An Unconventional Performance Measurement System for Agile Project Management

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Exactly how is performance measurement done in the context of Agile Project Management? The bigger question is, "does performance measurement even apply to agile projects?" Better yet, "what's an agile project?" An agile project is one that uses the principles of adaptive project management, extreme project management, or simply agile methods for planning, executing, and controlling the development of a unique product or service. Specific frameworks come to mind, such as release planning from Extreme Programming or Scrum. Other metamodels include Radical Project Management by Rob Thomsett, Agile Project Management by Jim Highsmith, Extreme Project Management by Doug DeCarlo, and many others that seem to be emerging in increasing frequency.

Okay, if agile project management is simply a project management framework for agile methods, then the answer is simple isn't it? How about earned value management (EVM)? Isn't EVM a tried-and-true performance measurement system for project management dating back to the 1950s and 1960s (if not the early American industrial revolution)? We'll just use EVM for agile projects, right? Plus, there are a host of basic metrics for IT-intensive projects that have emerged over the last 40 or 50 years as well, right? How about basic measures of size and complexity? We can use lines of code, function points, or cyclomatic complexity for estimating product and project size can't we? How about measures of effort and cost estimation?

There are a host of textbook equations and commercial tools for estimating effort and cost. We can use COCOMO II, any number of fine commercial cost estimating tools, and even some specialized techniques for estimating Web projects, right? We can even get really fancy and estimate and track quality and reliability. Furthermore, if we want to really impress someone, we can monetize our quality measurements and estimate and track return on investment, net present value, or real options.

Yes, it's true, all of these historical measures of project management still apply to agile projects to some degree (i.e., size, complexity, effort, cost, quality, reliability, return on investment, EVM, etc.). Furthermore, all of these historical metrics could be used for constructing a performance measurement system for agile projects, or could they? More importantly, should they? The answer lies somewhere in the definition agility, agile methods, and agile projects. How does an agile project differ from a traditional one? What makes agile projects distinct?

We've already alluded to some of the characteristics of agile projects. Agile project management is a lighter-weight framework for managing IT-intensive product and service development. The agile project management framework is adaptable, flexible, and fast. It is well-suited for highly-exploratory, information technology-intensive projects with demanding customers and short cycle times. These characteristics should start to give us a hint or a glimpse of the metrics that may be used for constructing a performance measurement system for agile projects.

What we're suggesting is that agile projects are optimized for different constraints than traditional ones. Agile projects are optimized for risk, volatility, customer-focus, and speed, rather than size, complexity, effort, cost, quality, scope, and other measures underlying a traditional performance measurement system. However, to truly understand how to design a performance measurement system for agile project management, we need to dig just a little deeper into the value system underlying agile methods.

A good place to start is the Agile Manifesto. When agile methods started gaining momentum in the early 21st century, the creators of agile methods came together to agree on what it meant to be agile. They

created what is known as the Agile Manifesto in 2001. While their individual approaches seemed rather unique on the surface, they all agreed to a common set of values and principles that underlie all agile methods, and hence agile project management. They agreed to four broad values: (1) customer collaboration over contract negotiation, (2) working software over comprehensive documentation, (3) individuals and interactions over processes and tools, and (4) responding to change over following a plan.

Properly translated, this boils down to customer satisfaction, early product delivery, intensive teamwork, and, above all, flexibility or adaptability to subtle changes in customer, technology, or market direction. Agile methods, hence agile project management, were created to solve a very-specific problem. They were created as a better alternative to ensuring project success, which couldn't be achieved with heavyweight plan and document-driven traditional methods based on Tayloristic principles.

The creators of agile methods realized that in order to ensure project success, customers and developers had to work together and communicate on a frequent basis in order to fulfill product requirements. There had to be a greater focus on delivering completed products sooner using principles of iterative and incremental development. Highly-talented individuals have to be assembled and they have to work together to solve complex problems as a team. Finally, the project team has to utilize a flexible, lightweight, and inexpensive project management system that is highly adaptable to rapidly changing customer needs, technologies, and market conditions.

If these are the values, principles, and conditions of agile methods, then one can begin to see the semblance of a unique performance measurement system emerging for agile projects. In other words, it has to measure (1) the degree of customer collaboration, (2) early product delivery success, (3) teamwork and other facets of human capital management, and, of course, (4) the flexibility or adaptability of the agile project management system itself (see Table 1).

Table 1. Performance Measurement System for Agile Project Management

Agile Value	Agile Measures
Customer Collaboration	Interaction frequency, communication quality, relationship strength, customer trust, customer loyalty, and customer satisfaction
Working Systems	Number of operational releases, iterations, builds, tests, demonstrations, and evaluations
Teamwork	Team skill, motivation, cooperation, trust, cohesion, and communication
Adaptability	Degree of organizational, management, individual, process, design, and technology flexibility

Therefore, a performance measurement system for agile project management consists of measuring the degree of customer collaboration (instead of contract compliance, deliverables, or change orders), working systems (instead of document number, variety, and length), teamwork (instead of process type, compliance, and maturity level), and adaptability (instead of cost, schedule, and scope compliance).

The adaptability value for agile project management seems a little esoteric on the surface and can take some time to understand. It really consists of three underlying dimensions. The first is the flexibility or adaptability of organizational cultures, as well as management and individual attitudes towards change. The second is the flexibility or adaptability of the organizational processes (i.e., how rigid, formal, structured, or resource-intensive they are). If an organization's processes are too voluminous and

expensive to use, then they may not have the flexibility necessary for agile project management. The third dimension is flexibility or adaptability of a product design or an underlying technology to respond to rapid changes. In today's environment, products need to be rapidly reconfigured to adapt to constantly changing market needs, customer requirements, and other business drivers.

Small, empowered teams of highly-talented individuals focused on delivering value have exhibited these project performance characteristics for many decades (really since the beginning of time). For instance, think of a U.S. Navy SEAL team, a tightly-knit team of corporate executives, a profitable business development team, or a field-proven engineering or service team.

This is a tale of two types of projects. A more traditional project is based on processes, documents, bureaucracy, regulations, rules, ceremony, and a meticulous performance management system for tracking every penny, second, and activity performed. People on these types of projects tend to burn the candle at both ends attending dozens of meetings every week and filling out a myriad of activity reports. An agile project is based on gathering customer requirements, teamwork and cooperation, delivering early product releases, and constantly changing the course in order to satisfy customers to the maximum extent possible.

Evidence shows that people on agile projects work at a sustainable pace and take greater pride and ownership in their organizations and their products due to more frequent product and service delivery success, and subsequently, more satisfied customers. They also establish stronger relationships with their customers and exhibit more flexible, can-do attitudes with respect to getting the job done by any means necessary. For instance, a market-leading enterprise portfolio and project management solutions firm reduced work weeks to 40 hours, and greatly improved developer morale, customer satisfaction, schedule performance, and product quality by using agile project management (as a replacement for their traditional project management approach).

Agile project management is the right approach for 21st century post-industrial era knowledge workers, who are developing technology-intensive products and services in the global market. Therefore, an unconventional performance measurement system is necessary for getting the most out of using agile project management as a means of improving product quality, customer satisfaction, and business value.

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