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## Flexible Project Management: Building a Flexibility Toolbox

Last of four articles in a series on flexible project management

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### Broadening Agile

**A**gile software development—and agile project management—is a popular topic among project managers today, as it allows them to deal with the inevitable changes that occur in the middle of a project. But how do agile techniques apply to non-software projects? This is the final article in a series that explores that question.

Agile techniques are ideally suited to software development projects. But if your project is in another domain, agile is likely to be frustrating, because agile software techniques exploit characteristics, such as object technologies, that are unique to the software medium. Agile software techniques do not translate directly to other domains. Instead, people who lead non-software projects must understand how agile creates the flexibility to accommodate mid-project change, and then build a new system employing these principles.

Previous articles in this series have addressed several aspects of building a flexible project management system.

- “Agile Isn’t Just for Software” - the importance of using iteration, rather than strictly sequential processes, to maintain flexibility in a turbulent project environment
- “Enabling a Flexible Team” – the impact of getting the right people on the project team, and then giving them authority and suitable space to work in
- “Creating a Flexible Environment” – how to decide when the benefits of flexibility are worth its additional cost, and how decision-making affects flexibility

In this final article, we show how project managers can pursue project planning and project risk management when operating in a turbulent environment.

### Managing in an Uncertain World

Managing a project in a flexible way violates many assumptions and behaviors that project managers usually bring to a project. The normal assumption, which is actually quite effective in a stable, predictable environment, is that change is costly and leads to

variations from the plan in project outcomes, so the wisest approach is to nail down everything connected with the project as early as possible and follow that route to project completion. The implied objective is to finish the project as close as possible to the original plan.

Flexible project managers, in contrast, assume that change will happen and organize their projects accordingly.

## Plan the Project Expecting Change

Mainstream project management generally follows the premise that thorough planning upfront is the best way to run a project. In fact, in many organizations, a complete, detailed project plan is required even to obtain approval to start the project. There seems to be comfort in having a detailed plan, even if it is fictional; from this, it should come as no surprise that many project managers spend the majority of their time at their desks, updating the plan as events change (we will have more to say about this use of time in the next section). When change is the norm in a project, there are more effective ways to plan; we cover two of them.

**1** The first method is “rolling wave planning,” in which only immediate activities are planned in detail, and the rest of the project is planned in much less detail (see Githens, listed below). As the project rolls forward, the detailed planning also rolls forward just ahead of it. Although this seems simple, there are two important things to keep in mind. One is that when you plan work grossly, you tend to underestimate because you miss the time-consuming details. You can compensate for this bias by reviewing some past projects that were planned grossly. Compare the estimated project duration with the project’s actual duration to compute a compression factor that you can use to correct time estimates for future projects. The other item to keep in mind is that gross planning and planning “on the fly” run counter to the culture in many organizations that take comfort in detailed plans. You may encounter resistance to this logical technique at many levels.

**2** The second way of planning under heavy change is “loose-tight planning,” which is the approach taken in agile software development. Agile projects are typically conducted in short iterations (often called sprints) of one to six weeks, typically two weeks. An iteration is planned just when it starts, and future iterations are left unplanned. During the iteration, the team follows their plan tightly, and the loose period between iterations allows all future work to be completely replanned by working from a list of desired product features that is re-prioritized between iterations. This is a radical application of the idea; Boeing, when developing their 777 airliner, used a more moderate approach, wherein they alternated between loose periods of design and tight periods of stabilization and integration.

## Manage Project Risk Continually

Nearly all of the many references on project risk management suggest a procedural approach to managing a project's risks: first identify the risks a project faces, analyze and compare them, then prioritize them, take action against the most serious ones, and finally, monitor your progress against your risk resolution plans. This approach is most effective when there is a relatively stable project plan in which you can identify the project's risks. If the project plan is in flux, this procedural risk management approach will miss important risks that emerge during the project. Even a regular rescan for new risks, as good practice encourages, is unlikely to keep up with a fast-changing project.

In a turbulent environment, a procedural approach to risk management must largely shift to an intrinsic one. By intrinsic, we mean that everything you do to manage the project is done to manage its risk. Here are some examples:

- Stay close to customers to manage the risk of requirement changes.
- Create your product's architecture to fence in areas of design changes (see Smith, pp. 57–84)
- Do lots of experimenting, testing, and prototyping throughout to understand what might change and by how much (see Smith, pp. 85–106)
- Staff your team with an eye toward resource shifts
- Keep in touch with suppliers to foresee changes in your supply of components
- Create team communication tools, such as daily stand-up meetings, as an early-warning system for unforeseen problems

In a turbulent environment, the project manager's whole job is risk management and it helps to be a bit paranoid. Weick and Sutcliffe (see below) explain how this is done by observing people, such as firefighters, who constantly face unexpected situations. At this point, it should be clear that spending time at the computer continually updating the project schedule is the antithesis of this style. On flexible projects, the project manager should be out on the floor continually "taking the pulse" of the project while watching for tomorrow's changes.

This is not to say that there is no place for a procedural approach to risk management. Turbulent projects still have some risks that can be identified well in advance and that will probably persist for much of the project. A procedural approach should be applied to these risks, but the balance must shift mostly toward the intrinsic approach.

## Endpoint

Here are the essential points to remember about building a flexibility toolbox:

- In a chaotic environment, plan the details as you go, but expect resistance from those who expect thorough planning.
- In a project under heavy change, everything the project manager does is done to manage project risk.

Finally, recall five other essential points from the previous three articles in this series:

1. Plan to iterate.
2. Put people and the team first – they are by far the biggest factor in development productivity.
3. Apply flexibility selectively, because it has a cost.
4. Keep your options open until the last responsible moment.
5. Expect product requirements to change.

## Further Information

Githens, Gregory. D. (2007). Using a Rolling Wave for Fast and Flexible Development. In Abbie Griffin & Stephen Somermeyer (Eds), *The PDMA ToolBook 3 for New Product Development*, Hoboken, NJ: Wiley, pp. 397–415.

Smith, Preston G. (2007). *Flexible Product Development*. San Francisco: Jossey-Bass.

Weick, Karl E., & Sutcliffe Kathleen M. (2001). *Managing the Unexpected*. San Francisco: Jossey-Bass.

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