Developing an Organisational Information Policy to Mitigate the Risks Posed by Social Media Technologies

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Social media use by public and private organisations has implications for the usability, reliability, authenticity and evidentiary capacity of their records and poses technological, resource and policy challenges. It is essential to find ways to ensure social media technologies that are used in organisations and the policy frameworks that support their use are designed to mitigate the risks and address the recordkeeping challenges that organisational use of social media presents. This article argues there is a need for agile and responsive information policy that deals with the emergent recordkeeping challenges related to social media and suggests that elements from public policy models can be utilised in the development of organisational information policies that are well positioned to adapt to new information technologies.

Introduction

Social media technologies are rapidly being adopted by public[1] and private[2] organisations and their members for a variety of functions (for example, internal and external communication, marketing, collaboration, knowledge creation, and so on). The use of these technologies and the content created through their use raises legal, archival and management issues. Social media are consistently evolving with an ever-increasing ability to combine tools and data to create new forms of information and documents posing challenges to traditional recordkeeping and information management paradigms, especially regarding intellectual property and copyright, ownership, privacy, security, access and preservation. As a consequence, there is an identified need[3] for organisational information and records policies that address the unique issues that accompany the use of Web 2.0 and, more specifically, social media technologies.

This article outlines the ideas inherent in Web 2.0, defines social media technologies and their relationship to Web 2.0, and examines the issues within each of the identified fields and their relationship to records. It then defines organisational information policy and explains its purpose arguing that an organisational information policy that targets the use of social media can aid in mitigating the ongoing challenges they present. The author argues that elements from public policy models can be utilised in the development of organisational information policy that is well positioned to adapt to new information technologies.

An understanding of social media applications and their uses is predicated on an understanding of the ideas underlying Web 2.0 and on how they have facilitated a substantial shift in information culture. An examination of the context of Web 2.0 will situate social media technologies in a framework that clarifies their functions and uses and lays the groundwork for an investigation into the issues encountered in the adoption of social media technologies by organisations and governments.

Web 2.0 and social media

Web 2.0 refers to the participative web and is an umbrella term that refers to the framework of ideas underpinning social media

applications and the technologies that have produced them.[4] There is no commonly accepted definition of Web 2.0, nor is there agreement on how it differs from what came before; it is a term that has been subject to debate since its inception. For many, Web 2.0 is not just a new generation of technologies, but a 'paradigm shift in which a critical mass of users is accessing the Internet for mutual interaction and collective creation of knowledge'.[5]

The term Web 2.0 is often used synonymously with social media and social networking technologies that facilitate a more social and participative Web. Coined by Dale Dougherty of O'Reilly Media in 2004 in relation to the potential future consequences of the Web, and later expanded upon by Tim O'Reilly, the term is dismissed by Sir Tim Berners-Lee, the inventor of the Web, who argues that Web 2.0 is no different from the original vision of the Web. According to Berners-Lee, Web 2.0 is 'what the Web was supposed to be all along' and Web 2.0 is just 'a piece of jargon'. Berners-Lee argues that the ability to implement Web 2.0 technologies is built on 'Web 1.0' technology.[6] The technological building blocks of Web 2.0 are those developed to increase the usability, integration and re-use of Web applications (Ajax, XML, Open API, Microformats, Flash).[7] New applications and services that allow users to easily create, publish, collaborate and share information are built primarily on these building blocks. Despite disagreement around terminology, there is a common understanding that the distinguishing feature of Web 2.0 applications and services is that they share the same ideas or 'values', which include: *individual production and user-generated content, capacity to harness the power of the crowd, network effects, architecture of participation, data on an epic scale, and openness.*[8]

An understanding of these ideas facilitates a comprehension of the immense impact Web 2.0 has had, not just as a 'global information space'[9] but also as a social experiment with ideas of collaboration, contribution and community at its core. The affordances of social media applications and services, because of their widespread accessibility and ease of use, allow for potentially increased communication, collaboration and creation among individuals, organisations and governments. This has real implications for society and culture because

such affordances can 'lead to network byproducts, which may have social and cultural significances'[10] and push on our current definitions of what constitutes a record and how it can be effectively managed over time and space.

