



AC⁺erm Project

Process Facet: Delphi Study
Phenomenological Analyses



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The AC*erm Project – Accelerating positive change in electronic records management' – is a research project carried out by the School of Computing, Engineering and Information Sciences in Northumbria University from 2007 to 2010. It aimed to investigate and critically explore issues and practical strategies to support accelerating the pace of positive change in managing electronic records.

The project focused on designing an organisation-centred architecture from three perspectives: (i) people, including vision, awareness, culture, drivers and barriers; (ii) working practices including processes, procedures, policies and standards; and (iii) technology in terms of the design principles for delivering effective recordkeeping.

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AC⁺erm Output

Process Facet Delphi Study – Rounds 1–5 – Phenomenological Analysis of Responses

Background Responses to selected issues from the Process Delphi Study were subjected to phenomenological analysis to examine their implications at greater length

Phenomenological Analysis is a method of providing subjective insights into a topic (phenomenon) through the researchers exploring it in depth using their experience and imagination.

Using this method, a topic is explored under some or all of the following aspects:

- pieces and parts in space – *the pieces, parts, in the spatial sense, incl. interconnections, links;*
- episodes and sequences in time – *the episodes and sequences, in the temporal sense, including stages, eras, historical, iterations, reiterations;*
- qualities and dimensions – *the qualities and dimensions of the phenomenon (other than parts, episodes etc), incl. attributes, characteristics, levels, size;*
- settings and environments – *setting, environments, surroundings, incl. contexts, ambience, sector, country, jurisdiction;*
- prerequisites and consequences – *the prerequisites and consequences in time, including underpinnings, requirements, impact, implications;*
- perspectives and approaches – *the perspectives or approaches one can take, including the four ISO stakeholders (senior managers, systems administrators, RM professionals, employees), psychological, philosophical, ethical, political, ecological, legal;*
- cores and fringes – *cores or foci and fringes or horizons, incl. positive (at the core) to negative (on the fringes), one focus or multiple foci, looking to the horizon (aspiration, vision), beyond the horizon (blue sky, future prediction, forecasting);*
- appearances and disappearances – *the appearing and disappearing of the phenomena, incl. historical, contextual, transitory, continuous/discontinuous, persistence, cause/effect, visible from certain viewpoints;*
- clarity – *the clarity of the phenomenon, incl. degree of uncertainty, definability, explanation, fuzziness, conflation.*

Further information about the method can be found in Boeree, C.G. *Qualitative methods Part One, Chapter Two: Phenomenological description*. Shippensburg University, 1998.

<http://webspace.ship.edu/cgboer/qualmethone.html>

Nature of Output The output consists of the analyses of the two topics selected for examination. The analyses were produced collaboratively, the contributions of separate project team members marked as different 'voices' within the analysis. Voices 1 and 2 analysed the responses independently, Voice 3 read what they had written and added further thoughts. (The 'voices' are not consistent between analyses – i.e., Voice 1 in the one analysis could be Voice 2 in the next.)

The topics analyzed were:

Records Management principles and methods
What is really 'new'?

These analyses were originally drafted and published in February 2010.

Unless otherwise specified, all quotations used in the analyses come from the responses given by the Delphi Study participants.

Process Facet Delphi Study – Phenomenological Analysis – Applicability of RM Principles & Methods in the e-Environment

Voice 1¹

Definition:

Principle: “1 a fundamental truth or proposition serving as the foundation for belief or action. 2 a rule or belief governing one’s personal behaviour. 3 morally correct behaviour and attitudes. 4 a general scientific theorem or natural law. 5 a fundamental source or basis of something.” (*Concise Oxford English Dictionary*).

Given this definition why then is the applicability of RM principles and methods in the e-environment an issue at all?

Pieces and parts in space²

Voice 1

The big question is ‘what are the RM principles and methods?’ Are the principles about creation, capture, appraisal, storage, organization, maintenance / preservation, retrieval & access, retention; are they the characteristics of records (authenticity, reliability, integrity, usability); are they the lifecycle and continuum theories / models? Which are the methods? What makes them distinctive from other information management domains – appraisal & retention management? Anything else?

Voice 2

The ‘pieces and parts’ lie in the principles and methods themselves. There are many methods of records management, but only a handful of fundamental principles, which centre on:

- the definition and characteristics of records and their wider setting—provenance / function, records series, recordkeeping systems;
- appraisal;
- models—life-cycle, continuum.

RM methodologies, methods, techniques, and tools are far too numerous to address here, but among those that are significantly affected by the emergence of electronic recordkeeping are:

- classification—both as a conceptual tool and as a means of managing retention etc;
- standards;
- strategies, policies, and procedures;
- business / information / records analysis.

Any discussion of the foundations of RM must start with the term ‘record’, defined in the ISO RM standard as

[I]nformation created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business.

ISO 15489:1 *Information and Documentation—Records Management. Part 1: General* (2001)

The four characteristics of a record are authenticity – reliability – integrity – usability: The standard tells us that a record “should correctly reflect what was communicated or decided or what action was taken.”

Voice 3

I take the view that we're looking here under principles at the definition and characteristics of the record – that is the nub that makes RM distinctive from IM. All the rest is really methods whether at a high level of abstraction (models) or practical techniques. Of the methods, the one that is distinctive to RM is appraisal. The principle of the 'record' is still applicable in the e-environment. It is the methods that require review and possible amendment. The continuum model seems a much better fit to the e-environment.

Episodes and sequences in time³**Voice 1**

Often (not always) RM begins when records need storing, destroying or archiving. Registry systems start the process earlier and in the e-environment RM rules need to be determined upfront at systems specification / design phase. Legacy or retrospective application of principles / methods is almost impossible, certainly impractical, especially with respect to retention scheduling (on local and shared drives and offline media) and also preservation. Therefore, timing needs to be different (before information creation, at systems design / conception phase) – but how often does this happen? “our implementation of the fundamental principles and their translation into implementation processes are not transforming quickly enough.” Why is this so?

“Traditional principles and methods are a good starting point for managing e-records, but they cannot be used as they are with no review process, or assessing what changes will need to be made to adjust the method to the electronic environment.” This is surely correct in the context of evolution, though perhaps not when there is revolution, otherwise they wouldn't be fundamental truths or propositions. However, we do need to assess their applicability, appropriateness and interpretation in the particular business context (and recordkeeping and technology contexts?) and environment. Witness the comment “this does not change due to the environment being electronic. Rather it is the fact that the environment is electronic that becomes part of the context examined when determining how to implement the principles.”

Voice 2

Of the RM principles, perhaps that which has changed most, or been most challenged, over time is that of appraisal. Even in the paper world, the quantity of documents and records produced by modern governments, organizations, and even individuals was already proving far too great to be dealt with through a largely passive process of accretion and transfer. This has been exacerbated in the e-environment, which has also brought a new dimension—the need for some degree of appraisal, whether in the form of pre-selection or planning—well before the 'archival threshold'. In a sense, the discipline of records management could be said to have been created in response to a crisis in appraisal.

Voice 3

It is the timing of when RM activities occur that is so different in the e-environment. Actions have to be taken at the point of record creation. This therefore means that the record creator, not the records professional, will be required to undertake these tasks. With the result that such tasks may not be done, or done poorly as records creators often do not know what their recordkeeping responsibilities are and are given little support from the organisation (lack of training, guides) and software (lack of embedded RM capabilities) to carry out the tasks. This change of timing

throws into focus the different roles of records manager and archivist and requires that these two roles need to be brought together.

Qualities and dimensions⁴

Voice 1

Where and what is the record in the e-environment? (“Where information is data in data systems it could be very difficult to identify records”).

The size and scale of the e-environment is much greater, so a different approach is needed to cope with this. Is it evolution or revolution? What new possibilities and opportunities does this bring? Automation (e.g. “quality checks, online help, guided data entry”); “more sophisticated / automated decisions” *though this demands that sound rules are built into the system until good artificial intelligence systems are developed; “new ways to manage information” – but what are or might these ways be? What challenges does it bring? Constant, rapid pace of change* (e.g. storage and backup solutions; greater volume, more formats).

“It’s hard ... to be sure you are doing the right thing”. We can’t be sure we are doing the right thing, only the best thing at the time with the knowledge and resources we have – ergo the need for a risk management approach. We lived with imperfection in the paper world, why do we strive for (have the notion of) perfection in the e-environment? We need to learn to live with uncertainty or conversely to be comfortable with the certain knowledge that systems / solutions / media will have a shorter life (cycle) than they had in the past. (Paper on shelves is a long-term solution; .doc files on a 3.5” floppy is not). Planning horizons are shorter. Pro-action not reaction is the order of the day.

Voice 2

In RM, as in all fields, principles cannot simply be ‘taken as read’ in times of rapid or significant change: their nature and scope needs to be reviewed. By definition, principles are enduring and persistent, robust enough to weather all manner of storms once the overall climate remains substantively unchanged. But major, epochal changes *do* occur, that require the overhaul or overthrow of existing principles and presuppositions.

The essential problem facing records theorists and practitioners now is the same problem that has always faced those caught in the midst of change without any adequate precedent: how can we know what is persistent, and what transient? And how can we differentiate the merely transient from the transitional? Is it possible to evaluate the risks of failing to judge correctly either way? In these circumstances, whatever we do in response to a changing environment has a pretty much equal chance of making things better, making them worse, or making little overall difference. Even the best-informed and most thoughtful can be quickly wrong-footed by developments.

The nature of records

Recognizing this, it is nonetheless legitimate and necessary to try to see how the structural elements of our discipline and practice bears up in the digital era. Let’s take the most basic starting point:

“[Some principles] may be questioned (e.g. what is a record).”

There is no unequivocal definition of a ‘record’, and not all of the standard definitions are entirely compatible with one another. Despite the Pittsburgh- and UBC-inspired vogue for ‘the record as transaction’ that gained ground in the 1990s, and which is to an extent echoed

by ISO 15489, Dearstyne's wider definition⁵ is more in tune with current information environment and cultures.

