SELECTING THE RIGHT PROJECT MANAGEMENT METHODOLOGY

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UNDERSTANDING METHODOLOGIES

A methodology is a set of principles that a company can tailor and reduce to a set of procedures and actions that can be applied to a specific situation or group of activities that have some degree of commonality. In a project environment, these principles might appear as a list of things to do and are often manifested in forms, guidelines, templates and checklists. The principles may be structured to correspond to specific project life cycle phases, such as in a construction or a product development project.

For many years, the project management methodology (PMM) used by many companies provided for a waterfall[1] approach to accomplishing work because the various project phases are accomplished sequentially. The waterfall approach became the primary mechanism for the "command and control" of projects providing some degree of standardization in the execution of the work and control over the decision-making process. However, this standardization and control came at a price, limiting those instances as to when this methodology could be used effectively.

Typical limitations included the following:

- Type of Project: Most methodologies that were either developed internally or purchased "off-the-shelf" assumed that the project's requirements were reasonably well-defined at the outset. As such, the project manager made tradeoffs primarily based on time and cost rather than scope. This limited the use of the PMM to traditional or operational projects that were reasonably well-understood at the project approval stage and had a limited number of unknowns. Strategic projects, such as those involving innovation (where the end product, service or result was much more difficult to define upfront) could not be easily managed using the waterfall approach because of the large number of unknowns and the fact that the requirements (i.e., scope) could change, and sometimes frequently.

- **Performance Tracking:** With reasonable knowledge about the project's requirements, performance tracking was accomplished mainly using the triple constraints of time, cost and scope. Nontraditional or strategic projects had significantly more constraints that required monitoring and therefore used other tracking systems than those offered by the PMM. Simply stated, the traditional methodology had very limited flexibility or value when applied to projects that were not operational.

1 Waterfall is a term used to describe a life-cycle that generally follows a serial path. Other terms used are "predictive," "serial," and "traditional."

- **Risk Management:** Risk management is important on all types of projects. But on nontraditional or strategic projects (characterized by their high level of uncertainty and dynamic changes in requirements), many organizations found that the standard risk management practices included in traditional methodologies were insufficient for the type of risk assessment and mitigation practices found in such a fluid environment.

- **Governance:** For traditional projects, governance was often provided by a single person acting as the sponsor (if there even was one assigned!). The methodology became the sponsor's primary vehicle for command and control and was used with the mistaken belief that all decisions could be made by monitoring just the project's time, cost and scope constraints.

THE FAULTY CONCLUSION

Organizations reached the faulty conclusion that a single methodology, a one-size-fits-all approach, would satisfy the needs of almost all their projects. This mindset worked well in many companies where it was applied to primarily traditional or operational projects. But on nontraditional projects, the methodology failed (and in certain cases, in spectacular fashion).

As the one-size-fits-all approach became common practice, companies began capturing lessons learned and best practices with the intent of improving the singular methodology. Project management was still being viewed as an approach for projects whose requirements were reasonably well-defined at the outset, having risks that could be easily identified, and executed by a rather rigid methodology that had limited flexibility.

Concurrent with the adoption and widespread use of the single methodology, strategic projects that included innovation, R&D and entrepreneurship were being managed by functional managers. They were often allowed to use their own approach for managing these projects rather than follow the one-size-fits-all methodology. Using innovation as an example, we know that there are several types of innovation projects, each with different characteristics and requirements. Without employing a flexible or hybrid methodology, management was often at a loss as to the true status of these types of projects.[2] Part of the problem was that professionals working on innovation projects wanted the "freedom to be creative as they see fit" and therefore did not want to be handcuffed by having to follow any form of rigid methodology.

2 For additional information on the complexity of managing innovation projects and how they can be overcome, see Harold Kerzner, Innovation Project Management, John Wiley & Sons Publishers, Hoboken, 2019.

THE PROJECT MANAGEMENT LANDSCAPE CHANGES

Companies began to realize the benefits of adopting formal project management practices from their own successes, the capturing of lessons learned and best practices, and published research data showing a link between project success and the adoption of project management best practices. Furthermore, companies were convinced that almost all activities and initiatives within the firm could now be regarded as a project and they were therefore managing their business by projects (also known as a project-based business).

