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RECORDKEEPING AND INFORMATION ARCHITECTURE

- A STUDY OF THE SWEDISH FINANCIAL SECTOR

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Abstract

The study focused on problems, drivers and priorities for information architecture and management of electronic information, especially records, in the Swedish financial sector. In the theoretical framework it is stressed that in order to develop effective e-services in any type of organisation it is necessary to not only to focus on business and technological infrastructure, but also to develop efficient forms of information infrastructure and information architecture, in which the management and access of electronic records forms an essential part. Further it is asserted, in accordance with the *records continuum model*, that in order to efficiently be able to access and manage electronic records in any organisation or organisations, electronic recordkeeping requires a pro-active and continuous iterative approach. Sixteen semi-structured interviews with five Swedish banks and one insurance company show that in recent years managing and accessing electronic records have become important strategic and economic factors, which is more now than before considered to be an essential part the enterprise information architecture and information infrastructure. One important driver for developing electronic recordkeeping is the increased need to be able to access customer records from any part of the organisation, nationally and internationally. Today, however, electronic records are sometimes scattered in different processes and systems with different structure and technology, a problem that these organisations now are beginning to solve in different kinds of development projects dealing with information architecture and digital archives.

Keywords: information management, electronic recordkeeping, enterprise architecture, information architecture, information infrastructure, information technology, financial sector, Sweden

1. Introduction

Digital information is created in ever increasing volume in different organisational and technological environments and presented in electronic form via a variety of electronic services, for example e-banking or public e-services. According to Castells [2000], information is no longer only to be seen as a supporting part of the business, but is an integrated part of it. New information technology changes the requirements

for the organisation and production of customer services. Further, process-oriented workflow systems and increased customer focus changes the roles of information and information systems in the organisation. This implies that managing digital information in form of pictures, documents and data becomes a strategic matter for any organisation. The successful functioning of current business processes is increasingly built upon electronic information sources of various kinds. Without accessible, secure and authentic electronic information, these functions in organisations would, in fact, be impossible to maintain and develop effectively.

This study focuses on a special type of information, namely records. According to the ISO 15489 standard for records management[1], records are defined as: "Information created, received, and maintained as evidence and information by an organisation or person, in pursuance of legal obligations or in the transaction of business". In the present study we will focus on problems and possibilities of managing electronic records in complex organisational and technological environments and its correlation to the business and IT development strategies, enterprise architecture and information architecture.

The target group for the study is companies within the financial sector in Sweden, in this case five banks and one insurance company. Theses types of organisations extensively use new technology and multiple channels to manage a large number of customers and are, in general, large organisations with a heritage of legacy information systems. Most of these organisations have well developed electronic services such as e-banking services. Further, they are now more or less acting on an international market, which makes information and infrastructure issues even more complex. This rather complex organisational and technical environment thus makes it highly interesting to study these organisations from an information and records management point of view.

The questions for the present study are:

- Are strategies and awareness of information architecture and electronic recordkeeping issues in focus?
- What are the problems and status of information architecture recordkeeping development projects in the organisations?
- What are the drivers for the development of information architecture and electronic recordkeeping?
- What success factors, good examples and areas of improvement can be found?

The present study forms a part of a larger study concept, which focus on the whole concept of systems development and architecture, enterprise architecture and information architecture and recordkeeping. [Sundberg and Wallin, 2005a; 2005b; Sundberg and Sandberg, 2006; Sundberg, 2006]. It should however be noticed that these different papers conclude a first survey, and mark the beginning for further research within this field.

2. Research Method

The present study is based on a series of semi-structured interviews with a number of companies from the financial sector in Sweden. Since this paper aims to identify and understand experiences of work processes, a qualitative research method has been

[1] ISO 15489 Information and documentation –Records management Part 1 –General

employed. A total of 14 semi-structured interviews were carried out between January 2005 and April 2005 in five major banks and one large insurance company.

In each organisation, individual interviews were carried out with persons from the IT department as well as with people from the business department. This was in order to enable exploration and comparison of the internal processes and capabilities from two different viewpoints, i.e. the purchaser view (business) and contractor view (IT). 8 persons were interviewed from IT, e.g. department managers, IT architects and information architects, together with 8 persons from the business organisation, e.g. managers of the banks' Internet services, and one call centre manager.