"Some specific issues need to be addressed—like the re-use of information for a different purpose."

It was always possible, even in the paper environment, for the same document to be a record in more than one file or file series. However, the growing perception of data and information as 'content', to be continually used, re-used and re-purposed, embodies a qualitative change in approach which traditional RM methods and even principles lack the flexibility to accommodate. This has consequences for certain attempts to drain the 'electronic swamp', for instance by using de-duplication software—ten identical e-mails or documents may be as many quite distinct records.

RM models

Turning to RM models, the Records Continuum Model (RCM) was developed within a conceptual framework in which it described one continuum among many actual or possible others. When examined in conjunction with the closely related Information Continuum Model (ICM), some tensions or possible need for re-thinking come into view. For instance, at a 2005 APAN workshop on e-culture, Don Schauder⁶ presented an outline of the ICM which is in most ways extremely familiar to records professionals who know or use the RCM: its 'five typologies' are (1) agency; (2) levels of action; (3) dimensions and (4) purposes of information and knowledge; (5) modalities which structure the scope of action.

(1), (2), (3), and (5) are familiar from the RK / Records Continuum perspective. But with the subdivisions of (4) into pleasure, awareness, and accountability, we venture into regions alien to traditional concepts of RK—pleasure, enjoyment, the enhancement of the experience of living. As the maintenance of a boundary between information and records becomes increasingly irrelevant, and as the personal and work spheres become progressively more interlinked, pleasure and play may have to be recognized as valid (albeit secondary) factors in the public / official and even the corporate information environments.

Schauder posits three partially overlapping categories of stakeholder in information and e-culture—the normative (government / law), facilitative (business), and interpretive (civil society). Although current RM principles, as embodied in ISO 15489, address equally the management of both digital and non-digital records, are they flexible enough to deal with a constantly mutating technical and cultural e-environment? Are they too one-sided, addressing only the normative and facilitative aspects of the ICM triad? Does this make them divergent from the overall trend of the information society?

Classification

Classification really falls under the rubric of methods rather than principles, but has in recent years been subject to an intensity of debate normally reserved for disagreement over fundamentals. Should it be replaced by search-and-retrieve within 'big buckets'?

Democratized and simplified by the use of tagging? Is the functional approach still valid?

"Records classification is not just about search and retrieval ... [I]t is really about ensuring that the provenance information is embedded in the record—that we can retrieve the information in context, that it can be connected to action."

RM business classification schemes add essential context and meaning to corporate information; nonetheless, they may need to be presented in different ways in the digital environment, with many different views and various localized and specific access points.

Furthermore, the functional approach to classification is very different from other, more universally familiar classification frameworks, whether formalized or intuitive, which are subject- or topic-based. A BCS may be a central intellectual tool for RM, but it may also need to be kept hidden in the background, served by a more readily accessible and intuitive front end.

Recordkeeping systems

"From the work we have been doing to prepare for eDRMS it is increasingly apparent that line of business applications often contain more significant business records than shared drives which contain massive quantities of "dross" records."

It has become a quasi-principle that 'records' must be held in 'recordkeeping systems', a term which encompasses more than just IT systems but whose problematic aspects are brought to the fore by such systems. Many corporate IT systems, such as most line-of-business databases and applications, cannot be described as (components of) recordkeeping systems, since records with the characteristics required by core standards and definitions cannot be created or kept within them. Yet these systems are the equivalent of files and documents in the paper world whose status as records was assured. So a large part of the data and information central to an organization's business—its genuinely 'vital records'—are not considered to be records at all by records professionals.

'Traditional' elements of RM principles and practice, which remain present in current developments including ISO 15489, encourage us, whether we are aware of it or not, to focus on managing the types of records whose nature most closely resembles that of physical records rather than the types that may actually be critical to the conduct of business.

We still tend to construct file-plans and retention schedules which effectively ignore information kept in line-of-business systems, databases, and other non-documentary formats—the information and data in these systems do not constitute 'records'. The most trivial word-processed document or spreadsheet is classified and managed as a record, while the data on which the functioning of an organization depends may not be represented even by proxy in our file-plans and classification schemes.

"What happens if we create the electronic swamp—does it really matter? ... Let's sort the wheat from the chaff—is that what the new role of records managers is in cyberspace ...?"

For this to be achievable, records professionals must first recognize that their view of what constitutes 'wheat' and 'chaff' may be distorted by professional preferences and prejudices. We need, always, to come back to the question of what all this stuff is being created for. Better a swamp teeming with life than a desert of perfection.

Voice 3

I can't match any of the above! But my small pennyworth is that the overall principle of the record and its characteristics remains the same.

ISO definition: "information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business".

The International Council on Archives (ICA) Committee on Electronic Records definition: "a recorded information produced or received in the initiation, conduct or completion of an institutional or individual activity and that comprises content, context and structure sufficient to provide evidence of the activity."

*"n. ~ 1. A written or printed work of a legal or official nature that may be used as evidence or proof; a document. - 2. Data or information that has been fixed on some medium; that has content, context, and structure; and that is used as an extension of human memory or to demonstrate accountability. - 3. Data or information in a fixed form that is created or received in the course of individual or institutional activity and set aside (preserved) as evidence of that activity for future reference. - 4. An instrument filed for public notice (constructive notice); see recordation. - 5. Audio · A phonograph record. - 6. Computing · A collection of related data elements treated as a unit, such as the fields in a row in a database table.- 7. Description · An entry describing a work in a catalog; a catalog record."*⁷

Definition 2 resonates with me.

However, from trying to find definitions of a record it is clear that there is plenty of variation / disagreement out there! But I'm not sure that this is driven only by e-environment issues; it is also about people's different perspectives depending on their discipline and work activity.

What has changed / needs change is how we go about ensuring that the characteristics (authenticity, reliability, integrity, usability) are preserved in the e-environment.

Settings and environments⁸

Voice 1

What is it about the nature of the e-environment that is different and causes us to question the appropriateness of current RM principles and methods? Answer: the dependencies it imposes (software and hardware to access / read / use); its very dynamic nature (the degree of change / development); the changed spatial dimensions (local vs shared spaces; fixed vs mobile devices and locations).

The e-environment has altered business boundaries – in fact are there any now? Organisations outsource, work with partners / suppliers / service providers. Where are there records in this setting? Sometimes they are outside the organisation, so who has responsibility and, pertinent to this phenomenon, how are RM principles and methods applied?

Voice 2

Recordkeeping and records are functions and products of the society that creates them. Understanding records and their management needs demands an awareness of the broader arena in which they reside—the spheres of society, of culture, of politics. RM practice and principles that fail to address the full context of how information is created and used, whether in the public, corporate or private realms, are doomed to failure.

It must be acknowledged, too, that this larger context is riddled with contradictions and inconsistencies. The various and changing attempts to privilege particular aspects of records—evidential value now, compliance tomorrow, diplomatics next week, social computing last month—may be a form of reductionism, a quest for the Holy Grail of a simple solution to a complex problem. But there can be no 'grand unified theory' of RM; the principles and practices built up and built on over the years of thought and experience can only—and could ever only, in the pre-digital as well as the digital era—constitute an aspiration, not a destination.

Relationship between work and personal > Merging of personal and work environments

"The increased use of IT in our private lives will also impact on the workplace and requires organisations to educate staff in the differences between the information they exchange in a business context and private context. The casual treatment of information in our private lives does not translate well to the business context and issues such as information security and privacy perhaps need more emphasis to drive individual behaviours."

This is not simply a matter of time and place—people working outside office hours or 'playing' during work time. It also marks a change in psychology and culture, in the perception of self, roles and identities. Rather than having a 'work self' and a 'leisure self', contemporary knowledge workers tend to have a seamless 'self' that does not compartmentalize work and leisure into separate conceptual and locational spheres, but treats them as almost interchangeable.

The increasing difficulty in distinguishing between the realms of work and the personal is partly a socio-technical phenomenon, facilitated by the emergence of new ICTs including the internet. One aspect of this is the relationship between the technology available at work and in private life; and the direction of change in this relationship is increasing the difficulty of modifying behaviour to attain compliance.

Up to about ten years ago, someone wanting to manage their personal information in digital form looked upon the systems and applications available in the workplace as the most advanced and developed tools. None of the software that came bundled with the standard home PC could provide the functionality of, say, MS or Adobe software applications—the 'serious' home user had to buy the software package separately (sometimes at greater cost than the PC itself).

Now, however, the situation is in many ways reversed, and the functionality of ICT and web systems available in the workplace is often noticeably poorer and less flexible than that available in the standard home PC package. The workplace has moved, in terms of the individual's technological experience, from the centre to the periphery, from the cutting edge to the lame duck.

This has inevitably had an effect on the perception of the electronic systems, including electronic recordkeeping and information systems, available in the workplace: they are now more likely to be seen as cumbersome, an irritant to be circumvented rather than a set of state-of-the-art tools to be embraced. The 'seamless self' of the 21st-century knowledge worker will tend to see such systems as disabling, and has no incentive, in an era of transient and contract employment, to adopt the corporate perspective of compliance, audit and security as a counterbalance.

Globalization, outsourcing, multiple centres

RM and RK principles and methods developed in centralized, monolithic organizations and bodies: courts, monasteries, chanceries, corporations, governments. Are they well adapted to the current landscape of sub (-sub-sub-sub)-contractors and geographic / jurisdictional dispersal?

Is, for example, the functional approach to classification capable of representing a given records 'ecosystem' in the distributed, fragmented context of chains of products and suppliers in the outsourced economy? Even within a specific bounded context, what is, say, part of the 'Housing' function for a local government body is more likely to be treated as a

discrete project by the contractor, with further chains of separate sub-contracted projects existing elsewhere.

