

# Can Agile Project Management Be Adopted by Industries Other than Software Development?

Edivandro C. Conforto, Massachusetts Institute of Technology, MA, USA;  
Fabian Salum, Fundação Dom Cabral, Brazil;  
Daniel C. Amaral, University of São Paulo, Brazil;  
Sérgio Luis da Silva, Federal University of São Carlos (UFSCar), Brazil;  
Luís Fernando Magnanini de Almeida, Federal University of São Carlos (UFSCar), Brazil

## ABSTRACT

### KEY WORDS

*Agile Project Management*

*APM: an approach based on a set of principles, whose goal is to render the process of project management simpler, more flexible and iterative in order to achieve better performance (cost, time and quality), with less management effort and higher levels of innovation and added value for the customer.*

This research presents evidence from an exploratory survey on the use of agile project management (APM) practices at medium and large-sized Brazilian companies from different industry sectors. Results indicate evidence of the presence of APM enablers, which create favorable conditions for implementing and adapting APM theory in non-software companies. The study also identified potential barriers for APM implementation in traditional industries. The authors propose the hypothesis that the APM approach can be adapted, at least for innovative projects, to non-software companies. Furthermore, they suggest exploring the correlation between APM practices and enablers aiming to develop “hybrid” management models for companies beyond the software industry.

## THE PROBLEM

For decades both the academic and corporate sectors have been engaged in improving traditional management methods. The solution could be a more “flexible” approach to new product development adaptable to the contingencies of the project environment. The terms “agile” and “Agile Project Management” (APM) first appeared in the software industry, where the paradigm demonstrated huge success. However, there is a lack of empirical studies on the use of agile approaches in other types of industries and projects.

This research presents a conceptual framework to identify enablers and practices related to the APM approach. The framework was applied in an exploratory survey with a group of 19 medium-sized and large-sized Brazilian companies, all of which have experience in new product development, and do not formally use APM methods.

## ■ THE PROBLEM *(continued)*

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Recently, the Project Management Institute (PMI) launched a certification that recognizes practitioners in the use of agile project management methods focused on software development projects, called the PMI Agile Certified Practitioner (PMI-ACP)<sup>®</sup>. Consequently, it is important to clearly define the term “APM.” In this paper, the definition of agile project management is *“an approach based on a set of principles, whose goal is to render the process of project management simpler, more flexible and iterative in order to achieve better performance (cost, time and quality), with less management effort and higher levels of innovation and added value for the customer.”*

## ■ THE FRAMEWORK

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The conceptual framework created to identify the use of APM in companies using a traditional project management approach is based on two key elements: practices and enablers. APM use will depend on the existing enablers favorable conditions to the proper application of the APM practices. With better comprehension of these two dimensions, it is possible to identify if the necessary conditions are in place for APM implementation.

A project management practice is a specific type of “management action” that contributes to the execution of a process and that may employ one or more techniques and tools. A literature review resulted in a set of 23 actions, 54 techniques, and 21 tools, which were categorized according to the original source as having a tendency toward a “traditional” approach, an “agile” management approach, or both.

The literature identified a six management practices that clearly differentiate the use of the agile project management:

- Use of the “product vision” concept
- Use of simple project plan communication tools and processes
- Use of iterative planning
- Use of self-managed and self-directed teams in the project plan
- Use of self-managed and self-directed teams in the project plan monitoring and updating activities
- Frequent application of project plan monitoring and updating processes

APM literature is rich in discussions targeting the importance of the pre-conditions or “enablers” that are required for the successful use of APM practices, tools, and techniques. The research identifies 41 enablers classified into four categories: organization, process, project team, and project type (Table 1).

## THE FRAMEWORK (continued)

Organization	Process	Project Team	Project Type and Others
Organizational structure type	Capability of reconfiguration	Self-direct teams	Product succession planning
Organizational culture	Process automation	Team autonomy to make decisions	Urgency to complete the project (pace)
Entrepreneurial culture	Process modularity	Team leadership	Goal clarity
Learning organization	Easy access to information	Team dedication	Project complexity
Agile-style work environment	Formalization	Team knowledge about agile	Project newness
Acceptance of agile methodology	Frequent development milestones	Team experience/expertise	Support systems, CAD, CAE
Adequate reward for agile use	Process concurrency	Project manager experience	Customer involvement
Emphasis on speed	External integration	Team size	Collaborative work
Performance measuring		Team location	Suppliers' involvement
Knowledge management systems		Multidisciplinary team	
Multidisciplinary teams			
Resource competition			
Strong executive support			
Decentralized decision making			

Table 1: Enablers related to the agile project management approach

## THE FINDINGS

*There is evidence that the companies surveyed, irrespective of industry sector, are facing similar issues and challenges as those of software companies in the development of innovative products.*

Results are based on a survey of 19 medium and large-sized companies in the state of Minas Gerais, Brazil, that have not formally used APM methods. Although these organizations formally define themselves as using traditional project management methods, three observed practices are consistent with APM theory: a) the frequency of updating the project plan; b) the use of a minimal textual description, rather than detailed descriptions of the project scope; and c) the shared responsibility to create the project plan.

Furthermore, a few small companies are applying some variation of iterative planning. For instance, the research found a predominance of the phased planning approach, application of a less textual description of the project scope, minimum revisions of plans, and high percentage of team members involved in project plan development. These results can be interpreted as evidence that some companies are moving toward a blend of agile management and traditional management practices.

The survey shows the presence of the following enablers for APM implementation:

- a) Project teams have over two years of experience (79%)
- b) Significant experience of the project manager (68%)
- c) Small project teams (up to 12 professionals in 84% of the cases)
- d) Tendency to employ multi-disciplinary project teams (68%)
- e) Some companies already organize their innovative project teams in small, co-located groups
- f) More than half of the companies have involved the customer/stakeholders in the project planning

## ■ THE FINDINGS (continued)

g) Just over a third of the companies have early customer/stakeholder involvement, which is consistent with the APM theory

h) Companies show organizational designs that can be useful for APM implementation

In summary, there is evidence that the companies surveyed, irrespective of industry sector, are facing similar issues and challenges as those of software companies in the development of innovative products. In most cases they are performing innovative projects using experienced and cross-functional teams managed by experienced project managers. Additionally, there is a tendency to have less formalized processes, and therefore empowering the team with a degree of autonomy to make decisions.

## ■ RESEARCH IMPLICATIONS

*The results indicate evidence of favorable conditions for APM implementation.*

The results indicate evidence of favorable conditions for APM implementation including the project team and size; project manager experience; and the new product development process formalization level. Moreover, there is evidence of APM practices being applied in these companies (e.g., creating the project scope with minimal textual description, creating the project plan collaboratively with shared responsibility, and using a plan updating approach on a weekly basis).

*The research suggests that APM approach could be adapted to non-software companies (...), opening the possibility for developing a hybrid management model.*

Deliberately or not, project management practitioners are trying to adapt APM practices for their contexts and challenges. However, the study identified potential barriers for APM implementation in "traditional industries." The use of APM is challenged by the: a) need to assign full-time dedicated project teams; b) difficulty of co-locating project team members; c) difficulty in creating large multi-disciplinary teams; d) challenge of involving customers with a high degree of influence in project development; and, e) the superficial involvement of suppliers.

The research suggests that APM approach could be adapted to non-software companies, at least for innovative projects. However, further research is required to explore the correlation between APM practices and enablers, opening the possibility for developing a hybrid management model for companies beyond the software industry.

## ■ FULL CITATION

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