CONTINUED COMMUNICATION: MAXIMISING COMMUNICATIONS IN A WEB 2.0 WORLD

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Abstract
This paper is concerned with Continued Communication, a Northumbria University led co-operative inquiry, critically evaluating a central research question: how can organisations maximise the potential of their communications, taking into account the impact of the individual. This paper provides a high level discussion of the research and outputs of the Continued Communication's UK group. It discusses the complex dimensions of communication; organisational requirements, individual agendas, and communication channels/tools.

Members of the Continued Communication UK Group are: *Rachel Binnington, Teresa Blackmore, Leanne Bridges, Matthew Brown, Chris Campbell, Heather Caven, Nick Cooper, Emma Davies, Sarah R Demb, Paul Dodgson, Ron Donaldson, Denise Drake, Benjamin Ellis, Susan Em, Rachel Hardiman, Emma Jarvie/Johnson, James Lappin, Elizabeth Lomas, Samantha Mansfield, Christopher Marsden, Suzie Mereweather, Mia Ridge, Laura Robertson, Tom Salmon, Martin Sanderson, Jon Shepherd, Katherine Stevenson, Andrew Stewart, Jeanette Wordsworth, Lynn Young, Jane Zibarras and 20 additional anonymised participants.*

1.0 INTRODUCTION

New technologies have radically changed business and organisational models and the ways in which key transactions are negotiated and delivered on a daily basis. Across organisations, computer mediated communications (in particular, email along with Web 2.0[1] social networking applications), are now the main tools for creating, distributing and saving information within an organisational context[2]. However, despite the fact that computer mediated communications are central to business processes, organisations often fail to deliver informed guidance or direction on engaging with and managing the range of communication applications currently available. When people make decisions about where and how they communicate, they face an array of choices: for example, should they communicate in person (face-to-face), by email, through a blog, internally within their organisation or in a wider collaborative environment? The consequences of these choices, positive or negative, are rarely considered and risk assessed. Furthermore, within many organisations, blind fear has resulted in a complete lockdown on Web 2.0 collaborative services. It is the premise of this paper that by delivering tailored guidance and building communication architectures that engage with users, technologies and management strategies, communication opportunities will be successfully leveraged.

2.0 METHODOLOGY

Continued Communication is a Northumbria University led co-operative inquiry. Co-operative inquiry is a derivation of action research: 'it seeks to bridge the gap between research and practice by calling on a group of co-researchers who have similar interests and concerns to work toward solutions to an agreed research question' (Heron and Reason 2006). 80 international co-researchers (including archivists, designers, engineers, information scientists, knowledge managers, linguists, psychologists and records managers), with cross-disciplinary expertise from the public and private sectors are critically evaluating the central research question:

> ➢ How can organisations maximise the potential of their communications, taking into account the impact of the individual?

The project brings together information professionals and end users to discuss the use of innovative Web 2.0 technologies for (and impact on) collaborative global partnership and networking, whilst simultaneously using and testing these same applications.

Within the co-operative inquiry framework a range of research techniques are employed to evaluate the overarching research question. This paper focuses on the work of the UK group, which employs a mixed-method framework to explore the complex dimensions of communication (the intersection of organisations, the individual, the message and the message channel/technology tool or platform), with particular focus on the Web 2.0 environment, and the role of records and information management (RIM)[3] as a maximising business agent across these domains.

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[1] Web 2.0 is defined, in the context of this paper, as information sharing, interoperability, user-centred design and collaboration through the World Wide Web. It focuses on the World Wide Web's ability to facilitate engagement and collaboration in contrast to broadcasting.

[2] The growth of email as the main format for generating and communication business information has been well documented AIIM (2005, 2006). However, in February 2009, statistical web sites highlighted the fact that for the first time the traffic on social networking sites overtook email as the predominant channel for communications, although not necessarily in a business context. Refer to Nielsen 2009.