Not only the chain but the categorization is fragmented, the whole process represented by a variety of functional, case-file, client- and subject-based systems. It is easy to adapt a functional approach for use within any given organization, but not so easy to extend it across multiple entities. In some ways, it is less suitable, less scalable, in this context than a subject-based, case-file approach, which would be more readily reduced to certain standard naming and classification conventions for all parties. We are faced once again with the tension inherent in all classification frameworks: do they really reflect what is 'out there' in the world, or do they instead try to force the world into artificial categories reflecting specific mentalities and culture-specific viewpoints?

Voice 3

Though IT has been around for a long time, its pervasive use is really only about 20/25 years (PCs on everyone's desk ~mid/late 80s, Web in common use ~mid 90s). So we've really not completely adjusted our working practices and our human perspectives to this. I feel in terms of RM / IM that we've thrown the baby out with the bathwater. People have assumed that the wonderful IT that does so much for us can do everything we need. So RM requirements and IM requirements have been dropped. Who wants to do boring things like consistently naming files, adding in metadata, putting them in the correct place, even if all of that is electronic rather than paper? Who wants to put out e-documents with bibliographic information and series numbers?

So the forms of control that were used in the paper world have by and large been dropped before the electronic equivalents had been put into place. (Not necessarily in all organisations or sectors but in a good number of them). We now have a mess, and people in the workplace who have not been brought up with the recordkeeping practices of the paper world (but have no electronic practices either). This makes the task of bringing back order far more difficult.

The records that reside in line-of-business databases are relatively well looked after in a current reporting sense (though their long-term preservation is a problem that hasn't really been addressed) but records within standard office software are by and large in a mess. It is this type of context that leads to ideas of 'keeping everything', big-buckets, search rather than classification, i.e. abandon traditional RM methods and depend on IT to save us.

Prerequisites and consequences⁹

Voice 1

We say that principles are applicable irrespective of format or environment but isn't their application / implementation (through processes and methods) very different – out of necessity and opportunity? For example, destruction means deletion in the RM context but deletion in the IT context doesn't achieve that, at least not immediately. Traces are still left. Recommendations for overwriting hard drives range from a minimum of three to seven times though some professionals believe physical destruction is the only safe method of e-deletion.¹⁰

Preservation is still required for records of archival value but the methods and timing need to be different.

Voice 2

Continuing validity of RM principles?

The great majority of the e-Delphi participants felt that, while many of the methods and techniques of RM needed to be modified or replaced in the digital environment, RM principles were fundamentally sound. But this did not mean that they could just be left there as a point of reference:

"[W]e are not doing enough in our education to make sure that the traditional is taught well enough to provision the practitioner with the ability to continually return to these principles and apply them in new and ever changing environments."

A consequence of the nature of information and records in the e-environment is that RM in the traditional, after-the-fact manner is no longer viable: *"Traditional RM starts when records require archiving or destruction. With e-records RM rules have to be decided upfront and built into e-systems in advance."* Yet the pace of change means that "it's hard to be current and to be sure you are doing the right thing".

Among the pre-requisites for effective methods in the e-environment are *"greater flexibility, less dogma and a greater integration with the reality of the business environment ... a switch in emphasis."*

Voice 3

Though this is not sexy, the point that many Delphi respondents have made about RM awareness raising / training for staff is an important prerequisite as many of the RM activities are now down to all members of staff not just records professionals. But this should be a dialogue: what recordkeeping tasks are staff able and willing to do on a consistent, accurate basis? This will determine what the RM methods should be. It will also determine what RM capabilities need to be embedded into software; and that means standard office software, email and new communication tools, not just ERMS.

Perspectives and approaches¹¹**Voice 1**

The only constant is change; "change never ceases." Methods will always change and with them expectations, desires, requirements. Take banking for instance, the processes and the way this is done today has changed dramatically for some and remains very similar for others. In the past customers could only 'do their banking' during quite limited hours on weekdays and never on public and 'bank holidays' (at least in the UK and Republic of Ireland). This meant more forward planning regarding payments and cash (more important pre-credit card era). ATMs changed all that and reduced the amount of forward planning needed, providing self-service and greater availability and access. The internet changed it again and, in some instances, cut out the human interaction. This has not only changed processes but also people's behaviour and their expectations. Has it or how has it changed records management principles and methods?

"Different technologies affect what limitations we have, and might mean that a different method must apply. But they also may mean that an existing method needs to be re-thought so that it can be adapted to those limitations."

Some major organisations have taken a lead; for example, the Australian Public Service Sector makes a good case for doing things differently, including "lifting the burden of recordkeeping" for employees and having "comprehensive awareness" of "business and

regulatory environments” *in order to* “prioritise recordkeeping attention on activities that pose the greatest level of risk”.¹²

It's all about adoption and adaption.

Voice 2

Records managers are faced with a recurring problem in the digital workplace: while documents and objects created at work for work purposes legally belongs to the organization, not the individual, employees frequently think of ‘stuff’ residing on their office PC as theirs personally.

This is not as straightforward a matter as it is often portrayed. People often put a great deal of effort and creativity—a significant portion of themselves—into what they do on the job. Though they may not have a legal right to ownership of what they produce, they perceive themselves to have a definite moral right to their work. To deny this right is to risk the alienation and disaffection of some of an organization's most valuable staff.

And as the ‘job for life’ becomes a thing of the past, employees inevitably adopt a portfolio approach to employment, in which it is not only natural but legitimate for them to think of work done for an employer as also forming part of their personal intellectual capital.

Voice 3

Certain aspects of recordkeeping have been brought to the fore because of a range of scandals, like Enron, loss of private data in the public sector in the UK, and of legislation such as DP and FoI. This has still to percolate properly through organizations to the actions of staff. However, as an example, the NHS (an organization that has suffered from data loss scandals) is really starting to tackle the issue with policies and procedures.

Will the recession have any effect? On the one hand, when life is tough in a business many short cuts are taken (RM might be deemed an unnecessary luxury) On the other, there is a ground swell among citizens (though not yet politicians) that far more regulation, and openness / transparency of business practices are required (this requires good RM): a cultural change from globalised, raw capitalism, to a more social / human / ecological focused financial and business system.

Cores and fringes¹³

Voice 1

The vision of the modern office (McDonald, 1995 & 2005¹⁴) with IT focused on business processes rather than software applications, and RM processes embedded in those processes has not materialised. In re-thinking RM for the Web 2.0 world (Bailey, 2008¹⁵), three of the ten principles of RM 2.0 are particularly relevant here: that it must be “independent of specific hardware, software or physical location”; “proportionate, flexible and capable of being applied to varying levels of quality and detail as required by the information in question”; and “a benefits-led experience for users, that offers them a positive incentive to participate”.

Appearances and disappearances¹⁶**Voice 1**

RM principles and methods have always been there (which came first?) but the context is now different and very dynamic.

We haven't succeeded with many (any?) of the e-systems to date (cf. Bantin, 2008¹⁷ – transaction processing systems; relational database systems; EDMS, content management systems, decision support systems, data warehouses, email). So will we succeed with Web 2.0? Do we need to or is it the semantic Web (Web 3.0) that we should be looking at?

“Processes have to change and evolve all the time. One of the current examples is how to manage the impact of web 2.0 in the organisation. Frankly I don't see it having that much impact on the organisation except in the enhancing of communications. It is a ‘social’ technology largely working on the internet and happening in personal space outside organisations. Organisations largely have yet to work out what impact this will have on their workings, and how to integrate it. Superficial examples of using wikis to collaborate, requesting client / user tagging of resources, CEOs blogging etc are not intrinsic to business. They are technologies seeking applications (in terms of the organisation). Web 3.0 (semantic web stuff) will probably be a different matter, utilising the techniques and technologies of web 2 into areas that will be more immediately useful to business outcomes. Who knows.”

Clarity¹⁸**Voice 1**

“Is it the principle or my idea of what the principle means that needs to be reviewed?”

“Is it the method that needs adjustment or the application of the method that needs adjustment?”

Do we fully understand and / or articulate the core principles? Has this lead to a situation where “we are not doing enough in our education to make sure that the traditional is taught well enough to provision the practitioner with the ability to continually return to these principles and apply them in new and ever changing environments.” For example, “records classification is not just about search and retrieval. If it was, we should immediately and happily abandon all attempts at provenance based linking (through inadequate functional classification). But actually it is really about ensuring that the provenance information is embedded in the record – that we can retrieve the information in context, that it can be connected to action. So if we think classification is about search – well we’re going to have to miss the boat.” Classification in any information management domain has never been just about search and retrieval – even in daily life it’s not just about that. It’s also about contextualizing, understanding and interpreting and always has been. Witness the concept of co-location in library classification (i.e. related topics).

Voice 3

Much theoretical / research work has been done on TRM principles, models and methods. How much of this is used in practice? Organisations which have conducted case studies where these ideas have been put into practice – how successful were they? These ideas are not in common use in ‘everyday’ organisations: why not? Is it that records managers in organisations lack the power / freedom to implement these ideas? Or lack the knowledge? Or don’t think the ideas practicable?

What changes in RM principles and practices are really the result of rethinking within the e-environment or changes that were happening anyway as the discipline develops and which have been applied to ERM, such as the continuum model and functional classification. Within ERM, old approaches are also being adapted, e.g. diplomatics.

Synthesis / Summary

Voice 1

Most participants, and I agree, think the (overall) RM principles are applicable in / transferrable to the e-environment but that methods need to change, develop and / or be applied differently. Principles are or should be “robust”, “tried and tested”, “based on a solid foundation of rules and processes”, “broad enough to cater to all records and all environments”; whereas methods “need to be changed and definitions revised”, either out of necessity or to exploit new opportunities to do things differently and better, presumably.

