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Business Process Management In Academic Information Services

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Abstract

This paper investigates literature regarding the development of process models within the context of academic libraries. This is an on-going doctoral study and provides an indication of research-in-progress towards design of business models within the library environment. Brief historical analysis of operations research in this context and the development of outcomes-based activity evaluation is offered. The limited literature regarding the emergence of a more systematic view of academic library operations and of other university functions is compared to sources on process modelling in the industrial sector and the potential application of Role Activity Diagrams (RAD). The selection of these tools is explained from amongst the wide range of alternatives available in other sectors.

Keywords: Process Modelling, Academic Libraries, Role Activity
BUSINESS PROCESS MANAGEMENT IN ACADEMIC INFORMATION SERVICES

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Abstract

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1 Introduction

One of the founding fathers of library science, S. R. Ranganathan, proposed five laws of library science that may still be applied in essence to library operations today (Ranganathan, 1931). The fifth law, that the library is “a growing organism” emphasises the need to plan and design for the future. Academic libraries serve many different groups of users, and may be considered as systems of integrated activities and business processes that collaborate together to achieve organisational goals (Daneshgar and Parirokh, 2007).

In particular, academic libraries along with their academic institutions play a major role in directing the cultural, political, social, scientific and technological development of a nation (Chaturvedi, 1994). In the UK, the Follett report stressed the need for changed attitudes, changes in the ways of working among library and computing services in universities (Corrall, 1995). In a discussion of what academic libraries do – and should do, Akeroyd (2001) considers the library as a collection of resources as an organisational for information and services to provide it. Within each
sphere of activity, there are functions, such as the eight principal functions necessary for effective collection management suggested by Cogswell (1987). Much of the literature on academic library development during 1999-2006 stresses the need for academic libraries to re-orient themselves in terms of outcomes and to persuade the existing staff in merged existing library and computing services that change was necessary and inevitable. Academic libraries have been encouraged to complete the migration from print to electronic collections, to reposition and to focus on curation rather than collection (Lewis, 2007). The role of “the librarian” has changed, professional role boundaries are less clear (Wilson and Halpin, 2006) and organisational models and culture of working have changed (Reid and Foster, 2000).

Very little of the recent research on academic library operations examines how and why certain processes and functions are conducted, or systematic models as to how the academic library and information service links to essential processes and roles. This paper is based on the literature review for doctoral research on the contribution of business process modelling to a better understanding of academic library operations. The objectives of the paper are to examine the history of operations and business process analysis in academic libraries and to discuss lessons learned.

2 Methods

The literature search strategy was iterative, and complicated by the changes in terminology and fashions in research. A search on LISA (Library and Information Science Abstracts) identified literature from 1979 onwards with articles that examined the evaluation or analysis or modelling that might be used to examine functions, processes or services in academic libraries. ABI/Inform was another database used to identify articles from the business and management perspective. References within articles were followed up to help identify reports, relevant policy documents, and books. To identify further research on business process modelling techniques, Index to Theses was searched.
3 Findings

For this paper, the literature retrieved was sorted into categories to help answer, for example, questions on the history of business process research in academic libraries – what type of questions were popular at particular times? The literature could be divided in categories for early operations research, growth of interest in outcomes-based evaluation, and (since about 2005) the perceived need for more systematic approaches to examining library functions. The remaining category was application of business process modelling techniques, and similar methods that query organisational activities in academic environments.

3.1 Early operations research

In a history of operations research in academic libraries (Rau, 2007), an argument is made that the skills and knowledge developed by operations research practitioners in wartime were attractive to the research libraries that were beginning to drown in data with the expansion of scientific research after 1945. Control and management of the information was a concern of the scientists as well as the library managers and more scientific approaches to library operations developed. Rau (2007) discusses three 1960s – 1970s examples that included use of Poisson modelling, queuing theory, Monte Carlo and other simulation techniques. In the UK, Donald Urquhart, the creator of the National Lending Library for Science and Technology (now the British Library Document Supply Centre), used probability techniques to help manage the collections that served research libraries in industry and the universities (Bensman, 2005). Interest in such techniques was strong in the 1970s and early 1980s (Rowley and Rowley, 1981) but little has been published since (but see Shim, 2003). There has been a shift of emphasis towards bibliometric studies, among the researchers. Rau (2007) suggests that operations research provided a basis for the large scale library computerisation projects of the 1980s and 1990s. However, most of the emphasis in the development of library management systems was on how the technology would work, developing the information processing, machine readable cataloguing and co-operative approaches to cataloguing and automation. With the development of turnkey systems in the 1980s, little expertise was required by library staff (Tedd, 2007).
3.2 Outcomes-based evaluation of activity in academic libraries