Social media technologies build on the foundations of Web 2.0, enabling users to develop, contribute, and share user-generated content on the Web and enterprise platforms. Social media comprise a variety of applications and services including: blogs and microblogs;[11] wikis;[12] RSS feeds;[13] multimedia sharing and podcasts;[14] collaborative editing tools;[15] mashups;[16] tagging and social bookmarking;[17] virtual worlds;[18] and, social networking services.[19]

A shifting information landscape

A McKinsey report on a 2008 survey of 1,988 executives from across the globe on their company's business use of social media technologies showed that 'companies are not only using more [social media] technologies but also leveraging them to change management practices and organisational structures'.[20] Social media are being used to support a range of organisational and government activities and functions. The McKinsey report found that social media technologies are having a fundamental effect on the way companies are operating, creating and utilising information. Organisations and governments are adopting new ways of engaging with users through the use of social media, thereby increasing the accessibility and usability of public and private sector information.[21]

Reasons for the exponential growth of user-generated content (UGC) are based on a number of drivers, including technological (increased broadband access and social software tools), social (willingness to collaborate, share and contribute to online communities), economic (increased interest in monetising UGC), and legal (new legal avenues for intellectual property and distribution).[22] The OECD states that, 'new forms of content creation and distribution are spurring new business models and are beginning to bypass, intersect with, and create new opportunities for, traditional media and content-related industries and access routes'.[23] The use of social media by their employees and

customers is driving companies to move beyond just 'dabbling' with social media; they are actively incorporating social media into how they carry out their business functions and as a result potentially creating records, which may be called upon by the organisation to support accountability and compliance down the road.

Legal Issues

A number of legal issues arise from the employment of social media by organisations and their employees, including intellectual property and copyright, compliance and liability, ownership, privacy and confidentiality and e-discovery.

Intellectual property and copyright

Technologies such as mashups can benefit communities of interest with the development and dissemination of combined information that result in new knowledge;[24] however, the 'combination of *someone else's information or data* into a new service or application'[25] raises a number of intellectual property and copyright issues. Copyright law does not protect raw data but it does protect compilations of data as a whole if it contains a minimum amount of creativity constituting an original work of authorship. The intellectual rights of the copyright owner are attached to the authentic digital object and, specifically, to its documentary form. Additionally, mashups have the potential to infringe upon existing patents by unauthorised data access, extraction, combination or other manipulation of the contents of a website.[26] The posting of copyrighted or trademarked materials without permission on blogs and social networking services, issues of ownership of social media content, and unauthorised disclosure of trade secrets and/or confidential information can all potentially contribute to an organisation's risk of running afoul of intellectual property legislation.

Compliance and liability

Recordkeeping and compliance issues can arise when organisations and government agencies enlist social media to carry out business

functions. The financial industry faces issues of static versus dynamic and interactive content on social media sites and must look for guidance from regulatory agencies such as the Financial Industry Regulatory Authority (FINRA) in the United States to navigate the numerous laws and regulations that govern their industry. Government agencies employing social media must also be cognisant of the laws that govern the records they create. In Australia the *Archives Act 1983* definition of a Commonwealth record is independent of format, making social media records 'subject to the same business and legislative requirements'[27] as records created with other forms of media. Additionally, 'information residing or stored on third-party sites may not be regarded legally as Commonwealth property and consequently may not be a Commonwealth record'.[28]

E-discovery

Social media are major contributors to the increase in the use of electronically stored information as evidence in litigation. By the end of 2013, half of all companies will have been asked to produce material from social media websites for e-discovery.[29] Social media content that may be sought for e-discovery is often scattered across multiple sites and connected to many people and custodians, potentially housed outside of an organisation's firewall. Despite these challenges, organisations have a duty to preserve social media data that may be relevant in potential litigation. In August of 2011 the Federal Court of Australia issued *Practice Note CM 6: Electronic Technology in Litigation*, the purpose of which is to 'encourage and facilitate the effective use of technology in proceedings before the Court.'[30]