As the one-size-fits-all methodology began to be applied to nontraditional or strategic projects, the weaknesses in the singular methodology became strikingly apparent. Strategic projects, especially those that involve innovation, may not be completely definable at project initiation and, as such, the scope of work can change frequently during project execution. In fact, it's in the execution of the project that the requirements become clear. Also, governance of the project takes on a different form, requiring significantly more involvement by the customer or business owner, thus mandating a different form of project leadership.

Moreover, the traditional risk management approach used on operational projects appeared to be insufficient for strategic projects. As an example, strategic projects require a risk management approach that emphasizes VUCA analyses:

- **V**olatility
- **U**ncertainty
- **C**omplexity
- **A**mbiguity

Significantly more risks are found on strategic projects where the requirements can change rapidly in order to satisfy turbulent business needs. This became quite apparent on IT projects that focused heavily upon the traditional waterfall methodology. This offered little flexibility to the project team to adjust the project's parameters based on changing requirements. The introduction of an agile approach implemented through any number of agile frameworks, such as Scrum, solved some of the problems but created others.

Agile frameworks focused heavily upon better risk management activities but also required a great deal of collaboration with the business side of the company, and not every business professional had the time or the inclination to devote the amount of time required for such collaboration. Every approach, methodology or framework comes with advantages and disadvantages.

The introduction of agile frameworks gave companies a choice between a rigid one-size-fits-all approach or a very flexible agile approach. To be sure, not all projects are perfect fits for an extremely rigid or flexible approach; many projects are middle-of-the-road projects that may fall in between rigid waterfall approaches and the more flexible agile frameworks. Projects that fall into this category often use hybrid life cycles—a combination of agile and waterfall—which can be used as a transition path to full agile implementation.

SELECTING THE RIGHT FRAMEWORK

Today, many practitioners strongly assert that a key role of the project manager is to decide which type of life-cycle to use on a project (i.e., waterfall, agile or hybrid) given its many characteristics. Others contend that new frameworks can be created from the best features of each approach and then applied to a project. What we do know with a reasonable degree of confidence is that new customizable frameworks that afford practitioners a great deal of flexibility are being used today and that as more organizations adopt the agile approach to work accomplishment, additional frameworks will be developed in the future.

For example, today we see organizations mixing various agile approaches such as Scrum, Kanban and Extreme Programming (XP). Many companies also use hybrid approaches as mentioned above, combining agile and waterfall in various ways such as developing a product using agile methods, but rolling out that product globally employing the waterfall approach. Some projects predominantly use the waterfall approach with some element of agile, and yet other projects use a predominantly agile approach with some element of the waterfall approach.

Deciding which approach or framework is best suited to a given project is a current challenge experienced by project managers in many, but not all, organizations. Some companies have not attempted to implement agile in any meaningful way and are still trying to solve all project issues with a “one-size-fits-all” approach. But the day is rapidly approaching where all project teams will be the given the choice of which framework to use.

We must never forget that the focus of our work on projects is on delivering value to our customer on a frequent basis. Whichever framework gets us there is the one we should be employing.

The decision regarding the best life-cycle to use can be accomplished with checklists and questions that address characteristics of the project such as flexibility requirements, type of leadership needed, team skill levels needed, and the culture of the organization. The answers to the questions will then be pieced together to help decide which life-cycle approach will be the most appropriate under the circumstances. Typical questions might include the following:

1. **How clear are the requirements and the linkage to the strategic business objectives?** On certain projects, especially when innovation and/or R&D are required, it may be difficult to develop well-defined objectives even though the line-of-sight to the strategic business objectives is well known. These projects may focus more on big, hairy, audacious goals (BHAGs) rather than on more well-defined objectives.

   When the requirements are unclear or uncertain, the project may be tentative in nature and subject to cancellation. In short, it may look to many like an experiment where the project team keeps pressing forward until certain events provide clear indicators that the project should continue or be terminated based on actual results. It's basically an exploratory endeavor. As such, we must expect that changes will occur throughout the life of the project. These types of projects require highly flexible frameworks and a high degree of customer involvement.