On reflection engaging in this PA of applying RM principles and methods in the e-environment has made me consider the following:

- *Do we need to revisit fundamental principles? What are they? Are they sufficient? Should we debate them and ensure we fully, correctly, accurately understand them so that we can apply and / or reinterpret them in different (including yet-to-be developed future contexts / environments)? How do we do that?*
- *What and where is the record in the e-environment? When do we need to distinguish records from information?*
- *Is there a balance between the new possibilities and the new challenges that the e-environment brings?*
- *What different mindset do we need? That of the business process analyst, of the business strategist, other?*
- *“these call for new methods e.g. the leisurely pace approach of mandating significant effort at time of filing see earlier comment re metadata and large fileplans, ignores human nature, busy work environments and the potential to take alternate approaches to achieve the same end Need to accept the challenges and work to achieve the best information management – a greater flexibility, less dogma and a greater integration with the reality of the business environment, whilst also influencing the business processes more effectively – a switch in emphasis.”*

“Everyone appears to be looking for ‘the answer’ rather than accepting there may be a variety of best practice techniques which are designed around the business”

Voice 2

To summarize, an elegant and apposite quotation in which one may with profit substitute ‘Records Management’ for ‘Philosophy’:

“Every now and then, philosophy moves house. The new place looks a bit familiar, because it contains some old furniture (problems, theories, methods, conceptual constructs). But it is also new, extraneous, somewhat disorienting: new rooms, newly bought furniture and everything is in a different place, perhaps in less (or even more) fitting locations. Moreover, as I was very nicely reminded, we should take the opportunity to throw away all the rubbish we have accumulated in the previous house. Fresh start, as it were. The new place looks partly familiar, partly entirely new. We try to find our new balance, adapt it to our needs, while also adapting ourselves to it. In practice, we develop a new philosophy.”¹⁹

¹ Voices 1 and 2 conducted the PA independently of each other. Voice 3 then reviewed the content and added in additional comments.

2 Aspect of the topic – the pieces, parts, in the spatial sense, incl. interconnections, links

3 Aspect of the topic – the episodes and sequences, in the temporal sense, including stages, eras, historical, iterations, reiterations

4 Aspect of the topic – the qualities and dimensions of the phenomenon (other than parts, episodes etc), incl. attributes, characteristics, levels, size

5 "[A]ny type of recorded information ... created, received, or maintained by a person, institution, or organization.... Records are extensions of the human memory, purposefully created to record information, document transactions, communicate thoughts, substantiate claims, advance explanations, offer justifications, and provide lasting evidence of events." (Dearstyne, B W The Archival Enterprise: Modern Archival Principles, Practices, and Techniques (Chicago, 1993), p1)

6 <http://www.apan.net/meetings/bangkok2005/presentation/eCulture/APANe-cultureFin-Don.ppt>

7 A Glossary of Archival and Records Terminology. Richard Pearce-Moses, http://www.archivists.org/glossary/term_details.asp?DefinitionKey=54

8 Aspect of the topic – setting, environments, surroundings, incl. contexts, ambience, sector, country, jurisdiction

9 Aspect of the topic – the prerequisites and consequences in time, including underpinnings, requirements, impact, implications

10 Federal Electronics Challenge Sample policy for disk/media sanitization http://www.federalelectronicchallenge.net/resources/docs/sanitization_sample.pdf

11 Aspect of the topic – the perspectives or approaches one can take, including the four ISO stakeholders (senior managers, systems administrators, RM professionals, employees), psychological, philosophical, ethical, political, ecological, legal

12 <http://www.apsc.gov.au/mac/noteforfilecasestudiesabs.htm>

13 Aspect of the topic – cores or foci and fringes or horizons, incl. positive (at the core) to negative (on the fringes), one focus or multiple foci, looking to the horizon (aspiration, vision), beyond the horizon (blue sky, future prediction, forecasting)

14 McDonald, J (1995). Managing records in the modern office: taming the wild frontier. *Archivaria*, 39 (Spring), p. 70–79.

McDonald, J. (2005). The wild frontier ten years on. In: McLeod, J and Hare, CE (Eds). *Managing electronic records*. Facet, p1–17.

15 Bailey S (2008). *Managing the Crowd: Rethinking records management for the Web 2.0 world*. Facet, 192 pp

16 Aspect of the topic – the appearing and disappearing of the phenomena, incl. historical, contextual, transitory, continuous/discontinuous, persistence, cause/effect, visible from certain viewpoints

17 Bantin PC (2008). *Understanding data and information systems for recordkeeping*. Neal-Schuman Publishers, 346pp

18 Aspect of the topic – the clarity of the phenomenon, incl. degree of uncertainty, definability, explanation, fuzziness, conflation

19 Floridi, L. http://www.philosophyofinformation.net/blog/2007/08/30th-international-wittgenstein_10.html

Process Facet Delphi Study – Phenomenological Analysis – What, if anything, is really new in the e-environment?

Voice 1¹

“There is no thing new under the sun” 2

Quotes taken out of context, like records or other information taken out of context, are in danger of deliberate or unintentional misinterpretation. So, to set this quotation in more of but not all of its context, these are the words of the Preacher in the first chapter of Ecclesiastes which begins “Vanity of vanities; all is vanity” and continues:

8 All things are full of labour; man cannot utter it: the eye is not satisfied with seeing, nor the ear filled with hearing.

9 The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no thing new under the sun.

10 Is there any thing whereof it may be said, See, this is new? it hath been already, of old time, which before us.

11 There is no remembrance of former things: neither shall there be any remembrance of things that are to come with those that shall come after.

Ecclesiastes 1:8–10 (King James Version)

Agreement or disagreement with the quote lies in the view taken about what aspect of the phenomenon needs to be original or novel to make it truly new. The concept or the fundamental function, activity or requirement may not be novel but its application, implementation, interpretation or satisfaction may well be. If we consider that it is only that second aspect (application etc) that needs to be different for something to be new, then it is easy to refute the quote.

So, is email new? Is the Web new? Are so-called Web 2.0 technologies ‘new’? Is SaaS (software as a service) and cloud computing? Yes and no. What is really new in the e-environment and what is the same? What is the element of novelty, newness?

Has the ICT revolution raised new problems, issues and opportunities or are they variations on a theme ie different ways of tackling existing problems and issues, different solutions, different opportunities? And what is the impact on business processes and recordkeeping processes?

Voice 2

Has the introduction of IT changed what we do? Are we doing new things that weren’t possible before, or just the same things but with different tools?

Voice 3

We also need to bear in mind the point at which quantity becomes quality, the whole greater than the sum of its parts. The aggregate of a series of developments seemingly minor, trivial, or derivative in themselves might still give rise, when seen as a whole or at a later stage of the process, to something qualitatively different.

*And different ways of doing the same thing can have genuinely new—indeed, revolutionary—effects: think of the huge transformation wrought in all spheres of human activity by the invention of the printing press. Are ICTs creating another such revolution? Part of the problem with determining what is new is one of perspective: what stands forth *post factum* as a clear phenomenon—a ‘simple abstraction’—may not at all present itself as such in earlier phases of development.*

Pieces and parts in space³

Voice 1

The context is understanding work processes as one facet of designing an architecture for ERM. The parts of this phenomenon are: (i) the work processes per se; (ii) the technologies and systems that support and facilitate their operation; and (iii) the related recordkeeping processes. The first two are inextricably linked; the third should be but often is not or at least not explicitly addressed.

Work or 'business' processes are themselves complex or multi-faceted. Unless they are fully automated, repetitive workflow type processes, then understanding them means understanding how people work, how they create and use information, how they collaborate, how decisions are made. (Even workflow-type processes have had to be understood and mapped out to enable their automation).

Another part of this phenomenon that emerged from the literature and was explored in the study is legal processes.

Are any of these pieces new or just different? Views of the participants in the e-Delphi study varied, for instance a dissenting view on newness is:

“The new legal processes are not dissimilar to the previous legal processes except the access to the records and the information about the records are contained in the entire lifecycle of the record. The consequence is that it is much more straightforward to track the history of a record, to search for a record, to analyze the record(s) using business intelligence tools and methods. This facilitates more accountability for the organisation and ultimately better business management. For the user there is also more accountability and confidence in the process and records.”⁴

Voice 2

It's not possible to look at all IT, but the following categories seem to be the most fruitful to explore:

- Email
- PCs on desks / in the home
- Line of business databases
- Web
- Mobile technologies, e.g. mobile phones, PDAs, laptops etc., accessing the Internet via wireless connections
- Web 2.0, e.g. RSS (Web feeds), folksonomy (collaborative tagging), blogs, wikis, social networking etc.

We are now looking at converged applications, e.g. mobile phones that can access the Web, notebooks that contain laptop functionality with real small size

But these technologies are also interconnected as we use all or many of them, and not individually but in combination when performing specific tasks.

Nearly everyone in the UK has a mobile phone.

All office workers will have their own PC plus email and Web connection, and most other workers would have some degree of access to such facilities

ONS 2007 survey – 61% of UK households had an Internet connection⁵

Etc. etc.

Voice 3

What is truly new in this, from an RM perspective, is the way in which such technologies have tipped the balance in communications from the oral to the textual in both the business and personal realms.

Archival and RM practices have, historically, rested on the tacit assumption that the residue of human communication—that which is written down or otherwise inscribed on an external medium, the ‘record’—was really an infinitesimally small part of the total. This assumption no longer holds; all organizations and many individuals in the developed world, and increasing numbers in the developing, now create records in the same or greater quantities as they engage in unrecorded speech.

‘Quod non est in actis, non est in mundo’; but what does it mean for RM when almost everything said or done in the world is or creates a record? When we are faced not so much with a records continuum as a records pleroma?

Episodes and sequences in time⁶**Voice 1**

We write, speak and hear about “technological change”, the implication being that the e-environment is different but how new is it? Is this change revolutionary or evolutionary? It is/was surely new in the 20th century as we moved from the analogue, paper world of the Industrial Revolution to the digital, virtual world of the information revolution.

