 'one-size-fits-all' solution. An agency action plan should be based on its business priorities and risks. The plan recognises that agencies may have preferred approaches that better suits their purposes.

In addition to the Digital Continuity Plan, the National Archives has developed a wide range of practical advice and guidance on aspects of digital information management, and updated much of our earlier advice.

Conclusion

The National Archives and the Australian Government have a unique opportunity with the Digital Transition Policy. Attention on information and records management at this level across the government is a powerful opportunity that we cannot afford to lose. The initial requirements under the policy cover three years until 2014 but there must be a commitment to build on and sustain the momentum and level of profile it brings and to lead further improvements for the government. This means that the National Archives, stakeholders and government must continue to work together beyond the initial phase of the policy towards an ongoing strategy for information management across the government.

Government as a whole and each agency individually has to take up the challenge to ensure that information management catches up with business and technology, and then to continue to keep abreast of technology and expectations to keep the lifeblood flowing.

The concept 'do nothing, lose everything' (Archives New Zealand 2009) in relation to information is starting to resonate in the wider community. This means that at some point there will be concerted action towards developing and creating a sustainable way of dealing with digital information. According to Cumming and Findlay (2010, p. 273) 'across organisations, the critical importance of digital recordkeeping is starting to be recognised and the value of controlling, managing, using and reusing trustworthy, accountable and meaningful digital information is becoming a powerful business motivator'.

As information professionals, we need to ensure that we foster this growing recognition and that we are prepared with the resources needed and ready to seize the opportunity to catch up with the digital revolution.

Acknowledgment

The authors would like to acknowledge valuable contributions of ideas and advice from others in the Government Information Management branch of the National Archives.

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