

## **Can We Get Some Order Here? The Application of Principles of IT Project Management for Online Library Projects**

**Ray Uzwyszyn, Ph.D. MLIS MBA**

The modern concept of project management begins with the Manhattan Project. The project clearly separated overall management of mission, schedules, budgets and stakeholders from technical management. Early on, the military made a crucial realization that even high end scientists did not have the acquired skillsets or desire to manage large technical projects (Schwalbe, 2011).

### **Introduction – Libraries and Principles of Project Management**

As we enter the second decade of the 21<sup>st</sup> century, our society and institutions have become increasingly techno-centric. Academic libraries are no exception to this paradigm shift with an increasing range of complex IT implementation expectations through rosters of IT projects. To handle both new IT implementation and ongoing integration demands of these complex systems, a more structured application of principles of IT project management are needed. From its inception, project management was necessarily recognized as a distinct discipline requiring managers with specialized skillsets and the desire to lead disparate stakeholders in multi-disciplinary project teams. This research explores an innovative line of application of 21<sup>st</sup> century IT project management principles for online library projects. It focuses particularly on the logistics and specificity of project management needs that online library projects more desperately need. While project management principles have

been discussed before (Allen: 2004, Horwath:2010, Carpenter: 2012 et al.), there seems to be a wider pragmatic look away from clear implications for practice. This paper attempts to explain the case for project managed through measured clear language approaches to highlight the necessity for implementation through principles and human resource application.

Project management techniques need to now find wide applicability in academic libraries where processes need to be streamlined through a formalization of project structures and processes. Even though system wide level implementation of information technology has been carried out widely in academic libraries in the past three decades, there is much room for a more structured approach utilizing principles of project management. This research highlights current directions and synergies between best practices of project management and current library technology needs. It highlights the most applicable and innovative areas of IT project management that would be useful to pursue with online library projects.

### **Project Management and Libraries**

Principles of project management are very much in congruence with library and online information center culture. Work structures and processes are similar - logical, methodical, measurable and specific (Massiss, 2010, p. 527). These structured PM components are very much in line with both traditional and online library projects. When dealing with public, special or academic libraries online projects, needed methodologies are those that provide analytic benchmarks and a measured review of

methods. Many library web redesign or implementation projects linger too long without progress or alternatively are unnecessarily delayed by what in project management terminology is known as 'scope creep', the tendency for project requirements to expand bigger and bigger until administrative project failure is assured (Schwalbe, 2011, p. 197). All too often, discussion and communication enabling project progress of library systems IT projects breaks down among involved stakeholder groups. Project management principles provide tools to prevent scope creep and enable communication, project completion and success including such tools as defined work breakdown structures (WBS) and stakeholder agreement documents designed to capture, control and move projects forward in organized prescribed ways.

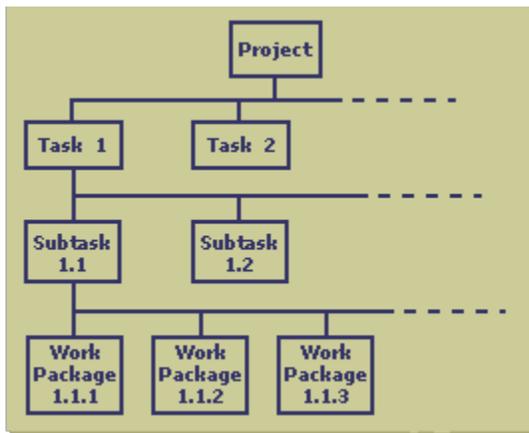


Figure 1, Work Breakdown Structure

### **Libraries, Communication, Project Management Methodologies**

The major cause for any IT project failure or delay during a project lifecycle is communication breakdowns and a lack of planning by stakeholders (IT Cortex, 2008).

This failure of planned communication and proactive risk management methodologies is

perhaps magnified in large interconnected corporate and academic library systems. Typically, a variety of stakeholders are tasked by a dean, director or upper level university administrator to produce new technological artifacts whether these be new websites, digital libraries or implementation of enterprise wide information discovery tool systems. Usually, many of the team stakeholders tasked with these projects will have little or no prior IT experience and less formal project management training. This legacy of historical library workplace development becomes a detriment and liability. The irony is that from project management contexts, this diversity may be harnessed towards better usability review, wider communication and ultimately systems. Fair to say, communication breakdowns with these heterogeneously composed teams or committees happen often. Project management formalizes and manages communication channels through ‘communication’ planning and documents inclusive of stakeholder registries and management strategies.