The courts are only beginning to outline the duty of preservation and the right to discovery of social media sites. The main issue with e-discovery of social media content is the admissibility rule of authenticity, making courts cautious when dealing with social media content. Recent case law in the United States highlights some of the issues with social media content subject to e-discovery, including whether it is considered private, is discoverable, and is admissible as evidence. Social media is adding to the complexity of the e-discovery process. From his Australian perspective, Nicholas Adamo states:

The emergence of new technologies used by people is making e-discovery more complex. Social media especially is creating phenomenal difficulties because you have employees creating information in pockets that are not controlled by general corporate governance policy, on servers not generally owned by a company and can often really skirt the edges of a company's IP [intellectual property] or relevant business documentation. [31]

Privacy and confidentiality

Protecting the privacy and/or anonymity of users' activities is an issue in the context of social media use. Much data made available online is not collected via the Web,[32] and public records are increasingly being made available online via e-government and government open data initiatives. The Australian government's Government 2.0 initiative to incorporate Web 2.0 technologies into government engagement, for example, is regarded as offering 'a unique opportunity to achieve more open, transparent, accountable and responsive government.'[33] Social media utilising public data (for example, for-profit mashups) and social media platforms used by governments to interact with citizens can put an individual's privacy at risk unless the proper policies and procedures are in place.

Because social media operate via the Web over the Internet, the information stored in social media applications resides in the cloud instead of on a computer's hard drive. Information stored in the cloud may be located in countries in different continents, and this makes it subject to a variety of laws and standards, raising questions for information security, access and privacy. Additionally, information residing in the cloud does not only have to be protected in terms of whom it belongs to, but also for *what* it is.

Unauthorised access to data is a privacy concern for organisational information residing in social media applications and services, as is protecting information stored on remote servers. A variety of legal issues can arise regarding information stored on remote servers including the gathering of data that is several degrees removed from

the intended subject, as well as innocent but sensitive organisational information getting caught up in an investigation.[34]

Records and social media

Social media are transforming the information landscape from primarily hierarchical to more collaborative or horizontal forms. Business processes traditionally conducted in closed systems can now take place on open networks with the potential of decentralising decision-making and records creation. As systems that were once static are now dynamic, facilitating the creation of ephemeral information that challenge our traditional understanding of records, much of what social media technologies allow users to do raises questions about recordness, authenticity, reliability and accuracy.

The authenticity of digital material is dependent upon the protection through time of its identity and integrity.[35] Organisations use records not only for action and reference, but also to support accountability and compliance, that is, as evidence of their activity.[36] In order for a record to act in an evidentiary capacity, it must be created, managed and preserved respecting applicable legislation, regulations, standards, codes of practice, and/or community expectations.[37] The evidentiary capacity of a record depends on its reliability and is provided by its form, authorship, and control on the procedure of creation.[38] Unlike in traditional recordkeeping environments where identification and assessment of these factors tends to be more straightforward, in a social media environment, things become complicated. Potential records generated or received on social media sites often do not allow organisations to maintain control over their procedures of creation, their form or their retention. As Moss accurately states, 'much of the "individual production" championed by Web 2.0 enthusiasts lacks the mediation processes that are familiar in the analogue'.[39]

Organisations are using social media to replace or enhance existing business processes[40] yet social media content can be difficult to define as records. The interactive and collaborative nature of social media applications broadens the range of authorship in the production of content, as collaboration can extend beyond the traditional boundaries of an organisation's records management policies.[41] Social media

contents, particularly those residing in third-party environments, are difficult for organisations to manage when applying records management principles including capture and maintenance, classification, retention and long-term preservation or destruction of records, privacy protection and access.

A number of questions exist regarding how to ensure trustworthiness of the potential records maintained in social media applications so that they can be used as evidence. Content derived from external sources may lack sufficient information to establish authenticity (identity and integrity), reliability and usability.[42] Protecting the integrity of information in social media environments may be difficult, as organisations may not have control over who has access to systems if information is hosted on third-party servers.