Pre-interview preparation involved sending out a document describing the background and purpose of the interview. During each interview the background to the study was presented (see above), and the trinity model (see figure 1 and 2) was used as a starting point and basis for questions in all interviews. The total length of each interview was between 1 and 1.5 hours with two interviewers and one interviewee.

The results from all interviews were recorded on tape and transcribed directly afterwards. The analysis of the empirical data was carried out in two steps. Firstly, the two interviewers performed the transcription as well as a first analysis of the empirical data, categorising the results, in parallel sessions. Secondly, a final analysis of the data was conducted and reorganised into its present form.

3. Previous Studies and Theoretical Setting

In a previous study, it was recognised that the information and IT strategies and processes have to integrate with the e-service processes [Sundberg and Wallin, 2005a]. In a Swedish governmental report [SOU 2003:55], conducted by the Swedish IT-commission, it is stressed that in order to develop efficient e-services in modern organisations, the organisation of the current IT-processes needs to be broadened.

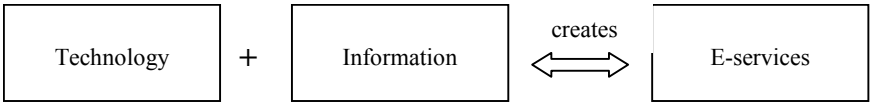

Figure 1. The interplay between technology, information and services

The report proposes a division into three parts as in Figure 1: IT strategy, information resources strategy part and e-services strategy. The responsibilities at an organizational level are suggested to be allocated to three posts: a *chief technology officer*, a *chief information officer* and a *chief service officer*. The IT strategy and its personnel include responsibilities for and development of the IT platforms. It also includes participation in development projects in co-operation with different business processes and special functions. The information resources mandate includes, for example, management, development and strategies of information resources, and support for a competent management of the information resources and services that exists within the organization. The tasks for the chief service officer function are the management of external e-services and the development of new e-services. The mandate also includes the co-ordination of contacts about integration of services with external partners. A somewhat similar framework has been argued by Maes [1999]. Focusing on the importance of information management, Maes [1999] has presented a generic framework, which consists of a matrix of three vertical columns (Technology,

Information/Communication and Business) and three horizontal levels (Strategy, Structure and Operations).

A second paper [Sundberg and Wallin, 2005b] studied the system development process (IT-view) in relation to requirements and purchasing processes (business view) in Swedish banks and insurance companies. In general, the study found well functioning development processes with little friction between departments, system owners, purchasers and contractors. Territorial product departments and "stovepipe thinking" have been subordinated by overall business goals and collaboration introduced. The study concludes that problems with stovepipe systems and departments, often found in public organisations, are not recognised as significant problems. General business environment factors – the history of organisational change and mergers, the overall economic situation and the strong customer focus – seem to have broken the functional mind-sets and sharpened and focused the organisations into a collaborative culture. The integration of customer, information and IT is much tighter than previously. A shift has taken place from a situation ruled by the IT organisations to a situation where the business organisation gives direction, translating needs and setting priorities for development projects.

Furthermore, the study [Sundberg and Wallin, 2005b] and also [Sundberg and Sandberg, 2006] points out the development of an overall *architecture* as a most important issue for improvement of the collaboration between the business and IT organisations. An increasing number of the IT projects in the studied organisations relate to infrastructure. There is a general trend towards harmonisation and reduction of platforms. Gone are the days when computer systems were designated to support one single task, product, service or customer. Today, the perspective is the opposite; the customer strategies and the overall business strategies define the information platform that supports the different channels of customer communication. This means a lot of work goes in developing the IT infrastructure into independent tiers, struggling with integration of disparate legacy systems. The role of IT is to provide an infrastructure; a platform upon which services and processes can be based. Based on the concept of a platform and modules, systems development projects can be made smaller and manageable, integrated and harmonised with the information management process. Most of the organisations have architectural units within their IT departments; however this is not often the case within the business organisation. Working with the overall architecture is an important "mechanism" for improvement of the co-operation between the business and IT organisations. The architecture creates a process for continuous adaptation between the business and IT organisations.