Mobile communications technology was new – revolutionary – when the first mobile phone was invented and wi-fi appeared. But can we call the subsequent swathe of mobile devices (e.g. Blackberries, i-Phones, broadband dongles) new? Yes, in the sense that they are new items, possibly patented. No, in the sense they are developments in the new arena – evolutionary, developmental.

Many writers and users consider Web 2.0 to be new but not the inventor of the Web. Tim Berners-Lee (2006⁷) doesn’t think Web 2.0 exists; he thinks Web 2.0 is “jargon”, just a name for what the Web was always about – “connecting people.” So, FaceBook, LinkedIn, blogs, wikis, Flickr, YouTube etc etc, though new (revolutionary) in one sense, are applications, manifestations or mechanisms for achieving his vision of “connecting people” (evolutionary developments).

Voice 2

Timeline of IT developments⁸

Internet – late 60s to early 70s

Email – early 70s, widespread takeoff from late 80s

PCs – from mid 70s, widespread takeoff mid 80s

Line of business databases – Oracle, first commercial SQL relational database management system late 70s

Web – late 80s, widespread takeoff mid 90s

Mobile phones – from 50s, widespread takeoff in 80s

Laptops – mid 70s, widespread takeoff 80s

Web 2.0 – late 90s

In the 80s all kinds of factors came together: technology became smaller, cheap, usable by everyday people rather than just experts; the infrastructure was available, e.g. communication cables for the internet; IT companies were seeing a potential market and were commercialising products and services for both the workplace and the home;

companies realised the potential of IT to break union and professional power by enabling tasks to be done by anyone / everyone (e.g. the UK newspaper dispute at Wapping in the late 80s); everyday people had the personal wealth to buy such IT consumer products and services.

Voice 3

IT is linked in our minds so intimately with the PC that we can sometimes forget other significant developments.

Looking back on the 80s, for instance, the technologies that transformed nearly all people's experience—and with it, their expectations—were things like ATMs. Not everyone had a PC or even a dumb terminal at work (and many still don't, if you exclude cash registers), but everyone had to deposit and withdraw money, unless they kept it under the mattress.

Similarly, in the last decade we have seen the rise of the debit card as a means of payment, to the extent that cheques are now being phased out as an instrument for run-of-the-mill financial transactions.

Qualities and dimensions⁹

Voice 1

Perhaps the most significant, critical qualities and dimensions of 'what, if anything, is new in the e-environment' are the consequences of this "awesomely democratic world" (Keen, 2007 p35¹⁰) – the impact on people and processes. The impact on the way(s) in which people communicate, with whom they can now communicate, how and what they have easier and faster access, how they spend their time; on business processes and recordkeeping processes.

If what we fundamentally do is the same (i.e. we do 'business', communicate, make decisions, make things, exchange goods / ideas / information etc) then what is new is the way in which we do it. For instance there are "many new ways of communicating". "The e-environment has created new channels of public access (email, web form etc) and therefore new processes behind them. The e-environment has opened up new ways of purchasing (e-Bay, Amazon) and has made new services available (advertising, searching). Users expect the same speed and service from all organisations now, whether public or private sector".

There are new processes:

"... there are new business processes associated with the e-environment but much of the information proliferation actually arises from the lack of proper process associated with the e-environment. Both organisations and users are becoming bogged down in a mass or unmanaged material, from an IT perspective storage becomes an issue as does back up as time windows for back up are now not long enough to cover all that needs to be backed up".

"The e-environment has created new processes for creating, managing, accessing and re-purposing information objects. An example is the online submission of tax returns in which the user takes responsibility for the creation of the tax record that is validated and tagged at source and then imported into the tax system electronically where it arrives pre-qualified. The client has taken on the role of the data entry clerk while getting the benefit of a faster return. This increases an organisation's confidence in the process and the integrity of the information and increases the expectations

for turn around. The user wants more control and gets it through a self-serve model and gladly accepts the data entry responsibility”.

And these provide opportunities for change:

“Often implementations reflect the ‘as is’ world and new processes are introduced more gradually. Workflow implementations can clearly introduce new processes – BPR gained a poor reputation because of over-radical changes not supported by management of change, and flawed understanding of what was required. New tools actually make information management more realistic proposition – better information access and better potential for lifecycle management. IT provides platform to enable change – the new processes are created by people wanting to exploit the new potentials. Expectations change – faster processes, easier to locate information”.

A specific example is the new options for data security in new systems:

“The new systems create new options so the organisation needs to understand its requirements and the facilities being offered. The processes must integrate with existing IT security and be driven by the business and compliance requirements. Accidental exposure of sensitive data is clearly a great issue and one that receives an increased awareness given recent embarrassing exposures. There are tensions between security and usability associated with any new system (IT or new manual) – changes presents risk as well as any new features. Users and organisations are often uncomfortable with handling choices between usability and security.”

Another example is a health scenario and a person who is unwell. In the past the person had to visit the Doctors’ surgery (or casualty, depending on timing and nature of the illness) or request a home visit to get a diagnosis and treatment. Today it might be possible to get a diagnosis over the telephone (e.g. 24/7 using NHS Direct <http://www.nhsdirect.nhs.uk/>) or make a self diagnosis using the Web! If the patient’s records are all online then a wider range of diagnoses might be possible because the information available is not just what the patient or their carer can share. And the records can be instantly updated online.

So what is new in this scenario? The diagnosis function isn’t new but the process is new in the sense of where and when it can take place and who can make it (less senior experts).

Technology has made this possible, including anytime, anywhere access to patient records. Some of the recordkeeping processes are similar (content created by health experts) but others are different (format, privacy and security systems, manipulation and data analysis options). Electronic patient information systems open up new possibilities as well as challenges. Can you log on and access your patient records? Imagine if you could from anywhere in the world. Some people can. A new online system was implemented at the GP practice in Hyde, Greater Manchester, UK, where Dr Harold Shipman had worked, to restore patient confidence. Shipman was convicted of mis-using patient records and murdering some of his patients and the conviction was made because of evidence detected in the patient system.¹¹

The forms, the volume of interactions, transactions etc; the speed; the use of a non-human to mediate the process (e.g. giving information over the phone to request brochures etc, answering questions to get flight information, conduct banking transactions etc; entering data into web-based forms). We adopt different ways of doing those same fundamental things.

One of the consequences is that new records management processes are created:

“With an e-environment the records management process is embedded into each step of the business process with the records information being collected as the record is being created and modified. An example is the online submission of tax returns. The impact is that the history of the record is embedded with the record in its electronic form providing valuable information about the record at each step in the business process. The impact is that the repository in which the record is stored and the record itself has to be trusted and therefore supported by the policies and tools that guarantee this trust. The organisation needs to be confident in the electronic management of these records. The user has the same expectations.”.

“...the interface between your PC (or network) storage and the person away from this network will evolve. I imagine what will force new methods.”.

“An example is the fees project introduced this year whereby the business process has created the need to check and maintain additional records. My response to this question is the same as the previous in terms of expectations. i.e. sold as all singing and all dancing but then when it is not up to expectation becomes rubbish in and rubbish out.”.

Another consequence is the need to develop new ways of applying RM processes. For example:

“...Some of the new technologies are offering new and innovative opportunities to deliver recordkeeping differently – think of SOA and web services. But we [records professionals] haven’t, broadly speaking, been able to be at those tables nor proactive enough in enabling the thinking and change to happen. Technologies will change always – increasingly ‘personal’ and ‘business’ is being blurred and technology provided to support ubiquitous connection (web interfaces, blackberries, mobile phones.....) All these technologies used to support the enhanced flexibility of the workplace need to be connected to a recordkeeping framework. The technologies will continue to change. Hardwired and clunky interfaces that impose work for the end user will not succeed in the world of the every pressured, 24 hour connected, 7 day, mobile, working week. It’s a huge challenge and one we haven’t started to appropriately address. Radical rethinking of the ‘how’ not the why is required, and will continue to be required. A current example is the contradictory requirements for levels of articulation. For example, there is the big bucket approach to either classification or appraisal. No problems if it is a risk based decision making model and if it is done well and consistently. It suits the capacity of individuals to make decisions – it suits humans. But it doesn’t suit machines – it is far too big to be implementable. So for machines we don’t need bigger buckets, but much smaller buckets to enable automatic implementation. A dilemma.”

And a third consequence is the impact of new systems such as Web 2.0, cloud computing and SaaS (software as a service) on existing RM processes:

“The best approach to these types [of] systems is to structure them to manage the information assets that they are responsible for. The strategies and policies should be the same as any line of business system. These are

self-managed environments and the expectations are that the user is responsible for the management / tagging of the information as part of the information collection process. I don't feel we need new processes.”

Finally, some other dimensions to consider are the volume and format of information. Is the volume of information / records new or simply just greater? Formats and media surely are new. But then we can trace the evolution of storage formats, for instance, way back from today's USB sticks and DVDs to papyrus, stones and clay tablets. Nothing new in terms of concept but of its manifestation and the opportunities it opens up for ease and extent of sharing, replication, access, use and the downsides associated with risk.

Voice 2

I'll look at each of the technologies in turn, as the situation, impact, implications are not necessarily the same.

Email

Email is used in the *workplace* as a form of communication that combines the characteristics of the formal business letter, the business memo, the phone call, the desk-cooler conversation. The technology has introduced both quantitative and qualitative differences to previous forms of communication.

Quantitative differences: cheapness for the organisation; easy and speed of use; global reach; conducted by each individual on their desktop computer; the ability to copy in any number of people to the same message; automatic saving of the message in the inbox, or subject folders (if the user creates them).

