



White Paper 2012-01

Why you can't Just Scale Up Your Way from Small, Simple to Large, Complex Projects

Many leaders of organizations that have been successful running small, simple projects believe that tackling large, complex projects is only a question of scaling. Problem: it is just not true. And this explains why so many project-oriented organizations fail to grow. This paper explores why, and a sequel (White paper 2012-02 "Why Striving for a One-Size-Fits-All Project Management Model in Your Organization is Wrong") addresses the related organizational consequences.

What is complexity in project management?

'Complex' is not the same as 'complicated'. Complexity implies that many interdependent actors are involved in the system, each responding to a different set of rules and motivations. In a complex system, events and outcome cannot really be forecast beyond a certain timeframe. Complexity is a notion closely related to chaos theory: small events which seem unrelated can ultimately have huge effects. The well-known example of a complex system is weather: the slight disturbance caused by a butterfly in Brazil could ultimately cause a storm in Texas.

How is complexity expressed when it comes to project management? A project is complex when the project involves a lot of different contributors with a lot of interaction points. This is generally expressed by a converging project plan with many convergence points where different contributors must meet simultaneously. On the opposite, a simple project will have a relatively linear execution plan with a limited number of contributors and very limited interdependencies.

While the notion of simple vs complex is not directly related to the size of the project, there is a correlation, as large projects tend to be complex. The size threshold will vary from industry to industry and type of project to type of project.

Why does complexity matter in delivering a project?

A simple, linear project is easy to track. Because there are few interdependencies between contributors, the effect of variances in the delivery of a contribution is easy to grasp and correct. The project leader has a lot of control on all the contributions and factors of influence on the project. The outcome can easily be extrapolated and predicted.

In a complex project, on the other hand, the project leader has to operate in an environment where she has little control over the delivery of many contributors, the way they interface, and other external influences. The main challenge is to identify and rectify early enough those small variances which seem innocuous at first, but which might develop into a huge issue somewhere later during the project execution, generally at some convergence point.

The level of risk that the organization faces is very different. With simple projects, the risk is linear. The risk to the organization is limited. Because contributions to the project are largely independent, good performance will tend to be balanced with poor performance.

With complex projects, the risk is exponential. The risk to the organization can be devastating. Variances in contributions will not any more compensate, but will add up exponentially.

Simple and complex projects require very different focus

In simple projects, the keyword is control. The project seeks to keep the entire systems as much as possible under control (stakeholders and contributors). A consistently thrifty approach is valid (just spend what is needed to do the job). Because effect can be readily extrapolated from the cause, the ultimate consequence of variances can be understood. Small variances will not be a problem and only large variances will be of concern. They will still be limited by the linear response of the system.

In complex projects, the system behavior is much more fuzzy. Controlling the system is plain impossible. The keyword, the focus of the project leader, will be successful convergence. The cost of not meeting a convergence point is huge, because it might stop the entire project in its tracks. It is thus vital to invest the necessary energy to ensure the timeliness of all the different contributions. Thriftiness is not any more the right behavior; the ability to invest the right resources at the right time to avoid a much larger convergence problem is key, as well as creativity and ingenuity in resolving the issues that surface. Control and monitoring is needed as a mean to know where the project stands but the final outcome can change dramatically depending on events the project team cannot really control. Superior risk and opportunity management is key. The uncertainty on the project final outcome will remain high until the end.

Simple projects need project managers, while complex projects need project leaders

Conventional project management handbooks and training address simple projects. Just look at how most

handbooks and trainings present projects as a linear endeavor. Control is paramount. The system is supposed to be entirely deterministic. That is the conventional training given to project managers. Indeed, it boils down to pure management: allocation of resources in a deterministic system so as to minimize the amount of resources spent to produce a given outcome.

On the contrary, complex projects require a project leader. While she has basic knowledge and experience of conventional project management, the project leader implements consistently other practices that makes her successful in a complex, fuzzy environment. Those are personal and interpersonal soft skills such as focus and discipline, entrepreneurship (willingness to invest upfront), extensive networking abilities to make the most out of the project team members in terms of dedication, creativity and talent. These skills are important because in a complex environment, positive results can be created by small influences at the right time, the right way that can compensate the devastating effect of natural variations.

What happens when complex projects are run according to conventional project management

Many organizations that are successful with simple projects try to scale by tackling complex projects. They quickly fail miserably or live through near-death experience.

The story goes, always the same. The project starts nicely through the planning phase. Everybody is excited by a much larger project than ever tackled before by the organization. Contributions start to come in. Interface issues between the different contributors are identified; the interface management system is very soon overwhelmed and needs reinforcement. And then, a little

thing somewhere in the plan is missing at one of the convergence points. It can sometimes be a 1,000\$ piece missing in a 1,000,000\$ assembly. Not a big deal, never identified in any risk review. But it's missing. And suddenly the project grinds to a halt. Fixed costs continue and eat the cash flow away. Everybody is scrambling to get the small part fixed. And then there is another missing because everybody unfocused. And the project just crawls until the end, making the life of the project team miserable – if the entire company has not succumbed to the failure before.

You want to scale up? Recognize the need for an entirely different approach to project leadership.

This story has happened to many companies before and will happen to many companies again. Until company leaders understand that tackling complex project is not the same as tackling larger, simple projects. At some point you can't just scale your way of managing projects. There is a discontinuity, where your entire approach to project leadership needs to change fundamentally. Your systems, your project leadership philosophy and governance need to shift significantly. It is the barrier to entrance in the field of the large project management companies – which often themselves survived a near death experience as they tried to transition from simple to complex projects. It requires a significant investment upfront in changing the infrastructure and the mindset in the company.

Don't ever underestimate how difficult this change from simple to complex is. Project Value Delivery's unique experience is there to empower you through this transition. Still, you need to make the decision, be ready to change your mindset, and support it throughout the transformation of your organization.



**We Empower Organizations to be Reliably Successful in
Executing Large, Complex projects.**

Discover more on
www.ProjectValueDelivery.com