The suggested overall architecture embraces the whole enterprise, not only the technical infrastructure. An architecture is "the fundamental organisation of a system embodied in its components, their relationship to each other, and to the environment, and the principle guiding its design and evolution" [Lankhorst et al., 2005]. The denomination enterprise suggests a perspective that covers architectures across "any collection of organisations that has a common set of goals and/or a single bottom line" [Lankhorst et al., 2005].

Many definitions identify separate architectural aspects or domains, with the enterprise architecture acting as the glue that integrates each of these disciplines into a cohesive framework [Pereira and Sousa, 2004]: First, the *business* architecture is the result of defining the business strategies, processes and requirements. The *application* architecture is a portfolio of the applications and services needed to support the business processes and functions of the enterprise. The *information* architecture is a result of modelling information and describes concepts and logical aspects of data as

well as physical aspects. Lastly, the *technical* architecture defines the computing services and platforms that form the technical infrastructure, e.g. standards, configurations, integration and security.

The information architecture and information management are seen as important and difficult tasks, yet to be fully implemented. The enterprise architecture process is studied in another study [Sundberg, 2006], where many public organisations were found struggling with the integration of information and systems for inter-agency co-operation, confessing that what are considered to be simple tasks, e.g. specifying basic information such as citizens names and addresses, can prove to be complex and time-consuming when collaborating across agencies. Overall, the information architecture is seen as an important prerequisite, but is yet to be implemented. In most organisations, this is a future issue. Layne and Lee [2001] foresee that the full potential of IT can only be achieved by integrating the government services across walls between organisations.

Based on the analysis of previous research results and on the enterprise architecture focus, the following conceptual framework can be presented:

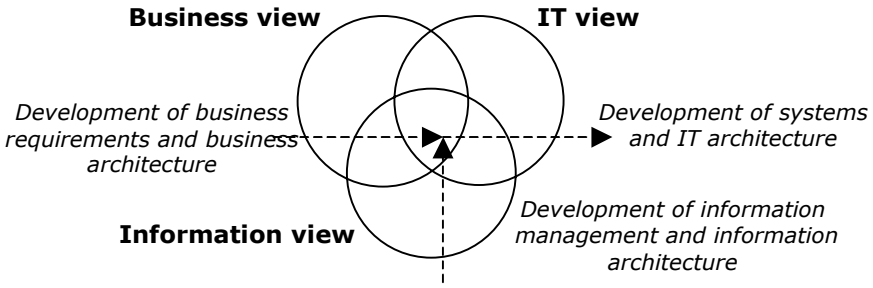

Figure 2 describes the development process cutting through the business and the IT organisation.

- The business organisation's major concern is, or should be, the gathering of ideas, specifying business requirements and establishing business architecture.
- The IT organisation develops and maintains systems with a certain architecture supporting both the development of a shared infrastructure and the development of specific services.
- The information architecture and information management perspectives complete the picture. Without structured, accessible, secure and trustworthy electronic information, business and systems would, in fact, be impossible to maintain and develop.

3.1 Information architecture, information management and recordkeeping

The focus of *information architecture* has during the last 10 years strongly shifted from an application and systems focus to more holistic and information resource focus [Evernden and Evernden, 2003]. However, Evernden and Evernden [2003] point out that the typical corporate budget for technology still is much greater than the budget for information structure and design and that the organisations need an information architecture and complementary technology working together.

"Third-generation information architecture inherently addresses this imbalance, redirecting information strategy toward managing information as a corporate resource [Evernden and Evernden, 2003: 95]."

Information management as an academic discipline or profession is, depending on context and situation, used and defined in different ways and levels of abstraction [eg. Maceviciute and Wilson, 2002]. Choo [2002], for example, defines information management as a cycle of processes that support the organisation's learning activities, including information needs, acquiring information, organising and storing information, and using information, and that managing records is an important part of that work. Middleton [2002] has exemplified the interrelation between records management and information management. Further, Goodman [1994] once stressed the management of records as an important part of the information management discipline.

