Adaptive Project Management: leading projects with both uncertainty and complexity.

ADAPTIVE PROJECT MANAGEMENT: Leading Complex and Uncertain Projects

by Andy Silber

Order the complete book from the publisher

Booklocker.com

**or from your favorite neighborhood
or online bookstore.**

Adaptive Project Management:

Leading Complex and Uncertain Projects

ANDY SILBER, PhD

Adaptive Project Management: Leading Complex and Uncertain Projects

Andy Silber

DISCLAIMER

This book details the author's personal experiences with and opinions about project management and product development.

The author and publisher are providing this book and its contents on an "as is" basis and make no representations or warranties of any kind with respect to this book or its contents. The author and publisher disclaim all such representations and warranties, including for example warranties of merchantability and legal advice for a particular purpose. In addition, the author and publisher do not represent or warrant that the information accessible via this book is accurate, complete or current.

The statements made about products and services have not been evaluated by the U.S. government. Please consult with your own legal, accounting, tax, or other licensed professional regarding the suggestions and recommendations made in this book.

Except as specifically stated in this book, neither the author or publisher, nor any authors, contributors, or other representatives will be liable for damages arising out of or in connection with the use of this book. This is a comprehensive limitation of liability that applies to all damages of any kind, including (without limitation) compensatory; direct, indirect or consequential damages; loss of data, income or profit; loss of or damage to property and claims of third parties.

Adaptive Project Management

This book provides content related to project management. As such, use of this book implies your acceptance of this disclaimer.

Table Of Contents

Adaptive Project Management: The Right Balance Between Structure and Flexibility

So, if agile and waterfall methodologies work poorly for projects like developing a hardware product, what's a PM to do? While a strict adherence to these paradigms will lead to agony and pain for projects where there's complexity and uncertainty, there is still much of value in both approaches. Waterfall and agile can be combined into an effective project management paradigm. I call this approach adaptive project management.

Helmuth Von Moltke said that "No plan survives contact with the enemy." Adaptive project management is based on this fact. Just because the plan will change doesn't mean that it had no value, but knowing this, you should restrict your effort to the part of planning that adds value.

This approach manages risks and tracks the critical path while recognizing that our knowledge is inherently incomplete and replanning will be necessary. Using an adaptive approach, the project

manager does just enough waterfall-style planning to be confident that the team is working on the right tasks. These tasks are chosen to minimize project risk as early as possible while making sure that long lead-time tasks are completed when they need to be. As the project moves forward, the plan is reworked and expanded to leverage the most recent understanding of the project. This combined approach is similar to what the Project Management Institute calls rolling wave planning and others call hybrid project management.

Writer E. L. Doctorow described writing as being "like driving a car at night: You never see further than your headlights, but you can make the whole trip that way." This metaphor is just as apt for product development. A good map is helpful, but it doesn't absolve the driver from paying attention. The map won't mention the cow in the road, the traffic jam, or the bypass route that was built since it was drawn. Your map will be imperfect, but if you keep moving toward your destination, you might get there. Or you might discover the road is impassable.

The product development process is a march from high uncertainty and risk toward a de-risked, highly

specified product that's capable of being manufactured and sold. Early development phases will focus on understanding customer needs, the competitive landscape of the market, and technological opportunities. Middle phases will focus on proof-of-concept experiments and narrowing your possible concepts to those that best solve the problem at hand. Late phases will focus on designing, building, and testing commercial devices. The final phase will be transferring a manufacturable design to production. As you remove uncertainty, your plan should look more and more like a waterfall plan.

The tools for adaptive project management are similar to those for waterfall. Project managers create a list of tasks that need to be completed (the WBS), but only build a detailed schedule for the tasks that are in the near future, have long lead times, or have high risks. The WBS is reviewed often, and tasks are added as they are discovered. Like an agile approach, the planning is constantly focused on adding value. The difference is that there's an acknowledgment that some high-value tasks don't show value immediately. One must do enough planning to understand what those tasks are and when they need to begin.

I was part of a team that used this process to develop a consumer electronics product. Reliability was a primary concern, so for each prototype iteration, we built enough samples to demonstrate not only that the product would work under normal conditions, but that it would continue to work after being heated, cooled, pulled, twisted, soaked in water, and coated in sweat. We were constantly updating our design based on the results of testing, but to meet our schedule, we started building the next round of prototypes before the testing on the previous variant was complete. To stay on target, we needed a detailed waterfall schedule for each build, but what was in the build was unknown until the last minute, when the design was released. At any given moment, the design and the plan were based on the best available information. The program met our schedule and the product was reliable and of high quality: it was a design the team was proud of.

I think the most interesting example of a challenging project that used an adaptive approach was Lewis and Clark's exploration of North America. They started out with a mission statement from their primary stakeholder, President Jefferson:

> *The object of your mission is to explore the Missouri River, & such principle stream of it, as, by it's [*sic*] course & communication with the waters of the Pacific ocean, may offer the most direct & practicable water communication across this continent, for the purpose of commerce.*

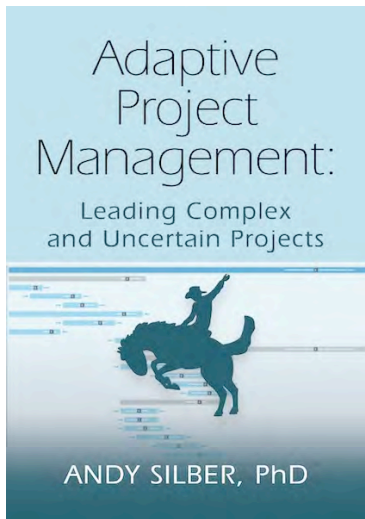**Figure 7: Lewis and Clark's Corps of Discovery at Three Forks**

They had a literal map that got them started up the Missouri River and a figurative map that informed them of some of the risks and challenges they would face. They selected members for the Corps of Discovery with the skills they would need, like speaking the languages of the people they would

meet, boat building, and hunting. They gathered gifts for the tribes they would meet and supplies like guns, boats, food, and scientific instruments. Selecting and training the Corps of Discovery and preparing for the voyage took about a year. As they moved west, they drew the map that others would follow. Every encounter with a friendly tribe added to their knowledge and increased their chances of success. They added team members as they moved west as well, including Sacagawea and her husband, who joined the expedition six months after the journey began. If they had used a waterfall approach, Lewis and Clark would still be in St. Louis building a Gantt chart. Using an agile approach would have been worse; they would have left without sufficient planning and preparation, possibly ending in the death of the team and the failure of their mission. Only an adaptive approach had a reasonable chance of success, and even then, success was far from assured.

Though adaptive project management is not optimal for all projects, it works better than waterfall when there are more than a handful of unknowns. It works better than agile when early mistakes can doom a project or when the interactions between tasks are

complex. But even the best possible project management approach will not make the impossible possible; it just reduces the cost of learning that lesson. You may come across a waterfall that you didn't expect, but that doesn't mean you have to go over it and drown.

Adaptive Project Management: leading projects with both uncertainty and complexity.

ADAPTIVE PROJECT MANAGEMENT: Leading Complex and Uncertain Projects

by Andy Silber

Order the complete book from the publisher

Booklocker.com