[3] Records management is defined, by the international standard on records management (*ISO 15489*), as "the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence and information of business activities and transactions in the form of records."
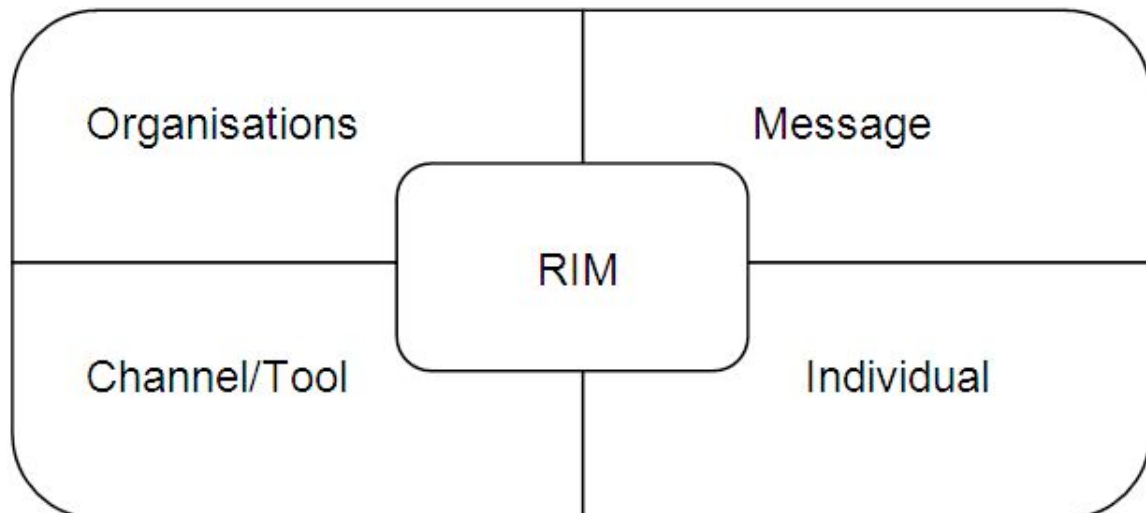
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Figure 1: Representation of the dimensions of communication across which 'records and information management' (RIM) must engage[4]

This paper highlights some of the research findings and introduces one of the Group's practical outputs, a communication architecture toolkit.

3.0 RESEARCH ACTIONS

3.1 Research Action One: Cognitive Edge workshops mapping communication complexity

The first piece of research conducted mapped different user groups' perceptions of communication and its complex components. The research was led by Ron Donaldson, and supported by Elizabeth Lomas, employing a range of Cognitive Edge[5] techniques. To date, Donaldson and Lomas have worked with eight workshop groups comprising of participants from a range of backgrounds, grouped by professional background for each workshop.

The starting point for the workshops was a method entitled the 'Future, Backwards'. This method was developed as an alternative to scenario planning and is designed to increase the number of perspectives that a group can take both on an understanding of their past, and of the range of possible futures. [6]

In this instance, the participants defined their perceptions of communication 'today', then worked backwards to analyse how they got to the current state. Working

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[4] This table was first published in: *Brown, M., Demb, S. R. and Lomas, E. (2009)* 'Continued communication – maximising the potential of communications: the research and outputs of a co-operative inquiry*', Proceedings of the Managing Information in the Digital Era Conference,* Botswana October 2009. The paper contains a more detailed discussion of how records and information management processes may support the complex communication domains.

[5] Cognitive Edge is a company focused on rejuvenating management practices to better equip organisations when addressing intractable problems or seizing new opportunities in uncertain and complex situations. Where traditional approaches have failed to deliver success, Cognitive Edge techniques enable the emergence of fresh and insightful solutions seen from multiple perspectives. http://www.cognitive-edge.com/whatwedo.php Accessed 1 September 2009.

[6] The 'Future, Backwards' method is explained in detail at http://www.cognitive-edge.com/method.php?mid=10 Accessed 1 September 2009. It can be used to discover what entrained patterns of past perception in an organisation/group are determining its future and compares and contrasts different aspirations as to the present and the future'

