

# Managing digital libraries: the view from 30,000 feet

## How not to run a digital library project

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### Abstract

If a digital library project is to be successful, the project needs to be run in a professional manner, using project management techniques. This article points out some of the most important aspects of project management such as understanding the project requirements, the role of planning, accurately determining budget and schedule, controlling the scope of the project, and developing expertise. In order to accomplish this, the project manager needs to be a multifaceted leader as well as technically adept.

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My job title is Assistant University Librarian for Information Technology (the nifty acronym for this is AULIT). When people ask me what I do, I usually end up having to tell them my title. While my grandmother was impressed, most of my friends and family just get a glazed look in their eyes that says, "Oh, you know he works in a university, we're not really supposed to understand a lot of what he says anyway." They then respond with a polite, "That's nice."

You might ask, "What does this have to do with digital library projects?" Surprisingly, a lot. Most librarians I know get the exact same glazed and panicked look whenever the words "project management" are mentioned. At least that is the response I usually get. And after talking to some of my peers, it seems that this is an almost universal condition affecting project managers.

On further reflection, you might ask "Why do people feel like this? Project management is actually pretty fun". Sadly, you would not be a very typical person. Project management is a challenge for many digital library projects because many librarians do not come from a background that accepts and embraces project management concepts. Especially for those with humanities and social science backgrounds, the concept of project management may be about as obscure as Godel's propositional calculus.

However, if we expect a new digital library project to roll out on time and on budget, we have to use project management techniques effectively. The problem is that most project management texts and articles are about as exciting as tapioca pudding. Nobody really likes it, it just does not feel right, but for some inexplicable reason it is supposed to be good.

So, taking a cue from the current craze that points out correct form through incorrect form – witness "What Not to Wear," "Web Sites that Suck," and the nine-billion makeover shows on every cable channel across the planet – I present to you, "How not to run a digital library project" (see the Appendix also for a list of project management resources).

### Rule no. 1 – don't bother to understanding the project requirements

How many times have you heard things similar to the following?

- Project requirements are a drag.
- They stifle creativity and innovation and sometimes they would have us do something that really isn't that interesting or very much fun.



- The users of the end product might have expectations of what they'd like to have, but really, we know better what will be best. So, let's just do that!

Although no one would probably put it quite so bluntly (although I have heard people come pretty close), sadly many projects are run in the manner just stated. Even when requirements are gathered, they are ignored in the belief that the project team does, in fact, know better what the end user wants.

This is always a giant, red flag of danger.

Without a thorough understanding of what the project is supposed to accomplish, and sticking to that understanding, there is no chance of project success.

The definition stage of a project is used to identify important details of the project: the projected start date, the scope and boundary of the work, the constraints (both in terms of resources and people), assumptions made in regard to the project environment, deliverable (that is, what will actually be done), and budget.

At a minimum, the questions you should be asking at this stage are:

- What is the background of the project?
- What are the project goals?
- What are the benefits that will be achieved when it is complete?
- Who are the key stakeholders?
- Who is the project sponsor?

Defining crisp, unambiguous requirements for a project takes time and energy, but it is time well spent.

### **Rule no. 2 – forget planning – it's too time consuming!**

Like requirements gathering, planning is right up there with being a big pain in many people's book. A common argument against planning is that the time spent on planning would be much better spent actually doing something!

Does this sound familiar? No? Consider yourself lucky. In the many years I have been managing technology projects, I have probably heard this, or some variant, about once a month from people who do not want to do project management.

However, without planning, managing a digital library project is like driving on a dark road with your headlights off. It is stupid and will surely lead to disaster.

An important aspect of planning is that it generates buy-in. Planning gives everyone an opportunity to understand what is going on, in detail. It should be clear what needs to be done, by

whom, and by when. If things go wrong – yes, I know this never happens where you work, but it does happen to some of us – corrective action is not possible if there is no plan to refer to. How can you know what to correct if there is no plan?

When planning is short-changed, the foundational work of the project does not exist or is significantly degraded, which is similar to building a house on quicksand.

### **Rule no. 3 – commit to a budget and schedule before you actually know what you are supposed to do**

Given adherence to our first two points, a natural outcome of that will be to make commitments before knowing what you are getting into. I have heard of instances where some Dilbertesque-boss demands to know what the cost of a project is going to be before it is even clear what the scope of the project is.