2. **How likely is it that changes in the requirements will take place over the life of the project?** The greater the expectation of changes, the greater the need for a highly flexible approach. Changes may occur because of changing consumer tastes, needs or expectations. Allowing for too many changes to take place may get the project off track and result in a failed project that produces no benefits or business value. After all, even agile projects can suffer from scope creep. The size of the project is also important because larger projects are more susceptible to scope changes.

In addition to the number of changes that may be needed, it is also important to know how much time will be allowed for the changes to take place. In critical situations where the changes may have to be implemented in days or weeks, a fast-paced, flexible approach may be necessary with continuous involvement by stakeholders and decision-makers.

3. **Will the customer expect all the features and functionality at the end of the project, or will the customer allow for incremental scope changes?** Incremental scope changes allow the project to be broken down and completed in small increments that may increase the overall quality and tangible business value of the outcome. This may also provide less pressure on decision making.

4. **Is the team co-located or virtual?** Projects that require a great deal of collaboration for decision making may be more easily managed with a co-located team, especially when a large amount of scope changes are expected.

5. **If the project requires the creation of features to a product, who determines which features are necessary?** The answer to this question may require the project team to interface frequently with marketing, clients or end users to make sure that the features are what the users desire. The ease by which the team can interface with the end users may be of critical importance.

6. **Is there success (and/or failure) criteria that will help us determine when the project is done?** With poorly defined (or an absolute lack of) success criteria, the project will most certainly require a great deal of flexibility, testing and prototype development. In such cases, an iterative life-cycle might be the best approach.

7. **How knowledgeable are the stakeholders with the framework selected?** If the stakeholders are unfamiliar with the framework, the project team may have to devote significant time to educate them on the framework selected and their expected role and responsibility in deploying that framework. Arguably, some might see this as a waste of time, but if the stakeholders aren't sure of their roles and responsibilities it makes the project team's job that much more difficult. Therefore, training and education on agile methods needs to be provided to all impacted in the organization, not just the facilitator, product owner or development teams. Providing training in the new frameworks can also lessen the resistance so often found in people who cling to the old ways of doing things.

8. **What metrics will the stakeholders and business owner require?** Waterfall methodologies focus on time, cost and scope metrics. Flexible methodologies also allow for other metrics, such as business benefits and value achieved.

BE CAREFUL WHAT YOU WISH FOR

Selecting the right framework may seem like a relatively easy thing to do. However, as stated previously, all methodologies and frameworks come with disadvantages as well as advantages. Project teams must then "hope for the best" but "plan for the worst." They must understand what can go wrong and select an approach where execution issues can be readily resolved in a timely manner.

Here are some questions focusing on "What can go wrong?" that should be addressed before finalizing the approach to be taken:

1. Are the customer's expectations realistic?
2. Will the needs of the project be evolving or known at the outset?
3. Can the required work be broken down and managed using small work packages and sprints or is it an all-or-nothing approach?
4. Will the customer and stakeholders provide the necessary support, and in a timely manner?
5. Will the customer and stakeholders be overbearing and try to manage the project themselves?
6. How much documentation will be required?
7. Will the project team possess the necessary communications, teamwork and innovation/technical skills?
8. Will the team members be able to commit the necessary time to the project?
9. Is the type of contract (i.e., fixed price, cost reimbursable, cost sharing, etc.) well-suited for the framework selected?

Selecting a highly flexible approach may seem, at face value, to be the best way to go. Mistakes and potential risks can be identified early, allowing for faster corrective action thereby preventing disasters. But what many fail to realize is that the greater the level of flexibility, the more layers of management and supervision may need to be in place.

CONCLUSIONS

Today, there are many approaches, methodologies and frameworks available for project teams such as Agile, Waterfall, Scrum, PRINCE2®, Rapid Application Development, Iterative, Incremental, and the list goes on and on. In the future, we can expect the number of available methodologies and frameworks to increase significantly. Accordingly, some type of criteria, more comprehensive than some of the guidance already provided, must be established to select the best approach for a given project.

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