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backwards breaks linear thinking. The next step was to define the groups' future visions of communication 'heaven' and 'hell', working on a three year time frame. The perspectives of 'heaven' and 'hell' are then linked to the communication state of 'today' by developing the chain of possible steps that would lead to each position. When the exercise is undertaken within an organisational context the steps to 'hell' can be used to define actions to avoid in the context of a risk register.
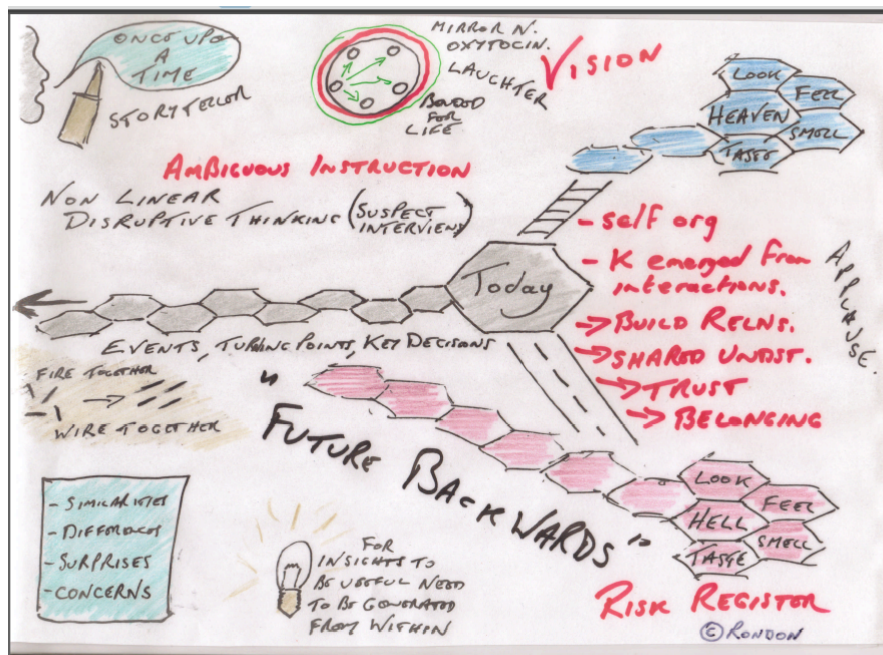

Figure 2: Future Backwards plan by Ron Donaldson

Through this process the groups built up pictures of their perceptions of communication's evolution, reality and possible futures. They created patterns of links that Donaldson terms 'the ecology of knowledge'. These pictures demonstrated the importance the participants placed on the individual, social and organisational structures, message, and channel/tools, within the context of the communication landscape.

In all of the workshops there was a rich pattern of communication that evolved with an increasing emphasis on technology, rather than society, as the timeline progressed. In each of the groups there was a high level of agreement in terms of the future requirements desired from communications delivered through a technological tool. The high level requirements for communications are summarised within *Table 1* below.

Table 1: Communication requirements

Characteristic	Explanation
Reach	The physical distance through space that a tool can send a message and the audience potential
Size	The amount of data/information/representations that can be transmitted
Capacity of channel	How much data/information/representations can be transmitted per unit time through the infrastructure

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Resource	The cost of transmitting, e.g. the energy expended in transmitting the message
Speed of creation	How quickly the message can be composed
Infrastructure/ equipment requirements	Pertains to the physical structures that need to be in place in order to transmit the message, including any specialist equipment needed
Interoperability	The ability for a message to be accessed across different devices and platforms
Complexity	How easy it is to learn and then use the tool to communicate the message
Control structure/style	How well you are able to form the message as you would like – will it retain tone, clarity etc?
Comprehension	How easy the message is conveyed and understood across the communication channel
Authenticity/ integrity	Capable of ensuring that the message's context and contents will be protected.
Data ownership	The ability to retain rights over the message, to ensure that it is not used for other purposes and can be effectively deleted as required
Privacy	The ability to ensure that the message is viewed only by intended recipients
Security	Pertains to protection against hackers, malware etc

A key attribute of the 'today' pictures of the communication landscape, for all groups, was the central place of Web 2.0 tools. However, those participants with greater familiarity of the Web 2.0 landscape saw the future possibilities of the Web and its positioning as central to the future vision of 'heaven', whereas those participants with less experience often placed its attributes in the landscape of 'hell'.

Also mapped into the pattern of communication were the different roles and relationship contexts in which communications were undertaken on an individual level:

- colleagues in a wide range of combinations from teams/departments/committees etc
- external contacts, contractors, customers etc
- professional bodies to which the individual belongs
- personal links to family/friends
- wider social/societal groups.

The patterns that emerged emphasised the blurring of professional and personal lives given rise to by the connectivity now available between these environments and further emphasized through the Web 2.0 world. As Lappin states 'it has never been easier to work at home and to play at work'.[7] These worlds have as yet to evolve a natural balance to enable an easy co-existence and all the workshop groups highlighted the clear tensions between personal goals and business requirements. In response to the blurring of boundaries many organisations have blocked communication channels to social networking sites, unsure of the benefits they may afford.