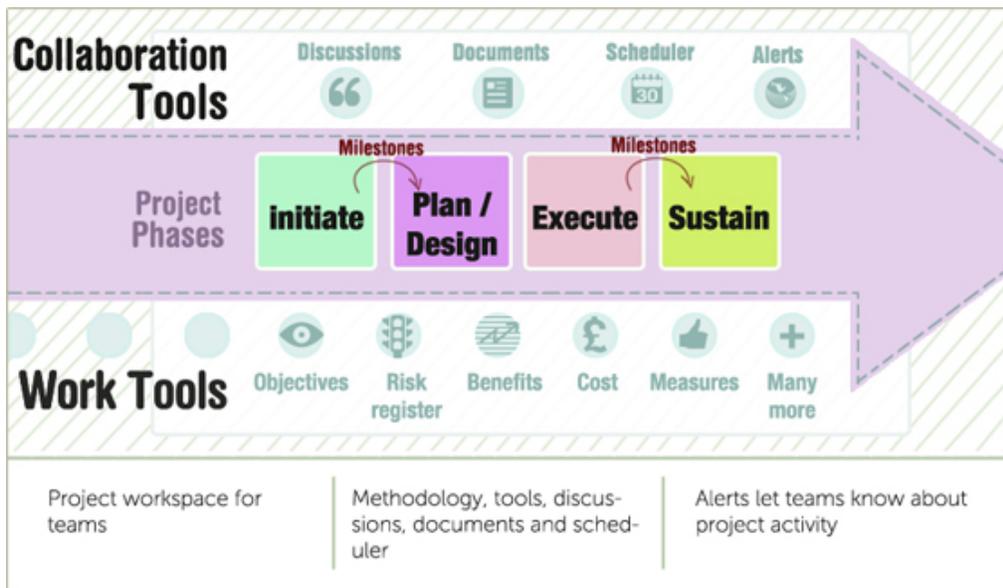


Figure 2: Communication Channels through Collaboration and Work Tools

Tasking a project manager to formalize communications through a project lifecycle to manage stakeholder expectations facilitates buy in and ownership of a project, monitors and controls stakeholder processes and results in more efficient decision making for subsequent milestones for greater chance success (Masses, 2010, p. 529).

### **The Business Case: Library IT Projects and Project Rationale**

In academic libraries, most librarians have primarily been trained as information professionals, secondarily as subject specialists or disciplinary scholars and increasingly in the 21<sup>st</sup> century - technologists. Explicitly, they have not been trained on ROI or the step by step business processes for developing compelling business cases for digital library projects to present to library, university or local government administration.

One of the major issues a digital library project manager has to currently contend with has to do with how to shepherd project towards approval and the top of the queue for competing resources. Project management provides many tools to help align project proposals with the larger organization's mission and objectives including SWOT (Strengths, Weaknesses, Threats and Opportunities) and PEST (Political, economic, Social and Technological) analysis. These formalizing opportunities will all help with preliminary planning documents.



Figure 3: SWOT Analysis

Typically, new library IT project requests are reactionary rather than proactive. Projects are created as reactions to resolving present problems or responding to administrative pressures rather than a proactive agenda based building on strengths and exploiting opportunities with a measured project management approach. Cervone suggests proactively aligning projects with organizational benefits and thought out project plans rather than a 'we need to get this done by this date or else' approach (2008, p. 20). At the minimum, these plans should include project purposes, cost estimation, duration timelines and outcomes. Schwalbe also provides an excellent table of the elements of a project plan that any library IT department or taskforce would be wise to include or utilize as a draft template to begin thinking better and proactively planning regarding any upcoming library IT project (Schwalbe, 2011, p.155). In terms of human resources and with the ever expanding agenda of projects, a dedicated library IT project manager on staff is also a good idea whose time perhaps has arrived. Project management also seems to offer both structured software (i.e. Microsoft Office,

Basecamp) and quantification possibilities for both formalization of project metrics and structured analytics for later assessment.