One may argue that information management focuses on the current information needs of an organisation, including internal and external sources of information, the communication and the organisation of information systems, whereas records management/recordkeeping focuses on the documentation of business activities and transactions to make it possible that the authentic information and evidence about that business processes are accessible today and in the future. The ISO 15489 records management standard[2] states that effective management of records enables any organisation to:

- conduct business in an orderly, efficient and accountable manner,
- deliver services in a consistent and equitable manner,
- support and document policy formation and managerial decision making,
- provide consistency, continuity and productivity in management and administration,
- facilitate the effective performance of activities throughout an organisation

Accordingly, electronic recordkeeping forms an essential part important part of the managing the business critical information in any organisation. Corporate records form the core of information management, i.e. reliable, accessible, accurate, quality information. An effective corporate core guarantees accurate and up-to-date information, controlled versions, and corporate memory. The Australian Auditor General has for example stated the following about recordkeeping:

"When linked with information management more broadly, sound recordkeeping can assist organisations' business performance by: better informing decisions; appropriately exploiting corporate knowledge; supporting collaborative approaches; and not wasting resources, for example by unnecessary searches for information and/or re-doing work"
[Australian National Audit Office, 2003]

Amongst recordkeeping professionals these issues have also been recognised:

"Architecture developers need to be made aware that recordkeeping is an essential component of information management and that recordkeeping will require additional 'overhead' to ensure authentic and reliable records. Developing an architecture that enables and simplifies this will facilitate electronic recordkeeping."
[International Council on Archives, 2005]

[2] ISO 15489 Information and documentation –Records management Part 1 –General

However, in the digital environment the management and preservation of electronic records needs new theories, methods and knowledge. This has during the last fifteen years, or so, been recognised as a difficult task, both from technological, methodological, and theoretical perspectives, [e.g. Dollar, 1992; Bearman, 1994; Duranti, 2001; Cook, 1997; Upward, 2000; McKemmish, 2005]. It has been recognised that to be able to manage and preserve reliable, authentic and accessible electronic records produced and maintained in current e-business processes over time, a pro-active holistic approach is essential. If electronic records are not captured and prepared for long-term preservation in current business processes and systems, it will be very difficult and costly to subsequently preserve for long periods of time in the requisite trustworthy form. For example, if nothing is done during the development process of complex e-services solutions, not only the critical business information might be lost, but also the corporate memory of the organisation.

Scholars have even stated that the electronic environment makes it impossible to use theories and methodologies that were used in the paper-based world [e.g. Upward, 1997; 2000], asserting a change from object to process and from static to dynamic. In contrast to the well established life cycle view of managing records and archives, the *Records Continuum Model*, asserts that records and archives are always in the state of being created, i.e. records management is described as an iterative process that continues throughout the life of the record [Upward 1997; 2000; McKemmish, 2001; 2005]. One important driver behind the development of the model was the pro-active requirements that are present in the electronic records environment [Upward, 1997]. The model presents a structure of an active recordkeeping that go beyond time and space to capture and manage records for as long as they are required to satisfy business, legal, social and cultural needs:

"Adopting a pluralist view of recorded information, continuum thinking characterises records as a special genre of documents in terms of their intent and functionality. It emphasises their evidentiary, transactional and contextual nature, rejecting approaches to the definition of records, which focus on their subject content and informational value. Records continuum thinking takes a multi-dimensional view of the creation of documents in the context of social and organisational activity (proto record-astrace), their capture into records systems (record-as-evidence), organisation within the framework of a personal or corporate archive (record-as-personal/corporate memory), and pluralisation as collective archives (record-ascollective memory). In continuum terms, while a record's content and structure can be seen as fixed, in terms of its contextualisation, a record is "always in a process of becoming"
[McKemmish, 2001:335]