In developing the steps to 'heaven' a range of possible actions were highlighted including:

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[7] James Lappin is one of the UK group's co-researchers.

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> ➢ sophisticated communication policies;
> ➢ greater understanding of Web 2.0 capabilities;
> ➢ international legislation to regulate data ownerships and privacy rights on a global scale.

These workshops proved extremely productive in eliciting information to move forwards the development of a communication architecture toolkit. In order to deliver a full toolkit further information was required on current tools' capabilities and the alignment of these tools to a range of business processes.

3.2 Research Action Two: Surveys determining the alignment of business communication processes to tools fit for purpose

Survey 1

To determine the set of organisational business processes supported by communication, the research group designed a survey to collect free text data on the business reasons people communicate. The survey was completed by a small data set of 35 people, purposefully selected to try and ensure that they were representative of a wide range of profession roles and employment sectors. The following high-level communication purposes were revealed through analysis of the original survey data:

> ➢ circulating news and information;
> ➢ collaborating on projects;
> ➢ data gathering or analysis;
> ➢ defining and implementing business, legal or operational requirements;
> ➢ defining and implementing strategic requirements;
> ➢ designing a product;
> ➢ ensuring policy or procedural compliance;
> ➢ providing feedback or expert advice;
> ➢ requesting or recording knowledge[8];
> ➢ requesting or recording information;
> ➢ sales and marketing
> ➢ undertaking HR management.

A hierarchy of business processes was established and this list is being used as part of the communication architecture toolkit.

In this qualitative context the group also tried to understand perceptions of the benefits of face-to-face communication versus online communication. Seven percent of respondents believed that there were no forms of communication that could not be conveyed through virtual channels. A majority of respondents (86%), listed a number of activities that they felt could only be achieved in a face-to-face setting, including humour. 43% of respondents also stated that body language was important for effective communication and many felt that this was a key factor in determining whether someone was telling the truth. These perceptions tie in with early thinking about online communication that were influential in 1980s information systems and communication research led by Daft and Lengel (1984 and 1986), through which richness theory was evolved. Daft and Lengel portrayed communications mediated through channels where voice, body language and eye contact were not present as less effective, e.g. email. However, later studies demonstrated that individuals adapt and become selective in the tools they use and the ways that they subsequently

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[8] Knowledge is unrecorded information from individuals/experts.

interpret mediated messages Culnan and Markus (1987). However, the survey's findings highlight the potential importance of comfort and familiarity with a communication tool for ensuring effective communication exchanges .

Survey 2

A wider survey (which obtained over 500 responses) was also conducted to further understand communications within the business context. The survey was made available online and in hardcopy. Over 90% of the responses came from the online questionnaire, which needs to be factored into the analysis of the responses obtained. The survey was also linked to a personality test to understand the impact personality plays on communication choices. Demographic and contextual data was also collected to provide understanding on the impact on communication choices of business context, age, gender, nationality, and culture. These factors clearly shape our communication contexts and networks.

The full survey and answers will be made available on the Continued Communication website. A sample of some of the questions and answers from the online respondents are provided below.

Table 2: Sample of answers from an online communication survey 2009

Most frequently used communication tool Most frequently used communication tool in a business context? ➤ email, which was used 3 or more times a day, by 97% of respondents. ➤ face-to-face was used 3 or more times a day, by only 81% of respondents.
Banned tools Most frequently banned tools and whether or not respondents agreed with the ban: ➤ social networking sites banned in 29% organisations, 18% agreed the ban ➤ personal blogs banned in 23% organisations, 18% agreed the ban. ➤ collaborative editing packages banned in 13% organisations, >1% agreed the ban.
Communication choice How frequently do you answer a communication you receive using the same communication tool? ➤ 6% (always) ➤ 68% (95-99% of the time) NB: When it came to answering how different business processes were communicated then all the participants engaged with a wide range of communication tools, blending the use of tools to maximise efficiency and effectiveness.
Policies and training Does your organisation have an IT policy and acceptable usage policies that encompass communication requirements? ➤ Yes and it is satisfactory - 63% Does your organisation provide training to help you comply with the policy? ➤ Yes and it is helpful - 21% Does your organisation have guidance that helps you identify which tools to use for which functions? ➤ Yes - 15%

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In this survey, the future perspectives of respondents replicated those revealed in the workshops with a mixture of negative and positive potential communication futures.