In the late 1970s other approaches to examining the activities of a library were developing. The book by Lancaster and Cleverdon (1977), based on a conference in 1975, presaged the growing emphasis on outcomes of library use and a greater interest in what the users did with the information obtained. The Joint Information Systems Committee of the Funding Councils funded many electronic library initiatives under the e-Lib programme (Law, 1997). The rapid changes in the UK student population in the 1990s and beyond saw more universities and the growth of higher education within further education colleges. Sometimes the library changed its title to the ‘learning resource centre’. Greater investments in electronic information services meant that students had to be encouraged to use the newer electronic information services and there was a shift in emphasis towards user training (Hepworth, 2000) and information literacy programmes (Owusu-Ansah, 2001) and their evaluation (e.g. for the UK, by Streatfield and Markless, 2008). The performance of academic libraries was frequently assessed in terms of service quality expectations (LibQUAL™ framework). The emphasis is on outcomes rather than internal processes. The balanced scorecard framework for performance assessment, which does include a criterion for internal processes, has been used much less – an example from Finland uses the ‘internal processes’ to assess the effectiveness of co-operation activities in a university library consortium (Kettunen, 2007). Town (2004) suggests that the processes of interest for a balanced scorecard for internal processes for the academic electronic environment should include the project management perspective, for handling new services. The absence of discussion of processes in academic libraries from the peer-reviewed journals does not mean that there are no concerns – occasional mentions in conference literature (e.g. Webb and Galloway, 2000) suggest that there may be some more internal reports (e.g. Stanford University’s approach to business process redesign, Stanford University, 2005)
3.3 Systematic approaches to examining academic library operations

Recent evidence is that there is an apparent lack of interest in process analysis within academic libraries (Lakos, 2007), since analysis of electronic journal usage statistics, for example, can be time consuming and the task is more complex than it might appear (Conyers and Dalton, 2007).

More systematic approaches to examining library operations may be emerging. Unlike the earlier operations research, these explore the human roles and responsibilities in far more depth. An early indicator of this trend (Lewis, 2001) examined the role of the electronic resources librarian, with some indication of the workflows and how some of the responsibilities fitted together. Similarly, Ehrlich and Cash (1999) conducted an in-depth examination of the work of information intermediaries and how their support tools were used in their work. Youngman (2006) states that, "process flow analysis is a technique commonly used in industry, but, when used as a management tool in academic libraries, it can enhance the effectiveness of existing resources and justify additional resources".

Guise (2005) suggests a systematic approach to assessing service models for reference and instruction programmes. Kennedy (2005) examined how digitisation affected workload, staffing and outsourcing in preservation. McKiernan and Ohler (2006) also discuss some of the changes to traditional technical services, and workflows are mentioned (but not discussed or charted). Similarly Schwartzkopf (2007) reports a presentation by Amanda Yesilbas on changes to the workflow for e-journal check-in, but with only an outline description of the process. Capture of organisational learning and knowledge sharing requirements are proposed by Daneshgar and Parirokh (2007).

3.4 Applications of process analysis in other university functions

Most business process modelling has focused on commercial organisations and publication of modelling work within universities. Ould (2005) gives some examples in a book on business process modelling using the Role Activity Diagram (RAD) and Process Architecture Diagram approach. Another recent example of the use of a RAD approach is a demonstration of the process of selection, enrolment and registration for research students and a comparison with a Unified Modelling Language (UML)
approach. This indicates the superiority of the RAD approach in notations for goals, process activation, data flows, interaction between roles and pre-existing roles (Odeh et al. 2003).

7.0 Conclusions

It has been tempting to conclude that, “Business Process Modelling comes to the rescue” (Havey, 2005) and that identification of task, role and knowledge artefacts will enable collaboration, “confirmed by the library manager as part of the development and validation processes” in academic libraries (Daneshgar and Parirokh, 2007). However, the comparison of models by Lin shows that gaps have existed in previous methods (Lin et al., 2002). The way ahead for the current study will be based on RAD (and associated Riva data capture, Ould, 2005) since it offers benefits drawn from large-scale studies, capable of being applied and analysed within small cases. This basis also offers an integrity that less explicit modelling does not.

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