<b>IT Project Management Plan</b>	
<b>Major Headings</b>	<b>Topics</b>
<b>Overview</b>	Purpose, scope, objectives, assumptions & constraints, deliverables, schedule, budget summary
<b>Project Organization</b>	Roles and responsibilities, External interfaces, internal structures
<b>Process Plan</b>	Start up plans (estimation, staffing, resources, project staff training); work plans (work breakdown structure, schedule, budget allocation); control and risk management plans; closeout plans
<b>Technical Plan</b>	Process model, methods, tools and techniques, infrastructure plan, acceptance plan
<b>Support Plan</b>	Configuration management, verification and validation, documentation, quality assurance, reviews and audits, problem resolution, subcontractor management, process improvement
Adapted from IEEE Standard 1058-1998	

### **Resistance to Change and Library Cultures: A Project Management Approach**

To be realistic, libraries are well meaning but usually not on the vanguard with regards to the most current technological paradigm shift. Online library project drivers are characterized by competition of other libraries and administrative pressures rather than proactive response to customer demand and the next big technological step. From project management perspectives, online library projects whether additions to the system, new systems or specialized digital library requests are also disruptive forces which frequently encounter a variety of resistance.

From project management perspectives, library IT project managers should create wide fields of allies as early as possible through appeals to common organizational

objectives and mission statements (Cervone, 2011, p.96). Formalizing communication lines with online library IT project stakeholders, library organizational leaders and university representatives is also a good first step. Transparently discussing possible issues relating to resistance and thinking through the wider group psychology is also a good proactive project management technique and may even be usefully formalized within online library project work plans. Identifying preferred communication vehicles, stakeholder viewpoints and varying level of commitment or resistance potentially helps meeting and communications planning and forwarding a project with larger organizations. Communication and social media design plans are key including strategizing with team members regarding the target project communications that will be sent to specific constituent groups who may be particularly invested or resistant to a project.

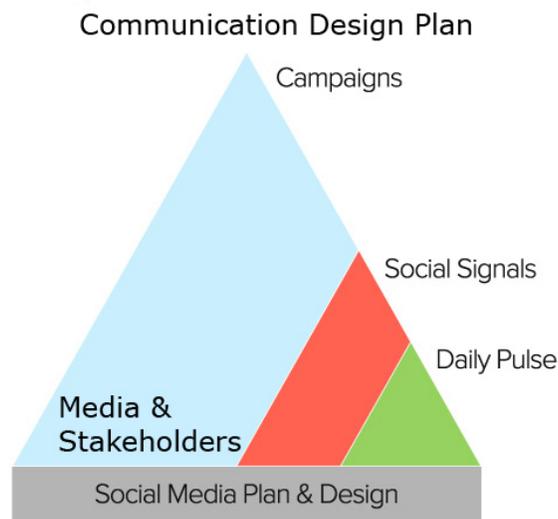


Figure 4: Communication and Social Media Design Plans

## **Approaching Library IT Projects – Sponsors, Scope and Developmental Models**

To be sure, many libraries' IT projects, even major ones, are started haphazardly without a project sponsor, plan, project manager or formalized conceptual methodology. From a fundamental perspective a project plan is needed which at the least provides a scope statement, deliverables, team information, communication plan, work breakdown structures, controlling mechanisms and a budget. This should be transparent and circulated widely with higher library, university or governmental administration for initial project sponsorship, support, review and buy-in.

Beyond this, if one is developing any type of digital library application or web infrastructure, a software development methodology should be chosen. All too often library IT projects fail to utilize or formalize these methods to the project's later peril. Information technology project development models also range in style and methodology each having specific characteristics. Waterfall, incremental, iterative, adaptive and exploratory are all common development models each possessing specific characteristics and suitability towards different environments (Schwalbe, 2011, p. 59-61). All project stakeholders should be aware of conceptual model parameters including timelines and basic characteristics.

For example, an agile approach to IT project development includes the progressive strategy of scope, design, build, test, check and deploy with a very quick initial iteration development time termed a sprint (usually around four weeks). This allows design and redesign of the system based on user feedback (Chang, 2010, p.673). With this

methodology emphasis is towards gathering ‘the right’ requirements in a project plan in a clear, complete and verifiable way (Chang, p. 673).