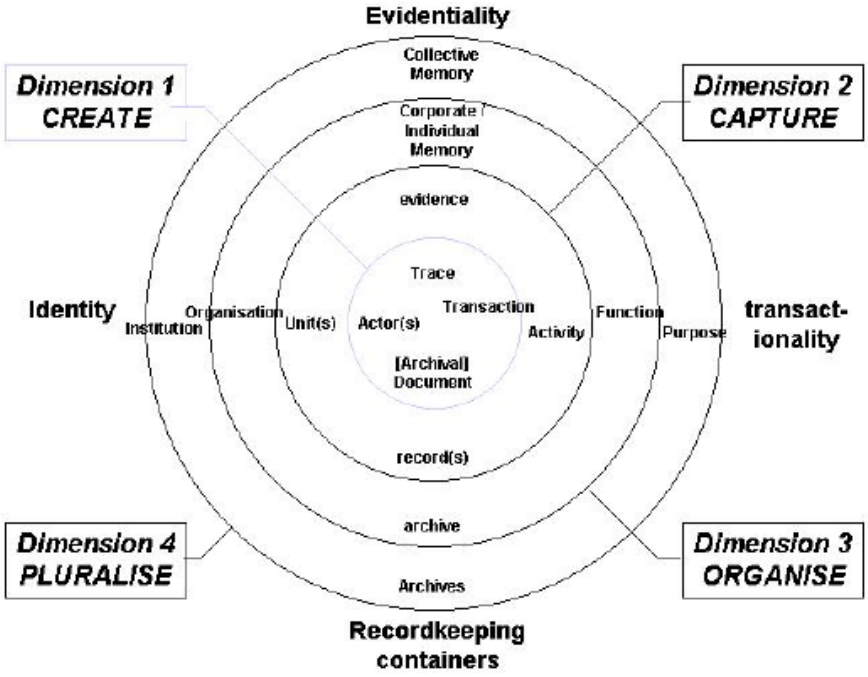

Figure 3 The Records Continuum Model [Upward, 2000]

The model thus implies a pro-active holistic approach for managing electronic records in all kinds of organisations. Consequently, in order to develop and manage modern e-services in any organisation, electronic recordkeeping has to be seen as a supporting process, and has to be an integrated part of the business process development as well as the systems development projects. Further, according to records continuum thinking, records management must be regarded as an iterative process, corresponding with systems and business development throughout the lifetime of the records. In addition to the records continuum, descriptions of other continua has also been developed, for example the Information Continuum Model and the Information Systems Continuum model [Upward, 2000]

From this brief discussion on the focus on information managing disciplines one can conclude that there exist interrelations between the content and aim of areas information architecture, information management and recordkeeping/records management. However, these interrelations have not been fully examined in research, and it is the intention of this paper to give empirical indications of this issue.

4. Analysis of Empirical Data

4.1 The Trinity Model

The figures presented during the interviews (see Figure 1 and 2) were generally accepted and recognised as a good description of the relations between the three parties: Business/Customer, Information and IT. All interviewed organisations have customer strategies and activities to integrate all the organisations' services in a variety of channels such as the Internet, telephone, ATMs and offices, in many cases crossing national borders. At the other end, IT departments have put tremendous efforts into "cleaning up the backyards", integrating legacy systems and silos into three-tier architectures.

In almost all interviews, it was stated that the integration of customer, information and IT was tighter, more so now than previously. When self-service

systems grow, the digital and physical world needs to be integrated. Information technology is on the daily agenda when making today's management decisions. A few interviewees expressed the opinion that integration suffers from ever-growing complex systems and environments, and introducing more intermediaries between the business and IT organisations pushes the parties further apart. However, during the interview it became clear that information architecture and information infrastructure issues, for example electronic recordkeeping, had not yet been entirely solved.

4.2 Information, Records and Infrastructure

All the interviewed organisations pointed out that the amount of electronic information is increasing and that access to the right information, in for example in a customer relation, is very crucial for business and business development.

The interviewees were, however, not explicitly talking about records. Almost all the interviewees instead made a division of their business related information into two categories: 1. structured information and 2. unstructured information. The structured information was described as the business information in databases, as for example in customer transactions, addresses, contracts or loans. The unstructured information was considered to be electronic and paper documents, reports, contracts and e-mail. One obvious reason behind this division may be that it is the IT departments who are working with these issues, not recordkeeping specialists. Further it may be due to the fact that the Swedish language does not have a good word for the English word *record*. In Swedish public agencies the term "allmän handling" is commonly used for records. This term is however closely connected with the freedom of information legalisation, and is therefore not commonly used outside the public sector.