Sadly, projects occasionally arrive with a fixed start and end date, yet the project team and duration of the activities in the project are not known. This does not, however, change the fact that the project manager must have enough time to perform, at the very least, a cursory examination of the requirements to come up with a realistic evaluation of the time and resources required to do the project within the fixed guidelines.

Unfortunately, sometimes this situation cannot be avoided. In that case, a project manager must make it clear – upfront – what the real resource and personnel requirements will be needed in order to make the project happen in the dictated timeframe.

### **Rule no. 4 – the best guess is a WAG**

If they do not know how long something is going to take, some project managers will resort to using a WAG[1] figuring “What is the harm in that?”

The harm is that it simply does not work. In fact, it is about the worst (one of my peers is shouting “stupidest”) thing the project manager can do. The reason is fairly simple – the likelihood a WAG will be significantly underestimated is about as good as the likelihood it will be a true overestimation.

In order to come up with a relatively accurate estimate, the project must be first broken down into specific tasks. Where WAGs go especially bad is when effort is assumed to equal duration. Effort is the time the task will take to complete assuming no interruptions, breaks, lost, or wasted time.

Duration is very different. Duration is the time the task actually takes to complete including all lost, wasted, and waiting time.

Consider this example. In studies of time on task, researchers have found that the average programmer spends about 70 to 90 percent of their time actually coding programs. That is not bad. However, consider what happens when an administrator (like those AULIT-types) gets involved in the mix. The average senior manager only spends – at most – 10 percent of their time on a daily basis on detailed tasks. The rest of their time is taken up with administrative and managerial duties, i.e. meetings. That means that if an AULIT were given a programming task, they could realistically dedicate only 10 percent of their day to that task. So what might take an AULIT nine days to complete, a programmer could complete in a single day. Obviously, this will significantly affect the overall project duration, as everyone is sitting around waiting for the AULIT to get something done.

Not accounting for all time to be spent (the duration) and incorrectly using the time on task (effort) in lieu of the duration to estimate timelines, is one of the most common mistakes made by new project managers.

### **Rule no. 5 – when it is late, add more people**

When things fall behind schedule, some managers may try adding more personnel in order to “catch up.” *The Mythical Man-Month* (Brooks, 1995) graphically documents how spectacularly ineffective adding on more staff in this circumstance can be.

It does not work – ever. Do *not* try this at home. Enough said.

### **Rule no. 6 – we don’t need no stinking critical path**

Projects are full of dependencies and the project manager better know what they are. Start-to-finish relationships between various activities define the course of project completion.

While many activities in a project are carried out in parallel, the majority of tasks in a project depend on another activity being completed. For example, actual coding of web pages cannot realistically begin before the visual design of the pages is approved. To do otherwise is just a waste of time.

Given the complexity of most digital library projects, there are many different paths of activities

throughout the project. Charting dependencies between activities is the only way to understand what these multiple paths through the project are and how things relate to one another.

Understanding the relationships between paths is crucial to recovering from a time slippage in one area. If for no other reason, the paths are used to demonstrate how a delay in one area will result in the extension of the overall project timeline.

The critical path is the sequence of related activities that takes the longest in the project. It is an especially important path, because any deviation from schedule in this path will throw the entire project off.

### **Rule no. 7 – don’t worry, be happy!**

In life, some activities are more risky than others. If I go skydiving, I am more likely to have an accident than if I lose confidence and just stay seated until the plane lands.

The same is true for projects. Some tasks are riskier than others and the project manager needs to know where the potential problems lie. However, it is impossible to develop a contingency plan for every single activity in the project (unless it is a very simple project). So, after the critical path of the project has been determined, it is the responsibility of the project manager to step back and assess where the high-risk tasks are and how likely a failure will occur at these risk points.

This is more complicated than it sounds because it is not simply a case of evaluating only the tasks on the critical path. Not all of the high-risk tasks will be on the critical path. In actuality, none of the high-risk tasks may be on the critical path. Because of this complexity, the project team needs to develop a ranking methodology for determining what is most likely to go wrong.

A common way of assessing risk is to assess both the likelihood of failure and the impact of a failure for each task in the project, and assign a ranking for both dimensions based on a five-point scale. Assuming 5 is the greatest likelihood of failure or potential for risk, tasks are often rated “high-risk” if they have a rating of 4 or 5 in both dimensions. This of course can be adjusted downward for the more risk-averse among us. Regardless, for each of the tasks identified as “high risk” contingency tasks should be prepared. Contingency tasks do not need to be developed for any other tasks.