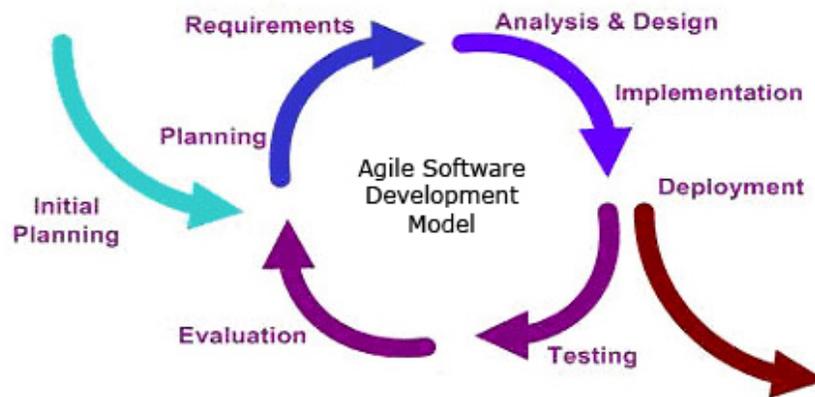


Figure 5: Agile Software Development Model

It is important that all stakeholders are aware of the methodology and have signed the project plan to adhere by these parameters to increase chances for project success. Project managers should be aware of differences of methodology to suit the various library environments. Agile methods work best in organizational cultures where change is more welcome and innovation and creativity are encouraged with less resistance (Chang, p. 677). If a project manager becomes cognizant that the wider environment is not suitable for this type of IT methodology, it is their duty to shift methodologies proactively to a more suitable method for the culture.

## Library IT Project Managers: The Current Landscape



Figure 6: Project Management Formalization

Presently, the role of a dedicated IT project manager with a PMP designation in academic, public or special libraries is rare or non-existent. More often than not, most library IT projects are managed by librarians with MLIS or IT related degrees from either library, web or systems OPAC (Online Public Access Catalog) departments (53%) (Fan and Keach, 2011, p. 6). Secondly, and perhaps selected because of their ‘people’ skills, these projects are handed over to librarians or department heads from library public services department backgrounds (35%) (Fan and Keach, p. 6, 2011). Most library public services staff will readily admit they lack higher end technology skills or expertise. Most library IT staff and library public service staff lack formal IT project management skills. As of 2013, the role of dedicated library IT project manager with a PMP designation is currently very rare (Fan and Keach, p. 6).

As mid and large scale technology project demands for libraries have increased exponentially, the time has come to bring this staff employment category into the fold or alternatively lobby to include a concentration of IT project management courses in

traditional Masters of Library and Information Science Graduate degrees (MLIS). The PMP certification (Project Management Professional) would be a useful one to add to upcoming MLIS concentrations. The idea here also would be to enfranchise both project managers and librarians whose organizational skills and methods have much synergistic resonance.

Also, including a formal IT project manager on staff is not so much displacing librarians or IT staff but rather contributing to greater project success. Complex possibilities may be achieved by formalizing processes and roles as libraries evolve and retool for the 21<sup>st</sup> century. A longer list of formal techniques of project management inclusive of writing project plans, controlling scope, identifying sponsors, documenting project requirements and budgets have large room within academic library IT projects. With a good dedicated formal project manager formal communication plans between stakeholders and administration become enabled with a planned setting of parameters of authority and technical progress. Ineffective functioning groups are a major reason for IT project delay or failure. Most, if not all academic library IT projects would also benefit from a dedicated library project manager to clarify shifting priorities (scope creep), address resource issues, plan communications and formalize technical parameters (Fan and Keach, 2011, p.12).

### **Libraries Changing 21<sup>st</sup> Century Goals**

In their recent survey of libraries going forward in the twenty-first century, the Institute of Museum and Library Services (IMLS) found that the highest priority goal of

academic libraries was ranked as increased access to collections through digitization.

The second highest priority was named as preservation of materials through digitization and digital projects (Lopatin, 2006, p.274). Both of these priorities involve ongoing high levels of IT project commitment and management.