Qualitative differences: People can conduct communication without the control of any line manager, but this communication could have significant commercial or legal implications for the organisation – and often neither the individual or the organisation fully appreciates this; Part of the blurring of the personal and the corporate within the workplace; often the user lacks appreciation that email lacks some of the properties of the older style of communication it is replacing, e.g. an email itself lacks the formality of a paper business letter even though it may be used for this purpose (a Word document attachment can overcome this though), e.g. an email lacks the visual cues and ability to negotiate of verbal communication and can therefore be inappropriate in content or in tone and cause offense to the recipient; Perception of requirement for immediacy of response, particularly where pop ups tell you a new message has arrived; Contribution to information overload – the sheer volume of emails one receives many of which are unnecessary, trivial or spam (see below).

Implications for RM: the blurring of forms of communication means that the important record is mixed up with the trivial; storage of records is outwith formal RM systems and storage and in incompatible formats; the email is invested in the individual so important records in their inboxes are inaccessible to others, and if they leave the organisation such records stored in their inboxes become lost.

Email used in the *home* replaces the letter or the phone call.

Quantitative differences: ease and cheapness of keeping in touch with friends and family, particularly where they are geographically dispersed.

Qualitative differences: Younger people see this form of communication as for older people / workplace, old fashioned. They are texting or using social networking sites instead; there is a digital divide here. In developed countries everyone (if literate) can write and afford to send a letter and everyone can afford a phone call. However not everyone can afford a PC / network connection at home and have the skills to use the equipment. Such digital divide issues are even more prominent for the developing world.

Generally for email there are downsides of spam (like paper junk mail but to a much greater extent) and viruses / worms etc. (which don't seem to have an equivalent in the paper world).

PCs

PCs in the *workplace* replaced the typewriter. They are used to create documents as previously, memos, letters, reports, etc. Once again quantitative and qualitative differences to the world of paper documents.

Quantitative differences: The ease with which such documents can be produced, amended (to the n degree!), copied. The interrelationship of desktop applications (Word, database, spreadsheet) makes it very easy to create documents with content from different applications, e.g. financial data / statistics from the spreadsheet in the Word document, with mail merge to clients from the database. It's debatable whether there has been any cost savings to organisations as drafts are printed out on printers where the cartridges are incredibly expensive and short lasting.

Qualitative differences: The quality of the output with formatting, embedding of images, etc. now matches desktop publishing output – usually no need now to draw on the expertise of the publishing / graphics unit, except for large print runs. However, the major difference is that in most organisations every staff has a PC on their desk. This has led to the breakdown of demarcation of tasks, and a degree of loss of professional specialisation (see comment re publishing above) – there is no longer a typing pool; everyone creates their own documents. There is a blurring of the personal and the corporate. Even if the official record is passed on to a manager or RM system etc. the individual can keep their own copy and even send / take it to their home. Besides the personal investment people naturally have in the work they do, where people have no job for life the work they do within an organisation becomes the evidence for their portfolio to be used to get other jobs.

Implications for RM: records created outside RM systems, records invested in the individual not the organisation, multiple copies / versions, digital preservation problems.

PCs at *home* give people access to sophisticated tools that they can use to create documents for their private lives.

Quantitative aspects of easy and convenience.

Qualitative aspects: it's far easier to bring a professional gloss to one's private activities, e.g. a treasurer of a local group can manage the finances on a spreadsheet, and produce formal letters for the bank and high-quality annual reports. They can also communicate with their members via email. The availability of PCs at home (linked with email and the Web) opens up home working. Over 25% of the UK workforce 'sometimes' work at home; 3.5% work partially from home; 2.5% work mainly from home. ¹² However, this can also have a negative effect of blurring the distinction between work and home; some people can never get away from their work; it contributes to the long work hour culture in the UK, e.g. The TUC reported that in 2005 19.4% of workers did unpaid overtime for an average of 7.4 hours per week. ¹³

Line of business databases

Relational databases are new; nothing really existed like them previously. With paper databases you had 'single' records that could be accessed from different perspectives through indexing and cross indexing. And more complex records would comprise paper folders / files of individual documents / records. In the work context relational databases have created new implications for RM. In relational databases, a 'record' comprises data organised within specified fields, and transactions (also records in the RM context) comprise data from a number of database 'records'. Databases are also dynamic. These characteristics possess significant problems for RM in achieving and maintaining the authenticity, reliability, integrity, usability of records from such databases.

Web (?aka Web 1.0)

Generally, the Web contains information resources that previously you would have consulted within encyclopaedias, reference works, books / journals etc. and for wide coverage would have needed access to the resources of a library. Particularly for normal people in the home context, they would never have been able to access such a range of information.

Quantitatively the Web provides an enormous range of information sources with global coverage and immense ease of use, copying, and plagiarising! The Web also provides for e-transactions for e-government or e-commerce. This provides for 24/7 access to organisations and services – a new aspect of the IT world. Accessing the Web also exposes people to viruses, worms etc – another new phenomenon.

Qualitatively the concern is with the variable quality of the information on the Web. When information was published in print form there was a degree of filtering and quality control, though misleading / biased information was still produced, compare the broadsheets with the red-tops, for example. However these types of control do not exist on the Web so it's very much the reader beware. However, generally people, and particularly younger people, seem to have a high level of trust in information on the Web (endnote editorial above) and seem to have little appreciation of quality issues and lack critical appraisal skills.

In the *workplace* staff use the Web as an information source, with savings in time (no need to visit a library in person) and a greater range of information to access – a *quantitative* difference.

Qualitatively, organisations need to set up a Web presence (compare to leaflets, brochures, catalogues etc. which are often still produced) and Web-based transactions. It might be noted that often organisations' websites and online transaction services are poorly designed and have low levels of usability.¹⁴ Not restricted to the Web, but combining all the technologies, staff now have high expectations of IT systems and services in terms of immediacy and functionality. Equally employers also have high expectations of the greater quantity and quality of work their employees should be producing with IT. These expectations are not necessarily based in reality and can lead to disappointment and frustration. In some industries, employers use IT to micromanage their staff's performance, e.g. real time logging of call centre staff's activities.

RM implications seem to be of two types. (1) The Web page as a record, both for the organisation and for cultural archiving. (2) Cloud computing (a topic for a future Phenomenological Analysis perhaps).

In the *home* context, individuals can set up their own Web pages, containing personal and / or hobby information, or information related to social / self-help / community groups they might be involved with.

Qualitatively: This type of widespread dissemination of information is a new phenomenon. It brings with it privacy issues. People aren't really aware how much personal and contextual information about them resides in the Web – this could be used for criminal purpose such as identity theft.

But see comments below re Web 2.0.

Mobile technologies

Quantitatively, generally, mobile phones have increased the amount of phone communication enormously.

Qualitatively: For most people the phone is left on, making them available to anyone at anytime, with the expectation of them immediately answering the call wherever and in whatever context they are. Humans have themselves become 24/7 transactions. For some people privacy concerns seem of little interest as people discuss personal or work / professional sensitive matters loudly in public.

Qualitatively: In a *work* context, laptops and mobile phones or combined technologies like Blackberries mean that you can't escape from work even when travelling to meetings (or commuting!). This creates expectations from both staff themselves and employers that this is normal – contributing to our long work hour culture, and the blurring between work and private lives.

RM implications: Loss of personal / sensitive data from laptops and / or mobile storage devices. Records outside the RM system; multiple copies / versions.

Web 2.0

Once again the difference seems to be quantitative and qualitative.

Blogs.

Quantitatively. People have always written diaries. However, they have never been able to reach the huge potential global audience that blogs can do. The most a diarist could expect was to be read by their 'descendants' or perhaps get published.

Qualitatively the ability for other people to add comments to a blog post is a new aspect. It leads to the interactivity between people that is one of the characteristics of Web 2.0.

Social networking.

Quantitatively. People have always socialised and set up groups of informal (friends, drinking buddies) or formal (social / hobby clubs). Social networking sites have made this a much easier activity and you can end up with 100s of friends!

Qualitatively. Is a social networking friend really equivalent to a face-to-face friend? Privacy issues once again rear their ugly heads – people, particularly young people, release a lot of personal information on to these sites without thinking of the potential risks of harm. For such sites (and Web content itself) there are many concerns about the dangers of cyber bullying, sexual predators, paedophiles etc. However, such things existed before the Web; it is the ease with which such people can contact their victims which is the difference.

In the *work context* blogs and social networking sites are being used to put out information and reach clients / customers. It's of interest that in the educational sectors, some students appear to resent teachers / lecturers invading their social networking space. There are professional social networking sites, e.g. LinkedIn that individuals use for their own professional networking. Some organisations deliberately use such sites for creating and maintaining work contacts.

RM implications. A blog post could be an organisational record. A communication between contacts on a social networking site could be an organisational record. How can these be captured into the organisation's RM system?

Wikis seem to be so different in concept to the way that groups of people developed documents in the paper world that I would regard them as a new phenomenon.

RM implications. Catching both the final product and the audit trail of previous versions of the document into the organisation's RM system.

Voice 3

It is worth noting the uncontrolled and fragmented nature of proliferation in the new technologies; in many ways, this is typical of the early years of any complex phenomenon, where growth and innovation outstrip the means for managing or even comprehending it. We are still living in the highly experimental and volatile 'young' phase of the digital revolution, yet the long-term trend in such situations is generally towards convergence: we are in a transitional stage.

There is a parallel here with the introduction of alphabetic scripts to the West, copied from the Phoenicians by the Greeks, who made the crucial addition of signs to

represent vowels as well as consonants. We are so used to the alphabet that we no longer see how revolutionary it is: unlike the laborious and 'hard-wired' scripts of, say, the Egyptians and Mesopotamian scribes, it was flexible and simple enough to allow the emergence of literacy among the lay population. It is the difference between my writing these words as text on a PC and punching their binary analogues as a (very long) series of holes in a card.