However, data, documents or other types of information can all be seen as records [Reed, 2005: 102]. The essential characteristic of records is not their form or their medium, but that they are traces of business actions or transactions. To be able to serve as traces of business transactions, the content, form and context must be preserved. During all the interviews it became clear that the data, documents and information that were mentioned by the interviewees in one way or another were connected to transactions and business activity and thereby could be classified as records.

All the interviewed organisations considered electronic records and electronic archives as an important infrastructure issue, which is important for the development of business and the relation to the customer, as well as for the internal administration and knowledge resource. Hence the corporate memory in form of records was in focus and identified as an important factor for the organisation. However, during the interviews it was frequently pointed out that the building of information infrastructure and architecture, for example a corporate digital archive, has internal organisational difficulties, for example logical, economical and technical difficulties. Especially one organisation pointed out that although everyone is aware of the importance of information infrastructure and information architecture, it is difficult to decide which part of the organisation should take responsibility for it and who shall take the costs.

The awareness of the importance of information infrastructure in these organisations strengthens the theory that information management and especially recordkeeping is an important part of successful business development It became clear that the information infrastructure that was discussed during the interviews could be seen as the organisational memory, for example providing enabling the organisations with extensive views of customer transactions, internal processes and to be able to

learn from past mistakes. This corresponds to activities the third dimension in the records continuum model described above (Fig 3).

4.3 Status of Electronic Recordkeeping

As presented above, capturing, accessing and keeping records in an electronic environment has been identified as a complex and difficult matter. The studied organisations were well aware that efficient electronic recordkeeping requires new technical and organisational approaches. It was put forward in many interviews that old systems and routines are sometimes very expensive and difficult to integrate. For example, the difficulties of deciding what records that should be migrated into new systems were mentioned. Although the records, as identified above, are the organisational memory, the proactive approach that digital recordkeeping and the continuum model require seems to be lacking.

As outlined above, all the studied organisations pointed out electronic recordkeeping as an important strategic issue, which has to be developed further. Today, however, the organisations are lacking an overall recordkeeping programs and strategies. None of the organisations are using the ISO-standards for records management. One organisation, however, mentioned that the Open Archival Information System Model[3] seems to be a sound reference model for building their future digital archives.

It has been stressed that stovepiped systems and difficulties managing cross-functional boundaries are problems, which are hindering successful implementation of customer-centred systems and processes in public organisations [e.g. Sundberg and Sandberg, 2004a; 2004b]. The speed and strategy of the customer frontline changes have placed the focus on the processes and a possible need for a closer integration between IT and customer-close activities. The problems with stovepiped departments can be found in many large organisations, not only public organisations, but the initiatives in the customer frontlines and the degree to which e-services are used vary. Some, but not all of the problems with stovepiped systems had been solved in the interviewed organisations [Sundberg and Wallin, 2005b].

Many of the interviewed organisations, however, pointed out that electronic information and records were scattered out all over the organisation in different systems. The information is spread over different information systems, so that no integrated picture of the organisation's electronic records can be achieved. For example one interviewee pointed out that different information systems define a customer in different ways. Hence one can argue that the systems stovepipes have been solved to a certain point, but what could be called *information stovepipes* had not been solved. That is to say, even if system integration has been solved the technological difficulties of stovepipes, an integrated picture of the information is not fully achieved.

One reason for these information stovepipes can be the differentiation of records in the form of databases and documents, i.e. structured and unstructured information. Hence, although both these kinds of information are records, the databases, e-mail and document systems are creating information silos, which make it difficult to get a clear picture of the records in the organisations. The fact that many records are still managed in paper form in the organisations makes it even more difficult for total

[3] *Reference Model for an Open Archival Information System (OAIS)* (2002) Consultative Committee for Space Data Systems CCSDS 650.0-B-1 Blue Book.

integration of records. One other reason for this problem was exemplified by one interviewee who stressed that "there has been too much focus on the applications, and too little focus on the information itself", a view that corresponds to the modern information architecture theories and practice [cf. Evernden and Evernden, 2003].

