Review Article

Applications of the Pittsburgh Functional Requirements for Evidence in Recordkeeping: A Review of Testing and Implementation

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One sign of the maturity of a project is the convening of advisers to review its accomplishments and discuss what to do next. The principal investigators for the Pittsburgh Project on Functional Requirements for Evidence in Recordkeeping held such a meeting on February 1 and 2, 1996[1]. The Experts Meeting provided an opportunity to evaluate the work of the project as it entered its final year of funding; to share experiences among archivists who were using the functional requirements in research, development, and systems design projects; and to suggest areas where the requirements could be refined, modified, or expanded.

The initial goals of the Pittsburgh Project were to study recordkeeping functional requirements for electronic information systems, identify variables in organisations that affect the degree to which archival functional requirements can be adopted, examine the technical capabilities of software products to satisfy archival requirements, investigate other means to satisfy the functional requirements such as policy and standards, and assess the effectiveness of technology and policy strategies to ensure that archival interests can be met. The Pittsburgh functional requirements and other contributions of the project have been described and evaluated extensively

in the archival literature. Therefore, the purpose of this brief review is to discuss various ways in which organisations are using the functional requirements and to suggest some areas for improvement and further implementation. Many of the applications reviewed were discussed at the February 1996 Experts Meeting, but others have been launched during the past year.

Projects have used the functional requirements variously to analyse existing systems, to assess whether proposed systems satisfy recordkeeping requirements, to influence the design of new systems, as the basis for policies and standards, and in teaching. Several projects have used the functional requirements to analyze the recordkeeping capabilities of existing or proposed systems. Richard Barry, as a consultant to the World Bank, used the functional requirements to determine whether a proposed document management system for the Bank's operational lending project records satisfied archival and records management requirements. At Indiana University, project directors Philip Bantin and Gerald Bernbom, are using the functional requirements in a detailed assessment of the University's financial and student records systems. After a detailed assessment of business functions and the identification of transactions, the project staff determine the extent to which existing systems are capturing and retaining evidence of transactions. Philip Eppard, a consultant to a project at the State University of New York, Office of Archives and Records Management, also used the functional requirements as an assessment tool for SUNY's Human Resources Management System which is being redesigned. Because these information systems are being evaluated against a common set of requirements we are beginning to generate comparable data on the deficiencies of widely implemented systems to support electronic recordkeeping.

Another application of the functional requirements is in the design of new systems. The most extensive development of this sort is in the City of Philadelphia where Mark Giguere, the electronic records manager for a project funded by the US National Historical Publications and Records Commission (NHPRC), has worked with the City's Office of Information Technology to incorporate the functional requirements into a Request for Proposal for a new Human Resources Information System. The metadata requirements are included in the specifications for the system. The Indiana project is not as far along with system design and implementation, although the applicability of the functional requirements to system design/redesign is being considered there as well. Both projects concluded that it is not necessary or feasible to satisfy the complete set of functional requirements or to capture all of the metadata proposed by the Pittsburgh Project. Each system design demands extensive detailed analysis of transactions and an assessment of the documentation requirements and risk associated with each transaction.

An interesting project that will extend the functional requirements into a more general systems design methodology is the 'Models for Action' project at the Centre for Technology in Government, State University of New York at Albany[2]. This project, which began in March 1996, will integrate recent practical and theoretical work in electronic records management with network-oriented systems development methodologies and business process improvement practices. The project will study and propose ways to include records management requirements in application development plans. The project has already identified elements that must be in place to ensure that records are created, maintained, and preserved to support operational, informational and evidential needs of business operations. The project's functional requirements are drawn from the Pittsburgh Project and are also informed by the work on 'Preservation of the Integrity of Electronic Records' at the University of British Columbia, the US Department of Defense 'Records Management Application Functional Baseline Requirements', and the US National Archives guidelines for electronic recordkeeping. One product of the electronic records project at the Vermont State Archives was a decision tree that could be used to determine what mandates, policies, requirements, standards, and procedures are needed for specific systems. The decision tree can be applied against proposed or existing systems as a means to implement systems that satisfy recordkeeping requirements. Tools and methodologies such as these represent important steps toward the development of standard system analysis and design methodologies that can incorporate generic recordkeeping requirements and address the specific needs for documenting particular business functions. Along similar lines, the functional requirements have been used in the development of standards and institutional policies, including the Australian Records Management Standard, AS 4390.

One unanticipated use of the functional requirements is their role in teaching and professional development. Staff of the Pittsburgh Project have responded to numerous requests for presentations and workshops on the functional requirements and individuals who have used the functional requirements are asked frequently to speak about their experiences. I use the functional requirements in the graduate course I teach on electronic records management, not as 'the solution' to electronic recordkeeping, but as a conceptual framework and point of departure for evaluating policy, design, implementation and standards for electronic recordkeeping systems. The functional requirements offer a methodology for analysing and designing systems that we can begin to convey to students and practitioners. This represents a significant advance over previous approaches to teaching which tended to emphasise problems rather than possible solutions, procedures for data archiving, and reproduction of institutional practices rather than application and customisation of general models and methods.

Efforts to test and implement the functional requirements for recordkeeping have also exposed some of their deficiencies and identified areas for further development and research. A common experience of many of the implementors has been difficulty sorting through the functional requirements and identifying those that are considered essential for the particular recordkeeping system at hand. Because the functional requirements were defined before the project staff discovered the concept of 'warrant' implementors often work from the functional requirements to identify warrant that can be used to justify particular requirements, rather than beginning with the warrant and then identifying the necessary functional requirements. At this point, the warrant for recordkeeping, compiled by the project staff and analysed in depth by Wendy Duff in her dissertation research, is incomplete because it focuses primarily on laws, regulations, standards, and best practices that are used in the United States, and it does not yet include warrant from a broad range of business sectors and professional domains[3]. Expanding the warrant in both depth and breadth would be a massive undertaking, but a comprehensive compilation of warrant would provide recordkeepers and system designers with an extremely valuable tool. More work is also needed to translate the functional requirements and metadata specifications into methodologies that can be used for assessment of existing systems, in systems design, for risk analysis, and as part of larger process redesign or re-engineering efforts.

The Experts Meeting and subsequent implementation projects demonstrate that we will learn as much about the applicability and shortcomings of the Pittsburgh model through concerted efforts at implementation as from further theoretic discussions of the model. The recordkeeping community needs to develop mechanisms to report on implementations and evaluate the results so that we can continue to expand, modify and refine the Pittsburgh model as the formal project comes to a close.

Endnotes

1. The Pittsburgh Project refers to a project conducted at the University of Pittsburgh, School of Information Sciences, called 'Variables in the Satisfaction of Archival Requirements for Electronic Records Management', Richard J. Cox and James Williams, principal investigators; David Bearman, project consultant. The three-year project was funded by a grant from the National Historical Publications and Records Commission (Grant #93-030). Comprehensive reports on the project, its products and the Experts Meeting in February 1996 are available from the Project's web site: www.lis.pitt.edu/~nhprc/. The web site provides links to information about many of the implementation projects discussed in this review.
2. Information about this project is available from the Centre for Technology in Government web site: www.ctg.albany.edu.
3. Wendy Duff, 'The Influence of Warrant on the Acceptance and Credibility of the Functional Requirements for Recordkeeping', Ph.D. dissertation, University of Pittsburgh, December 1996.