Information contained in social media sites may be unstructured and constantly changing. Applications such as wikis, blogs and social networking sites encourage creativity and the innovative use of multiple formats and media, challenging records managers to identify records among the various contents and properly accommodate them in a recordkeeping system.[43]

As stated thus far, the use of social media applications by organisations and governments gives origin to several challenges requiring solutions. The investigation into the record nature of the information objects generated using social media must be ongoing in order to fully understand the implications of social media technologies on recordkeeping theory and is beyond the scope of this paper. However, information and records management policies that effectively address social media use and its resultant products can aid in addressing the issues already identified: reliability and liability, security, privacy and confidentiality, as well as authenticity, accuracy, e-discovery, intellectual property, freedom of information and long-term preservation and access. There is a need for agile and responsive organisational information policies that seek to address these issues through guidance to users, attention to the information products generated and alignment with organisational goals, responsibilities and regulations. However, it is not sufficient to call for such policies, or even to state what they should contain: there is a need for policy

development techniques and models that, when incorporated into the policy development process, can aid in drafting new policies and/ or adjust existing policies to address the emergent recordkeeping challenges that social media use creates. It is essential that the policy frameworks that support the use of social media in organisations be designed to mitigate the risks associated with their use, and the open and ephemeral nature of the Web.

Organisational information policy development for social media

Organisational information policy is predicated on the requirements of an organisation to control the way in which it creates, records, controls, uses, communicates, retains, and destroys information in relation to its goals and objectives. It is a dynamic tool that guides decision-making and actions around the use and management of information within an organisation in order to support and achieve the desired outcomes of particular goals. It serves as a framework that situates information within the broader context of the organisation and aids it in carrying out its mandate. External factors such as legislation, standards, social values and norms, technology, and so on, are all elements that must be considered in relation to organisational information policy.

Organisations engage in information policy to avoid risk, ensure compliance, maximise resources and take advantage of change and opportunity, and therefore must take a systematic approach to information policy development. Information policy analysis and development have to find ways of understanding the factors at play in the context of the environments in which the policies operate, taking into consideration the resources, values, needs and affordances throughout the policy making process.

The development of an organisational information policy that is well positioned to adapt to new information technologies such as social media should take into account the nature and ever-changing affordances of social media technologies, the values that may be embedded in them, the organisational culture of an organisation and its relationship to information use and technology, and the national and international contexts in which organisations operate. There is a clearly identified need for an information policy development

framework able to facilitate a process that can develop organisational information policies which are 'flexible, dynamic and responsive to changing circumstances'.[44] Following is a brief examination of four public policy development models – the policy cycle, the frame analysis, the policy regime, and the policy transfer – which the author argues can be modified and enlisted in the development of effective organisational information policy addressing the organisational use of social media.

The policy cycle model

This model is prescriptive in nature and is intended to inform decision-making, either implicitly or explicitly.[45] It is a method of determining which, among a variety of policy alternatives, will best achieve a given set of goals in the context of the relationship between the policy and the goals. This author argues that a number of elements from public policy frameworks can be utilised in the development of an organisational information policy that is well positioned to adapt to the new information technologies introduced by Web 2.0. A brief look at the policy development process will aid in contextualising the elements suggested as essential to this model.

The use of policy analysis frameworks aids in understanding the ways in which people in organisations make decisions and addresses some of the questions asked in the policy development process. What are the goals of policy? Who are the stakeholders? What are the issues the policy is intended to address? What regulations, laws, and standards must be complied with? Is the policy effective? And so on. A policy analysis framework for the development of an organisational information policy is a helpful, if not necessary tool for identifying the normative components required for inclusion in an information policy related to the use of Web 2.0.

The policy cycle model, developed by researchers in the United States during the 1960s and 1970s is one of the most influential models of the public policy process.[47] The model consists of five stages:

1. agenda setting;[48]

2. policy formulation – development of policy alternatives;[49]

3. decision making – adoption of a particular course of action or inaction;[50]

4. implementation – putting the policy into effect;[51] and,

5. evaluation – assessing the consequences of the policy including monitoring. This phase of the process is key to understanding the policy.[52]

The evaluation element of the model can work to provide effective criticism and move the policy process back to any of the previous stages of the model, thus creating feedback in the policy development process. The nature of social media applications means that they are ever evolving in their technology and their parameters of use. New features are regularly added to social media applications, and policies relating to issues such as privacy and access are continuously being updated or changed. Additionally, how a social media application is interpreted and used by individuals and groups within an organisation can shift. It is necessary for information policies to be adaptable in order to accommodate shifts in interpretation and use of technologies by individuals within an organisation. The organisational policy development process must include a means to regularly evaluate the effectiveness of policies that deal with social media use in such an information landscape and the policy cycle model accomplishes this.