According to the interviews none of the organisations had records managers dealing with current electronic records. Two organisations have recently created a group of what they call *information architects*, who are, for example, currently working on establishing an information map to be able to appraise which records are to be kept and how to manage that process. This again stresses the need to focus not only on applications, but on the information itself.

One important part in modern recordkeeping theory is to be able to reconstruct what has happened, for example to be able to trace certain activities and transactions in a customer relation. One organisation pointed out that traceability of records today only can be made internally in the different systems. This makes it makes it very difficult to get a complete picture over a customer's different business with the organisation. In relation to this to this, the lack of common metadata models for the records further makes it difficult to access and understand different kinds of records from different sources and systems.

Although all organisations agreed that pro-activity is important when managing electronic records, it became clear that this sometimes is very difficult in an old systems environment For example, the large amount of different systems makes it difficult to get an integrated information view of customers' activities and documents. Further, it was exemplified by one interviewee that historical corporate knowledge, for example about a contract process, is very difficult to extract from the information systems today.

In order to secure the access to electronic records and the accountability of organisations, it is necessary to develop systems that capture the information with metadata that is suitable for the information flow in current business processes [e.g. Bearman, 1994; Hofman, 2000; ISO/TS 23081]. With appropriately designed and captured metadata, organisations can manage records so that the accessibility, integrity, authenticity and context can be preserved [ISO 23081; McKemmish et al., 1998; Hofman 2000]. The interviewed organisations all agreed that metadata is very important for several reasons. Some of the organisations have started to discuss the construction of common metadata models for their current and future digital archives.

Electronic mail has been used since the 1970s. However, it is during the last 12 years or so that it has been adopted in business organisations. All the interviewed organisations pointed out that managing the internal e-mails is a problem. None of the interviewed organisations seem to have any policies for internal records management for e-mail. Hence important organisational memory is endangered or lost.

4.4 Drivers for Development of Recordkeeping

According to the interviews, the overall driver for developing sound and efficient information management/electronic recordkeeping strategies seems to be "access to the right information at the right time". In order to increase efficiency, it was stressed that the aim is to make and manage all information in digital form, which is not the case today, partly due to legal requirements. Further, one interviewee pointed out that because information can be controlled in digital systems in a quite sophisticated manner, the risk factor decreases if all information and records are managed in electronic form.

The focus on economy and the financial situation is pointed out by most of the interviewees as a factor that not only controls their organisations, but also has great effect on information technology and related processes such as the development of efficient electronic recordkeeping. In many of the studied organisations top management has put an absolute limit on the costs. In reality, with increasing salaries and increasing costs of IT-related services, this means that there is less and less for the business organisation to invest in IT or, alternatively, "doing more for less", with the attendant impact on quality. One interviewee argued that if the records are managed in a less complex environment, the costs of support will decrease. If the complexity of managing information is lower and handled by a smaller number of systems the costs of maintaining systems decreases. Further, it was stated that there is a will to put out all customer records and transactions in the Internet bank. If all customer records (data and documents) were integrated and accessible from the e-bank, the costs of managing paper records would decrease considerably, e.g. printing costs.

All organisations pointed out that an integrated view of customer records and transactions would reduce lead times, and thereby increase productivity. It was pointed out that the customer meeting must be "as pro-active as possible". For example all possible records about the customer must be available for the seller in a telephone confrontation with a customer. One interviewee pointed out that if the lead times are cut by just a few seconds for each customer contact, productivity in the whole organisation would in fact increase, and agreed that efficient recordkeeping could in fact help this.

In the public sector the management of records and archives is strongly regulated by legal issues. The freedom of information act and the archival legislation in Sweden strongly regulate the management of records and archives in all governmental agencies. In the private sector, however, this has not been the case. However, during the interviews it became evident that legal issues are one important driver for the development of efficient records management, and was exemplified several times. For example, the Swedish legalisation concerning documenting economic counselling was presented as an important driver. Further the Basel II legalisation, which requires, for example, that banks manage loan risks in a proper way, also affects the documentation of business. The Sarbanes-Oxley Act and its future possible EU counterpart were frequently mentioned drivers for development of a sound internal recordkeeping policy and strategy.