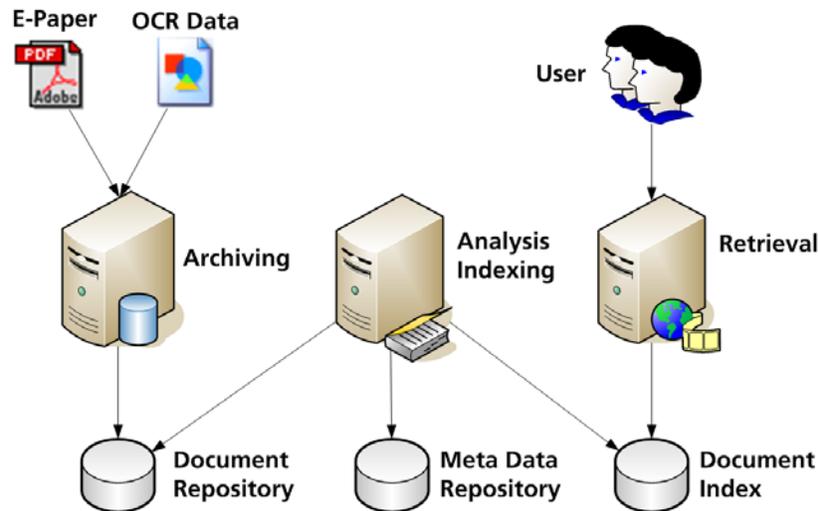


Figure 7: Digitization Process

To be sure, many libraries involve special collections whose main thrust in the 21<sup>st</sup> century regard specialized digitization projects. These may be large or small scale, textual or image based. Increasingly, they involve a a complex amalgam of multimedia artifacts and wide range of stakeholders with varying needs and agendas. IT project requirements are also increasingly complex . Also, because of the content's increased level of media, copyright and metadata complexity librarians have more than enough on their section of this plate. Similarly with ongoing IT platform delivery expectations (mobile etc.), IT departments feel maxed out with new expectations and duties. Here again, the addition of project management organization skills toward these multi-pronged projects allow better focus of specialized skills through segmentation of roles.

## Conclusions

To begin to conclude, the possibilities for libraries and technology in the 21<sup>st</sup> century with regards to both services and content are fascinating, vibrant and complex. Technology will play a central role in new categories of patron services engendered, applications created and how the ever growing stream of digital content is handled. Because of this, IT project management is an imperative area for libraries to reexamine from hr and infrastructural perspectives. It will allow them to function effectively and for institutions to lead with technology possibilities. There is also enough room for everyone at the table: technologists, librarians and project managers. Together, all of these groups may work more productively for the more efficient functioning of the greater whole.

This research has rearticulated some of the specificity and challenges of library IT functions, importance and wide applicability of principles of project management to the field. It has argued for the separation of functions for the more orderly functioning of the whole. There is much more organizational work to be done with 21<sup>st</sup> century library organizational groups. The application of formalized project management for libraries is currently largely unexplored. The territory for synthesis between library and information science and IT project management is fertile. Hopefully, this research has pointed out some of the salient areas, utility and needs. The wider discussion is important and needs to take place. The future and better success of library in the new millennia will depend on the application of a 21<sup>st</sup> century management techniques to the ever-growing complexity of library IT needs.

## References

- Allan, B. (2004), *Project Management: Tools and Techniques for Today's ILS Professional*. Facet: London, UK.
- Bartlett, J. (Fall 2011). Project management in libraries, archives and museums. *Reference Quarterly*. 51(1). 87-88.
- Bonvillian, G. (1997). Managing the messages of change: lessons from the field. *Industrial Management*. 39:1. 20-6.
- Carpenter, J. (2010). *Project Management in Libraries, Archives and Museums: Working with government and other external partners*. Chandos, Cambridge, UK
- Cervone, H.F (2008). Developing a business case for a digital library project. *OCLC Systems and Services*. 24:1. 18-21.
- (2005). Influencing: a critical skill for managing digital library project teams. *OCLC Systems and Services*. 21:2. 105-109.
- (2011). Overcoming resistance to change in digital library projects. *OCLC Systems and Services*. 27:2. 95-98.
- Chang, May (2010). An agile approach to library IT innovation. *Library High Tech*. 28:4. 672-689.
- IEEE Standard 105-1998. IEEE Standards Association. Available from:  
<https://standards.ieee.org/findstds/standard/1058-1998.html>

Fagan, J.C. and Keach J. (2011) Managing web projects in academic libraries. *Library Leadership and Management*. 25:3. pp. 1-23.

Horwath, J.A. (2012), "How Do We Manage? Project Management in Libraries: An Investigation". *Partnership: the Canadian Journal of Library and Information Practice and Research*. 7:1.

IT Cortex (2008). Project failure statistics. IT-cortex.com Retrieved from [http://www.it-cortex.com/Stat\\_Failure\\_Cause.htm](http://www.it-cortex.com/Stat_Failure_Cause.htm)

Lopatin, L (2006). Library digitization projects: issues and guidelines. *Library Hi Tech*. 24:2. 273-289

Massis, B (2010). Project management in the library. *New Library World*. 111:11/12. 526-529.

Schwalbe, K. (2011). *Information technology project management (6<sup>th</sup> ed.)*. Boston, MA: Cengage Learning Course Technology.