The integration of the policy cycle model with other policy models can effectively form the basis of an organisational policy development framework that is an effective response to social media use and its resulting recordkeeping challenges.

The frame analysis model

Frame analysis provides a mechanism for examining and understanding the place of values in the information policy-making process. A frame is used to describe sets of values and concepts that individuals (or organisations) use in making sense of their environment and is an effective tool for understanding how people (and organisations) interact with the same information. Framing information policy in a particular paradigm makes explicit the value systems that are at the foundation of our understanding of information policy.[53]

The contextual nature of organisational policy formation can benefit from approaches such as frame analysis, which makes explicit the values at play in the exercise of organisational information policy development, including how individuals and organisational values interact with information in a particular context and how the values underlying Web 2.0[54] influence information creation and management. Frame theory can provide a mechanism for the value systems underlying social media to be more transparent. This approach is ideal to address issues, including the unpredictability of the applicability and effects, of new (and ever changing) social media applications.

The policy regime model

The policy regime model is a theoretical framework for analysing the development of public policy. Hoberg integrates the policy regime with the policy cycles model to create a theoretical framework for analysing the outcomes of public policies. An analysis of Hoberg's policy regime approach demonstrates how it can be modified for an organisational context and aid in the development of information policy that is adaptable to new information technologies such as social media.

The policy regime model consists of regime components, background conditions and policy outcomes. Policy outcomes are produced through the interaction of regime components and background conditions. The three components of the policy regime are actors, institutions and ideas. Actors have interests they pursue through the policy process, resources they bring to the policy agenda, and strategies they use to employ their resources in pursuit of their interests.[55] Institutions in the policy regime model are rules and procedures that allocate authority over policy and over the relations among the actors in the policy process.[56] Ideas act as both causal and normative beliefs about the substance and process of public policy. Causal beliefs speak to means, and normative beliefs speak to ends. Ideas can influence policy in three ways: they can act as road maps for actors in understanding the relationship between their strategies; they can serve to narrow the range of ideas in complex situations; and they can become embodied in policies and institutional rules having a ripple effect long after policy is established.[57]

There can be significant interaction among the components. 'Institutions shape the resources and strategies of actors. Ideas inform the interests and strategies of actors, and they can provide valuable political resources for actors'.[58] In this framework, policy contents and consequences are the dependent variable and policy outcomes 'emerge from the decision-making and implementation stages'.[59]

The policy regime model can be adapted to contribute to the development of an organisational information policy that is suitable for managing the use of social media applications. An analysis of the three regime components and the background conditions indicates that they can be adapted to meet the requirements of an organisational policy for Web 2.0. The policy regime components – actors, institutions and ideas – are not the sole domain of public policy but also exist within an organisational context. One could define actors in an organisational policy development context as the stakeholders who have a role in policy formulation and implementation. Organisations have systems of rules and procedures (institutions)[60] that act to allocate authorities, responsibilities and permissions which are assigned to policies, actors and the relations among actors with regard to organisational policies and roles. The third component, ideas, in the organisational context can be defined as causal and normative beliefs about the substance and process of policy predicated on the organisational culture and objectives of the organisation. In the context of a regime framework seeking to develop an organisational information policy that is adaptable to new information technologies, background conditions[61] could be defined as: information and communication technologies (ICTs); national and international laws, policies and standards; and organisational culture, values and norms. Just as in the public policy regime framework, policy outcomes are produced through the interaction of regime components and background conditions.

