Enterprise 2.0, Accountability and the necessity for Digital Archiving

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Abstract
In the last decade, organizations have re-engineered their business processes and started using standard software solutions. Integration of structured data in relational databases has improved documentation of business transactions and increased data quality. But almost 90% of the information cannot be integrated in relational data bases. This amount of 'unstructured' information is exploding within the Enterprise 2.0. The use of social media tools to enhance collaboration, creates corporate blogs, wikis, forums, and other types of unstructured information. Structured and unstructured information are records, meant and used as evidence for policies, decisions, products, actions and transactions. Most stakeholders are making increasing demands for the trustworthiness of records for accountability reasons. In this age of evolving social media use, organizational chains, inter-organizational data warehouses and cloud computing, it is crucial for the Enterprise 2.0. that its policies, decisions, products, actions and transactions can be reliably reconstructed in context. Digital Archiving is a necessity for the Enterprise 2.0.: the reconstruction of the past depends on records and their meta data. Blogs, wikis, forums, etc., used for collaboration within the business processes of the organization, need to be documented for reconstruction in the future. Digital Archiving is a combination of three mechanisms: enterprise records management, organizational memory and records auditing. These mechanisms ensure that a digitized organization as the Enterprise 2.0. has a documented understanding of its past. In that way, it improves organizational accountability.

Introduction
In the 1990s organizations re-engineered their business processes and exchanged their standalone applications for more standard, integrated solutions. The integration of structured data in relational databases improved the documentation of policies, decisions, products, actions and transactions. It, also, increased the quality of structured data. But almost 90% of the information that organizations manage is unstructured, and cannot easily be integrated into traditional databases. This amount of unstructured information is not likely to diminish within the Enterprise 2.0., where Web 2.0. technologies streamline business processes for enhancing collaboration, create corporate blogs, wikis, etc. (McAfee, 2006). Social media tools generate large amounts of unstructured information. The storage, dissemination and processing of this information require complex information and communication technology (ICT) systems. In this changing environment, accountability becomes a hot item.

Accountability and the reconstruction of the past
Accountability is the acknowledgement of responsibility for policies, decisions, products, actions and transactions, and the obligation to report and be answerable for resulting consequences. In case of an organization (as it is with the Enterprise 2.0), we talk about 'organizational

accountability'. A designated forum (like shareholders, courts, etc.) will ask an organization to provide insight in its effectiveness and the lawfulness or unlawfulness of its actions and passes judgement on its conduct (Bovens, 2006). Barata and Cain (2001) prove that accountability without trusted information as evidence of the past is impossible. The Enterprise 2.0 needs an accountability function to safeguard that evidence. ICT systems have to be implemented to structure, organize, process and retain the information that is used within organizational processes (records), as well as all the information that is used to document how actions and transactions have been performed (meta data). Ensuring information quality is a daunting task, because information often is inaccessible, unavailable, incomplete, inconsistent, irrelevant, untimely, and/or not understandable. Its provenance and contextual environment are unknown (Epler, 2006). In addition, ICT creates technological obsolescence, because records and meta data have a longer lifespan than the ICT configurations in which they are created or managed (Boudrez, Dekeyser, & Dumortier 2005).

Research Question

Literature on organization, information and archival science suggests that there are mechanisms that aim at a reconstruction of the past and that try to realize trusted records (Meijer, 2000; Barata & Cain, 2001; Toebak, 2010). Those, separately mentioned, mechanisms are integrated in Digital Archiving (DA): enterprise records management (ERM), organizational memory (OM) and records auditing (RA). In this paper, I analyze how DA contributes to the realization of trusted records and to the reconstruction of the past, to find out whether my hypothesis that DA improves organizational accountability, is correct.