4.5 Developing Projects and Strategies

All the interviewed organisations pointed out that they are undertaking large projects dealing with electronic recordkeeping. One organisation stressed that they are now developing new areas within the IT-department which will have responsibility for managing and developing infrastructure, and that electronic recordkeeping is an important part of that development. One other organisation pointed out that they had recently begun to implement a new electronic document and record managing system.

According to records continuum thinking, recordkeeping and metadata management must be done in a pro-active way. However according to the interviews in the present study this has not been the case. Projects dealing with digital archives and metadata schemas have just recently begun to be in focus. The reason behind this development is that the information management issues have been identified as important economic factor only in recent years.

One organisation specifically emphasised that they now are building a common standardized technical platform for keeping digital archives. The same organisation

was also analysing and appraising their records and data in old database systems to be able to decide if these records should be migrated into new systems. It was noted that some of these systems contained about 20 terabyte, which if migrated to new systems would cost a lot of money.

One organisation was currently working with enterprise architecture, including enterprise information architecture, enterprise solution architecture and enterprise technical solutions, an approach which thus corresponds well with the trinity model approach (fig 2). It was further recognised amongst the interviewed organisations that the development and management of electronic recordkeeping processes and systems is to be seen as an iterative process, which thus corresponds well with records continuum thinking. In another study [Sundberg, 2006], eight organisations were interviewed about their process of establishing enterprise architectures. While the processes are still immature, they point out the importance of the architectures but at the same time see the lure of an IT-biased endeavour. The major pro-activity resides in the IT organisations. While the enterprise architecture is, or should be, an interest for the enterprise, it is, however, in most cases an issue that has originated and is pushed hard by the IT organisations.

5. Conclusions

Given the fact that all the studied organisations were currently working with electronic recordkeeping in one way or another and that this was connected to their development of information architecture and infrastructure, one can draw the conclusion that electronic recordkeeping is seen as an important strategic and economic issue for the development of a sound information architecture and infrastructure and for the development of business efficiency. This confirms not only that information architecture and infrastructure is an important task, but also that the management of electronic records is an important part of it.

The fact that all the organisations agreed that the “trinity model” is a sound way for efficient business, information and systems architecture confirms our assumptions in previous studies. It is also interesting to notice that some of the organisations are working with the enterprise architecture framework, in which information architecture and recordkeeping issues are important.

The records continuum model (see figure 3) focuses on how data, documents and information as records are created, captured into a recordkeeping system, and become part of the organisation’s infrastructure and corporative memory, which requires pro-active and continuous recordkeeping activities. In all the interviewed organisations digital archives are seen as an important strategic issue, thus alluding to the importance of corporate memory, the third and fourth dimensions in the records continuum model.

According to this study the dimensions one and two in the records continuum model appear to be functioning up to a certain point. Customer transactions and documents are captured in databases and document systems. However, there seems to be a lack in recordkeeping strategies and metadata frameworks. The lack of a common metadata framework makes it difficult for the organisation to operate in dimension three in the records continuum model, i.e. to get a collected view of all transactions and documents. Further, the division of data and documents in different systems makes the development of an organisational memory or archive accessible across functions and business areas difficult within the organisations.

The lack of overall recordkeeping policy and strategy makes this even more difficult for the organisations to develop sound information architecture. The

enterprise architecture provides an overall and comprehensive view for efficient development and management, and the information architecture is an important part of this overall enterprise architecture, and is one of the most important issues for the future.

Since the studied organisations have begun to focus on digital archives in relation to information infrastructure it is possible that access to the right records at the right time in any part of the organisation may be possible. In order to reach this level of efficiency it is however important to use models and standards which are available for recordkeeping issues.

The present study raises new questions. How is it possible to integrate the requirements and processes from the Business view, IT view and Information view? Further, present theories and methods seem not sufficient for developing sound information architecture in any organisation, and thus need to be investigated further. This study thus has indicated that recordkeeping issues are an important part of the information architecture and thereby also an important factor in the enterprise architecture issues of the studied organisations. However it is our opinion that the connection and interrelation between electronic recordkeeping, information management, information and enterprise architecture needs to be investigated further.

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