Hoberg argues that the policy regime model can be integrated with the policy cycles model to 'illuminate' each stage of the cycle. The framework can be utilised at each phase of the cycle from *agenda setting* through *evaluation*.
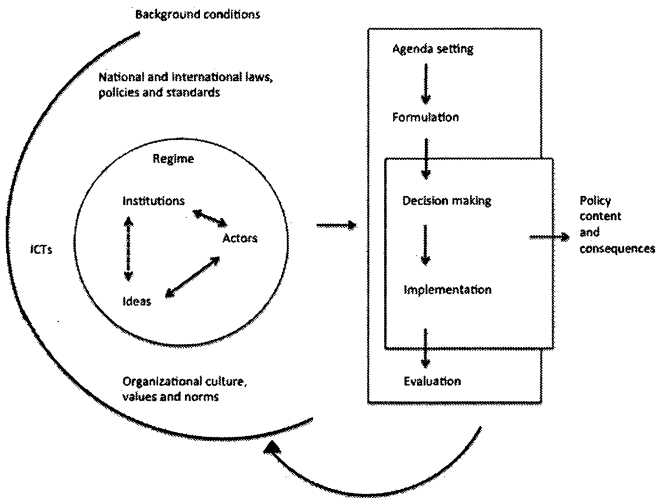
Figure 1: Policy regime framework/policy cycles model for
organisational policy development. Adapted from Hoberg's policy regime framework[62]

The policy transfer model

Policy transfer is the act of drawing policy lessons from one policy
domain to another. What is being transferred can include policy goals,
policy content, policy structure, policy instruments, institutions,
ideology, ideas, attitudes and concepts, and negative lessons. The
simpler the problem, the more likely transfer will occur, and the
more direct the perceived relationship between the problem and the
solution, the more likely transfer is to occur; in fact, a policy is more
likely to be transferred if there are few perceived side effects.[63]

Arguably, policy transfer could be utilised in an organisational context,
particularly regarding the effects of new information technologies
on the policy process. An examination of other organisational or
government information policies which address social media, as
well as an analysis of their success or failure, may lead to valuable
lessons which could be incorporated into the policy development
process. There are a variety of existing policies, guidance, or directions
relating to social media policies and policy development, in Australia

and internationally, which could be consulted in the development of organisational social media policies.

Who is doing social media policy well?

While many existing organisational and governmental social media policies are guidelines about employee use of social media, only a few policies also effectively address recordkeeping considerations. The National Library of Australia's *Social Media Policy*[64] is an example of a policy that effectively addresses social media use by employees, compliance, risk and intellectual property issues, as well as social media content, paying particular attention to recordkeeping. The National Archives of Australia provides sound resources concerning records issues when developing social media policies[65] and proper guidance for government agencies when dealing with Commonwealth records created with social media applications.[66] The State of New South Wales *Guideline No. 24: Records Management and Web 2.0*[67] is a comprehensive and practical guide to assist records managers in understanding the issues associated with social media use and how to effectively manage them. The United States National Archives and Records Administration's (NARA) *Implications of Recent Web Technologies for NARA Web Guidance*[68] is a thought paper that comprehensively explores the challenges and implications that emerging web technologies pose to records management. NARA's *Interim Guidance 831–2* outlines rules of behaviour for social media use and responsibilities for social media content management including records.

Conclusion

The democratic nature of social media technologies has afforded greater connection, collaboration and knowledge creation in interactions among citizens, organisations and governments.[69]   However, this ubiquitous adoption of social media has given rise to legal, archival and records management issues that are continually evolving as technologies change and are utilised in new ways. The information and records being created using social media technologies are by their very nature ephemeral and collaborative, and much is unknown about

them. Understanding the issues created by the use of social media and the resulting content will aid in identifying the risks in its use, and the knowledge and tools required to manage this content and associated issues.

Ongoing monitoring and evaluation in the application of information policy within an organisation allows the organisation to evaluate and react to rapid evolutionary changes in the technological landscape. A policy analysis framework for the development of an organisational information policy should allow for the development of such a policy and include the ability for policy to adapt to external and internal changes. A well-developed organisational information policy can aid in mitigating the risks associated with social media use and ensure records and information valuable to the organisation are not lost. Adopting a policy development framework which identifies the actors, institutions and ideas present within an organisational context, considers the underlying values inherent in the system, and looks to successful models for guidance that may very well result in a prescriptive policy development model. However, such a model would be beneficial because it uses an incremental approach to information policy development that makes small advances which can be tested, evaluated and continually improved to address the evolutionary nature of social media technologies, their uses and the issues such use creates.