3.3 Research action 3: Testing the tools
A number of tests are being conducted to evaluate different Web 2.0 tool strengths, taking into account their potential ability to evolve to fit new requirements. The 80 co-researchers involved in the project have been testing and evaluating a wide range of communication tools from social networking sites to video conferencing to Google Wave.

One simple exercise carried out involved testing the ability of different technologies to disseminate information and obtain responses to a single simple technology question circulated via different communication channels. The question was limited by the 140 characters allowed in a tweet. It was evolved to provide informative data about people's communication preferences and to test the power of different technologies to circulate the question (which was devised by Matthew Brown):

Continued communication research - If you could only use one technology to communicate what would it be and why? Answer and pass it on!

The question was then sent by email to direct contacts and to groups of contacts, as well as being posted on email listservs, social networking sites related to social media and information management, and via Twitter accounts.

The highest number of responses to the question were received from professional email listservs run by the academic communities based in the UK.[9] The direct emails to known contacts were always answered when clearly sent as an individually targeted message but there was a much lower level of responses when the email was clearly copied to a whole group of email contacts. No responses were received from any of the social networking sites, except where the direct messaging features were used. The question was also posted on Tweetbrain (a spin off tool from Twitter developed specifically for answering questions) but it obtained only one response.

The academic listservs demonstrated their power to obtain responses from targeted professional groups but did not cascade the message widely beyond these boundaries, although two people on the listservs did pass on the question by posting it onto two other listservs. The most powerful tool for cascading the message was Twitter, which demonstrated its ability to reach across communities to a range of recipients thus creating complex network of answers akin to research snowballing techniques[10].

This limited exercise served to demonstrate the importance of choosing the right tools for a task. Online communities within the enterprise usually fail if the right tools for a particular purpose are not properly scoped and selected. E.g. A message may be posted onto a social networking site with many members but it may not engage the audience unless couched in appropriate language or posted by a well known contributor to the site. A tool such as Twitterbrain may have been specifically

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[9] Jiscmail is the UK's National Academic Mailing list Service, available at http://www.jiscmail.ac.uk/ (Accessed 1 September 2009).

[10] Snowballing is a technique for gathering a research sample. Small samples of study subjects are approached, and in turn these subjects provide networks to other study subjects. Thus the sample group grows.

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scoped for a task but this does not mean it will engage with an audience; there are many speculative developments put into the marketplace by software developers.

In response to the actual question in every forum, where answers were received, email was overwhelmingly nominated as the favoured tool, were only one communication channel available. A range of reasons were cited including its ability:

- to reach most audiences;
- to convey complex and simple messages;
- to evolve communications over time at each participant's convenience;
- to manage a whole range of daily actions including scheduling appointments.

This exercise served to demonstrate that different communication channels serve different purposes and that communication strategies and architectures need to be developed in order to effectively engage with a range of networks.

4.0 RESEARCH LEARNING
We can characterise a number of dimensions within the complex communication space including: the message as a concept in its own right; culturally recognised combinations and reasons for communicating; individuals and the place of the individual within communication; organisational communication and its component parts of culture, groups, society, government and business; and finally communication channels/tools and their component characteristics of nature, type, impact upon human behaviour.

The Internet has transformed the ways in which we communicate. Web 2.0 tools have changed the ways in which information may be generated, shared worldwide and located over time. In the business context this has changed the way in which many organisations deliver their services. Brown (2009) notes its impact on businesses, in terms of:

- 'the way in which physical goods provided (supply on consumer rather than vendor demand, without warehousing of materials)
- the 'services' available to be delivered (estimate 10 million mobile phone applications by 2020) (Shiels, 2009)
- the size of the organisations in relation to access to the global marketplace (e.g. smaller organisations are able to service a wider customer base estimated to be 1.8 billion by 2012) (Jupiter, 2008)
- content translation applications are increasingly available or embedded in user interfaces
- a larger variety of multi-dimensional communication tools are available via Web 2.0.