In the early decades of its use, alphabetic script exploded in multiple variants as individual cities and groups all started off from scratch using the powerful and liberating new tool. Some wrote from left to right, some from right to left, others still 'as the ox ploughs'—along one direction till you get to the edge of the page, then back the other way on the next line. Different symbols were used for certain letters, letters that existed in one dialect did not appear in another. Over time, effectively, standards emerged; the conventions of the later manuscript era (up to the invention of printing) had a degree of uniformity far removed from the inventive chaos of the early days. And greater uniformity still was introduced with printing. The more universal a phenomenon is, the more it must have standards and rules to remain workable.

As with the introduction of alphabetic script and printing, the revolutionary nature of the innovation lies in the sudden availability of a very powerful tool of content production to the population at large. ICTs are still at the stage where they are too powerful, desirable and available to be held back in their development, but too new to be bound by settled convention. People talk about the possibility of a 'digital Dark Age' arising from this unstable state of existence; the prospect undoubtedly causes considerable soul-searching to contemporary records professionals, as it is happening on their watch. (The mischievous or heretical might respond 'so what?', but that is a discussion for another day).

Settings and environments¹⁵

Voice 1

Technology is still not always reliable, embedded or widely available in some countries (e.g. parts of Africa); in contrast with others where there are technology cities (e.g. a suburb of Tokyo, Japan). But there can be little doubt that the spread of interactions is geographically much greater. The levels of interaction are greater too – we are more likely to interact with wider range of people – at different levels, more senior, in different organisations and cultures.

Voice 2

Above I've discussed both the work and the home settings. The discussion has been based on UK experience, but I would expect that to be very similar in other developed countries. The issue is the digital divide for some developing countries.

Voice 3

Two other environments are worth noting. First of these is 'The Environment', which humankind is generally seen to be carting off to hell in a hand-basket. The environmental impact of the new technologies is less appallingly obvious than that of the old—no slag heaps, no dead polluted rivers, no Bhopals or Chernobyls. Nonetheless, the amount of energy consumed in the manufacture and use of all of the components of the global ICT networks and facilities is enormous. But this is really just another manifestation of our tendency, as a species, to suck the world about us dry, rather than something qualitatively different.

The second environment in which technological innovation is playing itself out is at the other end of the scale—the somatic environment of our own bodies. Already, the prosthetic information-generating—and thus recordkeeping—devices available through mobile phones (Google Latitude, for example, which shows one's location on Google Maps if switched on) and 'smart clothing' is being supplemented experimentally by nanotechnology and microchip implants. This is a genuinely new development in reality, though long adumbrated in science fiction and therefore not exactly unfamiliar.

Prerequisites and consequences¹⁶

Voice 1

If one accepts that there are new technologies then obsolescence is a more pressing consequence than it was in the analogue world. Proactive management of upgrades and migration, to ensure compatibility, interoperability, continued access to information, are the order of the day – the sine qua non.

What is also becoming clear is the blurring of the boundary between personal and business contexts. Many blog sites combine personal thoughts with those arising from the blogger's business / professional role. (e.g. Bailey, Lappin, Hinton¹⁷) and are developed during work and social hours. This has significant implications on culture, attitudes and engagement. For example, 'new' ways of communicating using SMS and text are changing how people 'talk' to each other – more casual, with a 'new language' of short-forms. The engaged are happy to be contactable any place, any time – so what happens to the boundaries and balance between work and social / personal life? Are they disappearing? Have they already disappeared?

Voice 2

I've discussed social impacts and RM implications above.

The idea for his PA came from the initial issues raised from the literature review and fed into Round 1 of the e-Delphi, i.e.

- The e-environment creates new business processes / affects existing processes
- The e-environment creates new record management processes / affects existing processes
- The e-environment creates new legal processes / affects existing processes
- The Delphi participants didn't always distinguish in their responses between new process and effects on existing processes.

Simplistically you might think that if the IT / e-environment is just affecting existing processes rather than creating new ones then it might be easier to find effective solutions.

Perspectives and approaches¹⁸

Voice 1

In the context of new ideas and innovations, the technology adoption or diffusion model identifies different groups of people who adopt or accept new technology over time. This first group are the innovators, then the early adopters, followed by the early majority and late majority and, finally, the laggards (Bohlen & Beal, 1957; Beal, Rogers & Bohlen, 1957; Rogers, 1962)¹⁹. Some individuals embrace any new technology for the sake of it, to make a statement, be at the cutting edge, because they enjoy gadgets, experimenting etc; others watch and wait before adopting anything new, making their decision based on evidence-based evaluation. Others positively resist new things or are very selective about their adoption.

For organisations the approach can be to embrace any new technology for the sake of it, to experiment, to innovate, for competitive edge. Alternatively it can be to ban new technology because of fear, risks, lack of understanding, concern about loss of control, cost etc. Or, taking the middle ground, it can be to adopt what is new judiciously, having evaluated the positive and negative risks, benefits, consequences. Senior managers' views are likely to vary according to the sector in which they operate – more conservative in the public sector, innovative in the creative sector.

Records professionals' views are also likely to vary according to sector but perhaps also according to comfort level, knowledge and skills, views about who is 'in control'. IT systems staff will surely want to experiment and learn about any new technology but may be cautious about its use in the business context because of potential risks.

“IT provides [a] platform to enable change – the new processes are created by people wanting to exploit the new potentials. Expectations change – faster processes, easier to locate information”.

And individual, staff perspectives will span the complete spectrum – from pushing the boundaries and demanding new technologies to wanting to stay as is – but in a decade's time or less those in the latter category will surely be a dying species, if not an extinct one.

In this study it was suggested that new staff (i.e. individuals) are driving organisations to adopt new technologies and systems such as SaaS / cloud computing the information in which needs to be managed:

“Like Mashups these are Line of business systems that need to follow the organisational policies that already exist. The expectations for users are the same as for other systems and should be transparent to the user. The service provider needs to ensure that the domain has incorporated the IM policies of the company and that it has the resources and processes in place to ensure its integrity.”

Voice 2

I don't think that these perspectives would be much different for the stakeholder groups. Above, where applicable, I've stated the differences for staff and employers. The above discussion includes some social and psychological implications.

Cores and fringes²⁰

Voice 2

The future of IT is looking to the semantic Web, to Web 3.0 (whatever that might be), etc. To virtual worlds (Second Life comes to mind). To whatever new technology which will be developed that we have no idea of as yet. And when these exist and come into common use similar discussions will be needed.

Voice 3

The position of the technology user to the new technologies has varied over time. Initially, the 'core' lay in the mainframe system, the user confined to very circumscribed operations at dumb terminals. The ubiquity of the PC moved the focus away from the core, or rather created a multitude of stand-alone foci: it is this situation, where the user is de facto the main controller of the information they create or process on their PCs, that is partly responsible for the inability of organizations to keep (or, at this stage, wrest back) control of what users now tend to view as 'their' records.

These centrifugal tendencies are being counteracted by information architectures that once more change the relationship—shared drives, collaborative workspaces—whether within the organisation’s own IT infrastructure or in ‘the cloud’. In the mainframe era, the power of the technology lay at the centre (though all those dumb terminals clearly needed some smart people to operate them); in the PC era, a significant portion was transferred to the periphery, to smart terminals operated increasingly by people who had little or no experience of or training in information management at even the most basic level of ‘filing’.

Now, we are entering a phase where the flexibility of the architecture offers the potential for a dynamic balance and distribution of power and control, as appropriate. Whether this potential will ever be effectively actualized is a different matter, and will in part determine whether RM can reclaim some of the ground lost in the PC era, where powerful ICT tools were wheeled in one door while many of the people with the filing and organisational skills needed to use them in a disciplined way were wheeled out the other.

Appearances and disappearances²¹

Voice 1

This phenomenon is not new but continuous. Its precise nature will vary but the agricultural, industrial and information revolutions are testament to its persistence. New technologies, systems and processes will continue to appear; what will continue to be debated is their newness or novelty. If we reduce (or trace) every development back to basics (fundamental concepts) then perhaps we can argue there is nothing new under the sun, but if we don’t then we will view social networking, cloud computing, online business as new, just as we might view the first microwave as new, though cooking food is as ancient as civilisation.

Voice 2

I base my discussion in the experiences of someone who has grown up from the relatively early days of IT and the Internet. At university I ran punch card programs. I used the Sinclair ZX80 and an Amstrad computer in real life. I’ve worked for organisations where staff only had electric typewriters. I’ve used non-GUI, command-line driven applications. I’ve accessed online databases pre the Web via modems and teletypewriters. I remember when Google first came out. And I hasten to add I’m not that old, but the pace of change in IT has been so rapid and so huge. My experiences of IT are totally different to those of young people now entering the workforce.

Organisations are in transition, comprising older and younger staff with such different experiences and perspectives. How staff regard IT, use it, and interrelate it to RM will also be very different. I work in the HE sector which is very IT-focused and enabled, and has been for a long time, e.g. the UK’s HE computer network (JANET) started in the mid 80s. Some organisations have a lower level of IT penetration, e.g. in the NHS, because of the nature of their work, clinical staff do not all have their own PCs and Internet connections; NHSnet (the NHS computer network) was still being rolled out in the late 90s. The massive current investment in the National Programme for IT is part of the modernising process for the NHS.

So perspectives of different organisations and different sectors will also be different. And these perspectives will change. Older staff will be retiring; younger staff will have had their perspectives amended to some degree by interaction with such older staff and by working within the systems created by older staff. They in their turn will encounter the school leaver with yet again a different experience of IT. And so on. If the rapid pace of change in IT continues, then this personal, organisational and social change will also continue, but lagging behind and ‘piebald’ in nature.

We've become so used to such change that we don't appreciate how unusual it is in the course of human history of, e.g. the design of a bronze age axe is very similar to that of a modern axe except for the materials, and how it is used and what for is the same.

Clarity²²

Voice 1

This is premised on one's view of whether or not there is anything new under the sun.

Voice 2

A view of whether something is really new, or just quantitatively / qualitatively different is going to be very subjective.