Endnotes

[1] A Chang and PK Kannan, 'Leveraging Web 2.0 in Government', available at <*http://www.businessofgovernment.org/article/leveraging-web-20-government*>, accessed 25 August 2011; David Osimo, 'Web 2.0 in Government: Why and How?', *JRC Scientific and Technical Reports*, 2008, available at <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=1565>, accessed 25 August 2011; DC Wyld, 'The Blogging Revolution: Government in the Age of Web 2', available at <*http://www.businessofgovernment.org/report/blogging-revolution-government-age-web-20*>, accessed 25 August 2011.

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⁴ P Anderson, 'What is Web 2.0? Ideas, technologies and implications for education', *JISC Technology and Standards Watch*, 2007, available at *<http://www.jisc.org.uk/media/documents/techwatch/tsw0701b.pdf>*, accessed 9 November 2009.

⁵ Dirk Schneckenberg, 'Web 2.0 and the shift in corporate governance from control to democracy', *Knowledge Management Research & Practice*, vol. 7, 2009, p. 239.

⁶ P Anderson, 'What is Web 2.0? Ideas, technologies and implications for education', *JISC Technology and Standards Watch*, 2007, available at *<http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf>*, accessed 9 November 2009. Anderson's report provides a comprehensive summary of the Web 2.0 and the ideas that underpin it.

⁷ ibid., pp. 27–31.

⁸ ibid., pp. 14–25.

⁹ ibid., p. 4.

¹⁰ Anthony P Cocciolo, *Using Information and Communications Technologies to Advance a Participatory Culture*, Columbia University, 2009, p. 38.

¹¹ Blogs are webpages made up of individual posts in a variety of forms (text, video, audio, images, and so on), arranged chronologically. Hallmarks of blogs include frequency and brevity of posts, links to information both internal and external to the blog, and the ability for readers to comment on posts, facilitating a conversation between writer and readers. A microblog allows users to send and receive brief text messages (images and video can also be attached and/or linked to) with a limited number of characters.

¹² A wiki is a tool that consists of a website that allows co-creation and collaboration on interlinked webpages accessed via a web browser featuring a variety of access controls.

¹³ Syndication and notification technologies (RSS feeds) allow users to be automatically notified of and receive updates and changes to content on websites, blogs, wikis, and so on, using an aggregator without having to visit the site.

¹⁴ Multimedia sharing services are web-based services that allow users to display, share, and search user-contributed content online.

¹⁵ Collaborative editing tools are web-based tools and services that allow users to collaborate on the creation and editing of documents in a variety of forms by accessing information in a shared virtual workspace.

¹⁶ A mashup is the combination of web content or web services extracted from two or

more (often diverse) sources to create a new information object, service or application available via the web.

[17] Social bookmarking is the ability to save, organise, search, share and store bookmarks of webpages centrally, utilising a web service.

[18] Virtual worlds are simulated Internet based environments that replicate a two or three dimensional environment which allows users to create personalised avatars that can communicate with each in the form of text or real-time voice communication, participate in activities, and create and trade content.

[19] Boyd and Ellison define social networking sites as 'Web-based services that allow individuals to 1.) construct a public or semi-public profile within a bounded system, 2.) articulate a list of other users with whom they share a connection, and 3.) view and traverse their list of connections and those made by others within the system'. Danah M Boyd and Nicole B Ellison, (2007). 'Social network Sites: Definition, history, and scholarship', *Journal of Computer-Mediated Communication*, vol. 13, no. 1, available at *<http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html>*, accessed 25 August 2011.

[20] See Bughin, Manyika and Miller.

[21] Chang and Kannan; Osimo; Wyld.

[22] Organization for Economic Cooperation and Development (OECD), 'Participative web and user-created content: web 2.0, wikis and social networking', Directorate for Science, Technology and Industry, 2007, available at *<http://www.oecd.org/document/40/0, 3746,en_21571361_38620013_39428648_1_1_1,00.html>*, accessed 25 August 2011.