The combinations inherent in the above factors impact on the communication between individuals. From a business perspective, we must take into account the millions of products and services that are being traded, and the billions of people who will have access to the Internet over the next few years.'[11] It becomes increasingly important for businesses to understand these complicated communication contexts

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[11] Matthew Brown is a member of the Continued Communication Research Group and has written up parts of the project. Refer to *Brown, M., Demb, S. R. and Lomas, E. (2009) Continued communication – maximising the potential of communications: the research and outputs of a co-operative inquiry,* Proceedings of the Managing Information in the Digital Era Conference*, Botswana October 2009.*

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as business markets are increasingly driven and leveraged by these dimensions. As O'Reilly notes all organisations must enable an architecture of participation.[12]

It is important to understand that:

1. Online communities within the enterprise usually fail if the right tools for a particular purpose are not properly scoped and selected. The different possibilities and pitfalls of collaborative tools are not always well understood. It is important to know the capabilities and limitations of the tools you select and their potential impact in your organisational environment. How will you manage your collaborations to empower individuals or maintain management structures or engender change?[13]

2. Successful projects are those that set the expectations of the user group realistically and provide the right policy, guidance and support frameworks. Collaboration is about providing the right structure and support to obtain a comfortable environment for working and communicating. You must provide training and support, ensuring that key participants are not disengaged. Organisational commitment to the project must be consistent and adequately resourced.

3. We live in a rapidly changing world and those organisations that survive and thrive are the ones that are open to and nurture innovation and opportunities. So set concrete objectives that the group can achieve as milestones but in addition expect the unexpected and foster innovation.

5.0 PRACTICAL OUTPUTS: A COMMUNICATION ARCHICTURE TOOLKIT

Many organisations have failed to understand the subtle but substantive differences that will be achieved if a range of communication channels are used by a business. Organisational decisions on which tools to use have tended to be taken and implemented *en masse* at a corporate level rather than individually modelling complex business cases. It is clear that access to Web 2.0 technologies can have an adverse business impact, for example information may be generated and held beyond manageable business boundaries exposing organisations to legal risk, use of social networking sites can provide a conduit for malware etc. However, Web 2.0 tools can provide a cheap and essential source for creative collaboration and customer information. Therefore, just as the implementation of an in-house IT system is justified and rolled out in a considered programme, access to a range of communication tools should be risk assessed and implemented based upon strategic business cases. At the heart of the strategy lies the business context and risk profile. An example of such an approach in a specific business context is articulated by Ridge (2009) who draws up a framework for engaging with social media in a heritage specific context.

Communication channels must also be mapped to job roles and profiles through an understanding of communication/information values. Furthermore, communication

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[12] Reilly, T. (2004) 'Architecture of Participation', *O'Reilly*. Available: http://www.oreillynet.com/pub/a/oreilly/tim/articles/architecture_of_participation.html [Accessed 1 September 2009]

[13] Frameworks such as 'activity theory' and 'social informatics' can used to help understand the impact of technology in the workplace.

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chains and information must be seen as a corporate assets rather than merely a by-product of the business.

By prioritising information management policies, strategies and action plans; by making informed decisions using communications criteria; and by conducting workflow analyses of communication tools before implementing them, a business can maximise the potential of organisational communications.

It is also important to understand that certain tools, designed in Web 2.0 environments, may be installed and maintained on internal business servers, e.g. Moodle's discussion forums and wikis. However other Web 2.0 applications have no life outside of the Web environment, e.g. Wikipedia. Some applications can exist off the Web but are devalued when they lose the collaborative networks and shared data that an online presence provides. Thus sometimes a tool may be selected but the functional requirements for the tool also need to be clear and able to be implemented.

Prior knowledge of the tool plays an important role. People who have experienced participatory web applications in other contexts, such as social or professional networks, may bring their skills and experience or assumptions about the openness and purpose of Web 2.0 tools into the workplace. In contrast, the 'barrier to entry' to a tool is worth considering – especially as tools change so rapidly today, people may feel less inclined to learn how to use one, perceiving that another will just come along just as quickly.

Communication Architecture Toolkit
In line with the analytical criteria discussed earlier in this paper, and taking account of the communications characteristics outlined, the research group has been designing a communication architecture toolkit. The kit includes:

➢ Communication best practice paper
  Overarching advice on building communication best practice into a range of organisational environments

➢ Communication policies
  Sample policies based on a range of organisational settings, and developed to allow tailored approaches appropriate for individual organisations.

➢ Online tool with checklists to align business and user requirements to tools
  Online tool with checklists to enable matching processes to tools in accordance with organisations settings through risk analysis.