Voice 3

Technological innovations that are the equivalent of building a better mousetrap are not truly novel, unless their effects are so significant that 'quantity becomes quality'. Some aspects of the automation of existing processes fall into this category.

Other aspects are truly novel, and it is these that RM has most difficulty in getting to grips with. It is theoretically possible to manage, say, word-processed documents in a traditional sense when they are nothing more than precise analogues of paper documents; far harder to deal with genuinely new functionality such as hyperlinks and dynamic documents.

Clarity is difficult, if not impossible, in conditions of true novelty:

For a truth to affirm its newness, there must be a supplement. This supplement is committed to chance. It is unpredictable, incalculable. It is beyond what is. I call it an event.²³

Existing and emerging digital technologies, and their recordkeeping implications, are sufficiently novel in quality to ensure that many of their consequences are indeed 'unpredictable, incalculable'.

Synthesis / Summary

Voice 1

Just as opinions about whether or not there is anything new under the sun differ, participants in the e-Delphi differed in their views of whether or not processes (business and records management ones) are new in the e-environment.

In thinking about what is really new in the e-environment I believe it is technology and the opportunities technology provides for doing things differently, faster, with different people, more easily and in far wider locations. The impact has been significant in terms of how we do things, with whom, when and why. It will continue to be significant.

Voice 2

From my viewpoint I think that IT is mostly affecting existing processes, rather than creating new ones. The only things I thought that were really new, compared to the paper world, were;

- Relational databases
- 24/7 access to organisations and services
- viruses, worms etc
- widespread dissemination of information by private individuals via their own websites

- the interactivity between people on the Web, e.g. the ability for other people to add comments to a blog post
- wikis

This isn't surprising as what human beings do remains the constant factor.

However the quantitative and qualitative differences of the effects of these technologies (used in combination) on existing processes are so large and so profound that to all intents and purposes we are talking about a new situation. And the implications and effects on society and human behaviour are immense.

I'm afraid from this analysis it doesn't help us to move more easily to finding effective solutions.

Voice 3

I agree that it is not easy to find solutions to managing records in the e-environment. It may be that, while the field is so vast, new, complex (at times even chaotic), unstable and fragmented, that we simply have to 'go with the flow' for a while and find partial and fragmentary responses (if not true solutions) within specific areas, sectors and contexts. If so, it will be crucially important for the recordkeeping professions to have a very clear over-arching sense of what they are trying to achieve in the long run if they, too, are not to succumb to the fissiparous state of their domain of practice. If we cannot yet provide the right answers, we must at least be sure that we are asking the right questions.

- 1 Voices 1 and 2 conducted the PA independently of each other. Voice 3 then reviewed the content and added in additional comments.
- 2 The Holy Bible. King James Version. Oxford University Press.
Ecclesiastes or, The Preacher
1 The words of the Preacher, the son of David, king in Jerusalem.
2 "Vanity of vanities, saith the Preacher, vanity of vanities; all is vanity.
3 What profit hath a man of all his labour which he taketh under the sun?
4 One generation passeth away, and another generation cometh: but the earth abideth forever.
5 The sun also ariseth, and the sun goeth down, and hasteth to his place where he arose.
6 The wind goeth toward the south and turneth about unto the north; it whirlith about continually, and the wind returneth again according to his circuits.
7 All the rivers run into the sea, yet the sea is not full. unto the place from whence the rivers come, thither they return again.
8 All things are full of labour; man cannot utter it: the eye is not satisfied with seeing, nor the ear filled with hearing.
9 The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no thing new under the sun.
10 Is there any thing whereof it may be said, See, this is new? it hath been already, of old time, which before us.
11 There is no remembrance of former things: neither shall there be any remembrance of things that are to come with those that shall come after.
12 I, the Preacher, was king over Israel in Jerusalem.
13 And I gave my heart to seek and search out by wisdom concerning all things that done under heaven: this sore travail hath God given to the sons of man to be exercised there-with
14 I have seen all the works that are done under the sun; and, behold, all is vanity and vexation of spirit.
15 That which is crooked cannot be made straight: and that which is wanting cannot be numbered.
16 I communed with mine own heart, saying, Lo, I am come to great estate, and have gotten more wisdom than all they that have been before me in Jerusalem: ea, my heart had great experience of wisdom and knowledge.
17 And I gave my heart to know wisdom, and to know madness and folly: I perceived that this also is vexation of spirit.
18 For in much wisdom is much grief: and he that increaseth knowledge increaseth sorrow.
- 3 Aspect of the topic – the pieces, parts, in the spatial sense, incl. interconnections, links
- 4 Quotations, unless otherwise specified, are from participant responses to the Process Facet e-Delphi Study
- 5 Childs S (2008). Editorial: Internet usage statistics. *He@lth Information on the Internet*, (65):1–2
- 6 Aspect of the topic – the episodes and sequences, in the temporal sense, including stages, eras, historical, iterations, reiterations

- 7 Berners-Lee, T. (2006). A podcast interview for IBM. developerWorks Interviews 7-28-2006 <http://www-128.ibm.com/developerworks/podcast/dwi/cm-int082206.txt>
 “LANINGHAM: You know, with Web 2.0, a common explanation out there is Web 1.0 was about connecting computers and making information available; and Web 2 is about connecting people and facilitating new kinds of collaboration. Is that how you see Web 2.0?
 BERNERS-LEE: Totally not. Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is of course a piece of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wikis, then that is people to people. But that was what the Web was supposed to be all along. And in fact, you know, this Web 2.0, quote, it means using the standards which have been produced by all these people working on Web 1.0. It means using the document object model, it means for HTML and SVG and so on, it's using HTTP, so it's building stuff using the Web standards, plus Java script of course. So Web 2.0 for some people it means moving some of the thinking client side so making it more immediate, but the idea of the Web as interaction between people is really what the Web is. That was what it was designed to be as a collaborative space where people can interact. Now, I really like the idea of people building things in hypertext, the sort of a common hypertext space to explain what the common understanding is and thus capturing all the ideas which led to a given position. I think that's really important. And I think that blogs and wikis are two things which are fun, I think they've taken off partly because they do a lot of the management of the navigation for you and allow you to add content yourself. But I think there will be a whole lot more things like that to come, different sorts of ways in which people will be able to work together. The semantic wikis are very interesting. These are wikis in which people can add data and then that data can then be surfaced and sliced and diced using all kinds of different semantic Web tools, so that's why it's exciting the way people, things are going, but I think there are lots of new things in that vein that we have yet to invent.”
- 8 Sources for history of IT developments:
 Living Internet <http://www.livinginternet.com/> (including history of Internet, Email, Web)
 History of the Internet http://en.wikipedia.org/wiki/History_of_internet
 Personal computer http://en.wikipedia.org/wiki/Personal_computer
 Oracle's history <http://www.oracle.com/corporate/story.html>
 History of mobile phones http://en.wikipedia.org/wiki/History_of_mobile_phones
 Laptop <http://en.wikipedia.org/wiki/Laptop>
 InformationWeek. A brief history of Web 2.0 http://www.informationweek.com/1113/IDweb20_timeline.jhtml
- 9 Aspect of the topic – the qualities and dimensions of the phenomenon (other than parts, episodes etc), incl. attributes, characteristics, levels, size
- 10 Keen, A. (2007). The cult of the amateur: how today's internet is killing our culture and assaulting our economy. Nicolas Brealey Publishing.
- 11 (The Times 28/6/08).
- 12 Felstead A et al (2000). A Statistical Portrait of Working at Home in the UK: Evidence from the Labour Force Survey, ESRC Future of Work Working Paper no. 4. <http://www.flexibility.co.uk/flexwork/location/leicester.htm>
- 13 <http://news.bbc.co.uk/1/hi/business/4743394.stm>
- 14 Usability guru Jakob Nielsen's Website <http://www.useit.com/>
- 15 Aspect of the topic – setting, environments, surroundings, incl. contexts, ambience, sector, country, jurisdiction
- 16 Aspect of the topic – the prerequisites and consequences in time, including underpinnings, requirements, impact, implications
- 17 Steve Bailey's blog 'Records management futurewatch' <http://rmfuturewatch.blogspot.com/>
 James Lappin and colleagues blog 'tfpl blog' <http://www.tfpl.typepad.com/>
 Brad Hinton's blog 'Brad Hinton – Plain speaking' <http://bradhinton.wordpress.com/>
- 18 Aspect of the topic – the perspectives or approaches one can take, including the four ISO stakeholders (senior managers, systems administrators, RM professionals, employees), psychological, philosophical, ethical, political, ecological, legal
- 19 Bohlen, JM & Beal, GM. (1957). The diffusion process. Special Report No. 18 (Agriculture Extension Service, Iowa State College) 1, p56–77 <http://www.soc.iastate.edu/extension/presentations/publications/comm/Diffusion%20Process.pdf>
 Beal, GM., Rogers, EM & Bohlen, JM. (1957). *Validity of the concept of stages in the adoption process*. Rural Sociology, 22(2), p66–168.
 Rogers, EM. (1962). *Diffusion of innovations*. Free Press
- 20 Aspect of the topic – cores or foci and fringes or horizons, incl. positive (at the core) to negative (on the fringes), one focus or multiple foci, looking to the horizon (aspiration, vision), beyond the horizon (blue sky, future prediction, forecasting)
- 21 Aspect of the topic – the appearing and disappearing of the phenomena, incl. historical, contextual, transitory, continuous/discontinuous, persistence, cause/effect, visible from certain viewpoints
- 22 Aspect of the topic – the clarity of the phenomenon, incl. degree of uncertainty, definability, explanation, fuzziness, conflation
- 23 Badiou, A. *Philosophy and Truth and Infinite Thought* (citation from blog 'Philosophy's Other: Theory on the Web' <http://philosophysother.blogspot.com/2009/01/cfp-novelty-transformation-and-change.html> [Accessed 2009.02.13])