[23] OECD, p. 15.

[24] J Warner and Soon Ae Chun, 'Privacy protection in government mashups', *Information Polity*, no. 14, 2009, pp. 75–90.

[25] Gerber.

[26] ibid.

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[28] ibid.

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[42] ibid.

[43] B Dearstyne, 'Blogs, Mashups and Wikis Oh My!', *The Information Management Journal*, vol. 41, no. 4, July/August 2007.

[44] Ian Rowlands, 'Understanding Information Policy: Concepts, Frameworks and Research Tools', *Journal of Information Science*, vol. 22, no. 1, 1996, p. 15.

[45] David L Weimer and Aidan R Vining, *Policy Analysis: Concepts and Practices*, Pearson, Upper Saddle River, 2005, p. 23.

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[47] George Hoberg, 'Policy Cycles and Policy Regimes: A Framework for Studying Policy Change', in B Cashore, G Hoberg, M Howlett, J Rayner and J Wilson, (eds), *Search of Sustainability: British Columbia Forest Policy in the 1990s*, UBC Press, Vancouver, 2003.

[48] 'Who or what is thought to be responsible for creating the policy problem and what types of solutions may be effective or appropriate in addressing the problem', Hoberg, p. 5.

[49] This phase analyses how alternatives to be considered get narrowed down and refined and is constrained by factors such as technical feasibility, fiscal restraint and political feasibility. Hoberg, pp. 5–6.

[50] An objective of this phase is to characterise the content of policy in terms of the broad goals of the policy and its more specific objectives, the instruments adopted and the specific instrument settings. Additionally, decision makers seek to understand the organisational context in which the policy is to be implemented. Hoberg, p. 6.

[51] This phase focuses on determinants of success or failure of the policy. Conditions considered in effective implementation include: clear and consistent policy objectives, a sound causal theory, adequate administrative authority, committed and skillful implementers, support from key stakeholders and facilitative economic conditions. Hoberg, p. 6.

[52] Hoberg, p. 7.

[53] Ian Rowlands, Tamara Eisenchitz and David Bawden, 'Frame Analysis as a Tool for Understanding Information Policy', *Journal of Information Science*, vol. 28, no. 1, 2002, pp. 31–32.

[54] Individual production and user-generated content, capacity to harness the power of the crowd, network effects, architecture of participation, data on an epic scale, and openness. P Anderson, 'What is Web 2.0? Ideas, technologies and implications for

education', *JISC Technology and Standards Watch*, 2007, available at <*http://www.jisc.org. uk/media/documents/techwatch/tsw0701b.pdf*> accessed 9 November 2009.

[55] Hoberg, p. 10.

[56] ibid., p. 11.

[57] ibid.

[58] ibid., p. 12.

[59] ibid.

[60] Hoberg's definition of institutions in the public policy process – rules and procedures that allocate authority over both policy and relations among actors in the policy process – is directly transferrable to the organisational context. George Hoberg, 'Policy Cycles and Policy Regimes: A Framework for Studying Policy Change', in B Cashore, G Hoberg, M Howlett, J Rayner and J Wilson, (eds), *Search of Sustainability: British Columbia Forest Policy in the 1990s*, UBC Press, Vancouver, 2003.

[61] In the public policy context, Hoberg defines background conditions as markets, elections and public opinion, yet they are not limited to these as they can include a variety of potentially relevant conditions.

[62] Hoberg, p. 10.

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[66] National Archives of Australia, 'Social Media: Another Type of Commonwealth Record', available at, <*http://www.naa.gov.au/records-management/agency/digital/socialmedia/index.aspx*>, accessed 20 October 2011.

[67] State of New South Wales, *Guideline No. 24: Records Management and Web 2.0*, available at <*http://www.records.nsw.gov.au/recordkeeping/government-recordkeeping-manual/guidance/guidelines/guideline-24*>, accessed 20 October 2011.

[68] Available at <*http://www.archives.gov/records-mgmt/initiatives/web-tech.html*>, accessed 20 October 2011.

[69] Benkler, pp. 4–8.