At the heart of the architecture lie the risks assessment checklists for Web 2.0 tools. These enable organisations to evaluate usage issues before or after adopting a variety of Web 2.0 systems, with a view to a more strategic approach to implementation. The checklists encourage engagement with the possibilities that Web 2.0 provides, as well as establishing a clear picture of the potential risks beyond traditional business boundaries.

The checklists are accompanied by a risk framework explaining the merits of each tool (eg Wiki, blog, social network etc) independent of suppliers (Facebook, LinkedIn, Moodle, etc) or vendors. In turn, the risk analyses inform targeted communications policies that can easily be understood and implemented. In addition the toolkit has cues to consider the records and information management factors that individuals with immediate business goals may forget but which have a critical business impact,

such as legal requirements and the ability to access information over the longer term[14].

The toolkit provides a holistic system to ensure effective delivery and relevance to wider communities. The framework takes into account the communications spaces and interactions being researched by the group: people, processes, systems, external events and reputation; and will rate the relevant opportunities and risks. The toolkit will be demonstrated at *Online information*.

6.0 CONCLUSION

Computer mediated communications have transformed the business landscape and made new ways of working and collaborating through internationalised and localised communication networks. They have diverted recorded information formerly held in structured systems into narrative channels that may flow in and beyond the business boundaries into a Web 2.0 world. New ways of managing information, leveraging collaborative network advantage and assessing risk are required to navigate through the new business information context. It is hoped that the toolkit developed by the Continued Communication team and demonstrated at *Online Information* will assist with positive engagement and success in this shifting landscape.

References

AIIM. (2005) *Electronic Communication Policies and Procedures*.

AIIM. (2006) *E-mail management: an oxymoron?*

Brown, M., Demb, S. R. and Lomas, E. (2009) 'Continued communication – maximising the potential of communications: the research and outputs of a co-operative inquiry'*, Proceedings of the Managing Information in the Digital Era Conference,* Botswana October 2009.

BS ISO 15489-1. (2001) *Information and documentation – records management. Part 1: General.* BSI.

BS ISO 15489-2. (2001) *Information and documentation – records management. Part 2: Guidelines.* BSI.

Culnan, M.J. and Markus, M.L. (1987) 'Information Technologies: electronic media and interorganizational communication', in Jablin, F.M. et al. *Handbook of organizational communication: an interdisciplinary perspective*. Newbury Park, CA: Sage Publications, pp. 420-43.

Daft R.L. and Lengel R.H. (1984) 'Information richness: a new approach to managerial behaviour and organizational design', *Research in organizational behaviour*, 6, pp. 191-233.

Daft R.L. and Lengel R.H. (1986) 'Organizational information requirements, media richness and structural design,' *Management Science,* 32(5), pp. 554-571.

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[14] These questions are covered in *Brown, M., Demb, S. R. and Lomas, E. (2009) Continued communication – maximising the potential of communications: the research and outputs of a co-operative inquiry,* Proceedings of the Managing Information in the Digital Era Conference*, Botswana October 2009.*

Ellis, B., Lomas, E. and Ridge, M. (2009) Continued communication – maximising the potential of communications in a Web 2.0 world, *Online information,* London, December 2009.

Heron, J. and Reason, P. (2006) 'The practice of co-operative enquiry: research 'with' rather than 'on' people' in Reason, P. And Bradbury, H. *Handbook of action research*. London: Sage Publications, pp. 144-154.

Jupiter (2008), JupiterResearch Press Release, *JupiterResearch Says That One Quarter of the World's Population Will Be Online by 2012, Totalling 1.8 Billion Users*, 16th June 2008.

Nielsen Company (2009) *Global Faces and Networked Places.*

Reilly, T. (2004) 'Architecture of Participation', *O'Reilly*. Available: http://www.oreillynet.com/pub/a/oreilly/tim/articles/architecture_of_participation.html [Accessed 1 September 2009]

Ridge, M. (2009) 'Museum Websites: learning the lessons', *Museum-iD*, Issue 3, pp 56-60

Shiels, M. (2009) "Apps to be as big as Internet", (On-line) Available at: http://news.bbc.co.uk/1/hi/technology/8157043.stm Accessed 21 July 2009.

Ellis, B., Lomas, E. and Ridge, M. (2009) Continued communication – maximising the potential of communications in a Web 2.0 world, *Online information,* London, December 2009.