Risk ranking and contingency development are activities that are carried out by the whole team, not just the project manager. Every member of the team will have unique tidbits of information to add to the overall picture. These tidbits can mean the

difference between success and failure in assessing risk and planning contingencies.

### **Rule no. 8 – oh sure, we can do that too. No prob.**

“Scope creep” – no, it is not the title of the latest Vin Diesel movie. It is one of the scariest terms a project manager can say.

Often as a project gets moving along, additional “minor” requests will come in. In many cases, these will be surreptitiously added to the project. Woe is the project manager to which this happens.

The unexpected and uncontrolled growth of user expectations and requirements as a project progresses is one of the major sources of project overruns. It is the project manager’s responsibility to keep this under control. Scope creep can come from the project team itself or from external forces, but regardless of where it originates, a “Hey, we could do this!” mentality can run like wildfire through a team, wreaking havoc, and causing missed deadlines if left unchecked.

Another aspect of scope creep is that although it is evitable for changes to occur in a project as it is moving along, too many changes can effectively produce a new and completely different project than was originally intended. When the requirements of a project dramatically shift during development, adhering to the initial requirements is foolish. Waiving the initial specifications in the air at the close of the project and claiming that the job is done because the specifications are met will satisfy no one and probably make your life miserable.

So be flexible, but firm. If changes need to be made, adapt the project. If they are major changes that fundamentally alter the nature of the project, go back to the drawing board and modify or create a new project plan if necessary.

### **Rule no. 9 – we don’t need outside help – we have all the expertise we need right here**

The complexity of most digital library projects demands a diverse range of skills – designers, information architects, programmers, writers, human-computer interaction designers, preservationists, subject specialists, and so on. You cannot run an effective project if you do not have all the expertise you need.

Many projects fail because the project team lacks the breadth and depth of expertise that is required. Most projects do not have an expert who

can be dedicated to each individual area. That is a fact of life. However, rather than just simply overlooking key areas where expertise is not immediately available, the smart project manager will look for innovative ways to bridge the gap.

One possibility is to assign someone with an interest in an area of deficiency within the group to look after that area and make sure attention is paid to it. Another possibility is to collaborate with a partner institution. Sharing knowledge does not necessarily require a formal agreement – simply going to lunch and picking their brain can be a great way of developing expertise.

Along that line, sometimes a little training can go a long way. Training can often cover the gap in expertise, especially if you have a team member that is already interested in the area. Failing that, try to bring in outside help on an as-needed basis. Ask for money to do this; you might be surprised sometimes at the positive response you will get.

### **So where does that leave us?**

According to studies of successful projects, it appears that the most critical factor in a successful project implementation is cultural acceptance. Digital library projects often fundamentally change the way individual employees, work groups, and departments interact and function. Usually this is not a completely smooth process. Culture shifts will occur. This can be time consuming and it may require more resources than anticipated.

To make this kind of cultural changes occur, the project manager needs to be a multifaceted leader as well as being technically adept. They have to be very skillful in forming and leading teams. One of a project manager’s most important tasks is to remove obstacles from the path of the project team. If you do that successfully, you are well on your way to a successful project.

A project manager has to see the future, but work in the present and pull things together seamlessly while creating something outstanding. This is not a skill that people are born with. It is a skill developed over time. So practice – it is the only way to become an expert.

### **Note**

- 1 WAG is the polite acronym for the computer science term known as “wild a\*\* guess”.

## Reference

Brooks, F. Jr (1995), *The Mythical Man-Month*, Addison-Wesley, Reading, MA.

## Appendix. Project management resources

- *Digital Library Standards and Practices*. Not strictly project management resources, but important information for digital library project managers from the Digital Library

Federation (<http://www.diglib.org/standards.htm>).

- *Ganttthead*. An outstanding collection of many free resources related to project management ([www.ganttthead.com/](http://www.ganttthead.com/)).
- *Project Management Certifications*. Information on project management certification options ([www.pmi.org/info/PDC\\_CertificationsOverview.asp](http://www.pmi.org/info/PDC_CertificationsOverview.asp)).
- *Project Management Institute*. Everything you could want to know about project management, straight from the source ([www.pmi.org](http://www.pmi.org)).