Digital Archiving

Enterprise records management

Records are sets of related data with set boundaries and with standardized form and structure, *meant* to be evidence, and (thus) immutable. They can be text, (moving) images, sound, database records, or combinations thereof. They are critical for business process performance (Toebak, 2010). ERM organizes the 'records value chain', the chain that ensures that records are used in business processes to improve performance. This chain includes all records processes, from creation or receipt to capture, storage, processing, distribution, structuring, publication, use, appraisal, selection, disposal, retention, security, and preservation. ERM focuses on records processes and their influence on business processes, the reconstruction of the organizational past, and the quality requirements of records (Bussel & Ector, 2009). Records only have meaning within a context (Duranti, 1997). Context refers to (the knowledge of) the juridical, organizational, procedural and informational environment of the policies, decisions, products, actions or transactions for which the records were generated. The context of records captures and documents a social situation in meta data to allow a reconstruction of the past.

In this age of organizational chains, inter-organizational data warehouses, cloud computing, and computer mediated exchange, it is crucial that the organizational past can be reliably reconstructed in context. In information science, much work has been done on data quality. This work is focused on structured information. The focus in ERM is exclusively on the quality requirements of records, their meta data and the 'records value chain'. For *records and their meta data*, four quality requirements are recognized: *integrity, authenticity, controllability* and *historicity*. Those requirements realize the fixity of records and enable users to trust them and to use them as evidence. The *'records value chain'* ensures that records are correct and complete in spite of all necessary handling. Its quality requirements are identical to those for business processes: *reliable time of delivery, effectiveness, efficiency, product quality*, *alignment of needs*, *product management*, and *compliance* (Bussel & Ector, 2009).

In ERM, it is emphasized that the failure to realize those quality requirements is a threat to the possibilities to reliably reconstruct the past. Because of that, the organizational accountability function can not be successful. In managing the 'records value chain', ERM ensures that records can be trusted and are meeting the quality requirements necessary for accountability: integrity, authenticity, controllability and historicity. That way, records can be used as evidence.

Organizational Memory
Organizations have frames of references, shared beliefs, values, routines, and artefacts that reflect the way they have handled their past experiences. OM is the *'stored information from an organization's history that can be brought to bear on present decisions'* (Walsh & Ungson, 1991, p. 61). It is a concept that defines storage, representation and sharing of organizational knowledge, culture, power and practices. Walsh and Ungson (1991) describe the OM as an infrastructure with five 'retention bins', that embody prior learning: people, culture, processes, structure, and workplace. Artefacts, like machines, and ICT systems, can also be recognized as such (Moorman & Miner, 1997). These 'bins' have different limitations and opportunities for storing and retaining memory, and differ in speed, reliability, susceptibility to degeneration and availability. They are influencing the possibilities for reconstructing the past.

OM research stresses the importance of a reliable and durable ICT infrastructure, first, to enable the continuous storage and manipulation of knowledge of 'good' quality and, secondly, to stimulate 'organizational learning'. It is a collaborative environment where people can query structured and unstructured information in context to retrieve and preserve 'organizational knowledge'. It is clear that records and their meta data are recorded, stored, secured and maintained within the ICT infrastructure of the OM. This infrastructure needs to safeguard the quality requirements of information over time, but its features are fragile and easily influenced. There are security and durability challenges (Bearman, 2006), which have to be overcome to realize access, retrieval and preservation over time and to allow reconstruction of the past.

In OM-literature, durable, continuous and reliable infrastructures are almost considered to be self-evident, which is incorrect. 'Memories' are used to reconstruct past policies, decisions, products, actions and transactions. Although accountability is not mentioned as an aim of OM, it can be the result of using knowledge to reconstruct past happenings. In general, OM provides an ICT infrastructure to (indefinitely) store information and to keep it accessible.

Records Auditing
RA is a specialized part of internal (or operational) auditing. It helps accomplish organizational objectives by bringing a systematic approach to evaluate and improve the effectiveness and efficiency of business processes (Porter, 2009). It is a process of planned and logical steps to assess [1] the management and the quality requirements of records and 'records value chain', [2] the functioning of ERM, and [3] the ICT infrastructure that realizes the OM. RA assesses if the records in the OM are accessible, understandable and documented, for only than fact finding and reconstruction of past happenings are possible. It checks for deviations in records, their meta data and the 'records value chain' that result from abnormalities in the execution of business processes and / or the OM's ICT infrastructure (Bussel, 2011).

In RA ERM and OM are audited to assess the possibility to reliably reconstruct past organizational policies, decisions, products, actions and transactions and to offer consultations on adaptations and alterations for improving ERM and OM. RA is a mechanism to ascertain organizations that the available means for reconstructions are in order and ready to be used.

Conclusion

In this paper, I analyzed the contribution of DA to the realization of trusted records and to the reconstruction of the past within the Enterprise 2.0. It is my conclusion that its mechanisms [1] safeguard the 'records value chain', [2] ensure that records and their meta data meet the designated quality requirements, [3] realize a reliable use of records in business processes as source of trusted information, [4] provide an ICT infrastructure to (indefinitely) store records and keep them accessible, [5] audit periodically the possibility to reliably reconstruct past policies, decisions, products, actions and transactions. The mechanisms ERM and OM have a *direct* contribution to the realization of trusted information. RA's contribution is *indirect*. DA assists organizations in reconstructing the past. It can be used for improving accountability. Combining the process-oriented emphasis of ERM with the infrastructure-oriented emphasis of OM will have positive effects on maintaining trusted records and on reconstructing the past over time. RA will ensure that ERM and OM keep doing what they have to do: creating and maintaining trusted records, against all odds. Digital Archiving, therefore, is an absolute necessity for the Enterprise 2.0. in realizing organizational accountability.

References

Barata, K., & Cain, P. (2001). Information, not technology, is essential to accountability: electronic records and public-sector financial management. *The Information Society,* 17, 247-258.

Bearman, D. (2006). Moments of risk. Identifying threats to electronic records. *Archivaria,* 62 (Fall) 15-46.

Boudrez, F., Dekeyser, H., & Dumortier, J. (2005). *Digital Archiving. The new challenge.* Mont Saint Guibert: IRIS

Bovens, M. (2006). Analysing and assessing public accountability. A conceptual framework. Retrieved November 19, 2011 from: http://www.connex-network.org/eurogov/.../egp-connex-C-06-01.pdf.

Bussel, G.J. van (2011). Accountability and the reconstruction of the past. In W. Castelnova & W., Ferrari, E. (Eds.), *Proceedings of the 5th European Conference of Information Management and Evaluation* (ECIME 2011) (pp. 483-490). Como: Academic Publishing Limited.

Bussel, G.J. van, & Ector, F.F.M. (2009). *Op zoek naar de herinnering. Verantwoordingssystemen, content-intensieve organisaties en performance.* Helmond: VBDS.

Duranti, L. (1997), The preservation of the integrity of electronic records. In *Proceedings of the DLM-Forum on electronic records. Brussels, 18-20 December 1996* (DLM 1996) (pp. 60-65). Luxemburg: EU.

Epler, M.J. (2006). *Managing information quality. Increasing the value of information in knowledge-intensive products and processes.* Berlin-Heidelberg: Springer. 3rd edition.

McAfee, A. (2006). Enterprise 2.0: the dawn of emergent collaboration. *MIT Sloan Management Review*, 47 (3), 21-28.

Meijer, A. (2000). Anticipating accountability processes. *Archives & Manuscripts,* 28 (1), 52-63.

Moorman, C., & Miner, A.S. (1997). The impact of organizational memory on new product performance and creativity. *Journal of marketing research,* 34 (1), 91-106.

Porter, B. (2009). The audit trinity. The key to securing corporate accountability.*Managerial Auditing Journal,* 24 (2), 156-182.

Toebak, P.M. (2010). *Records Management. Gestaltung und Umsetzung.* Baden: Hier + Jetzt.

Walsh, J.P., & Ungson, G.R. (1991). Organizational memory. *The Academy of Management Review,* 16 (1), 57-91.