1. The Potential Impact of applying agile project management principles to a given project. (considering the type of project and its suitability for being managed in an agile fashion).

Agile project management (APM) represents a team management approach and a productivity framework that supports continuous and incremental progress on work priorities, even in the face of changes. When the goal is clear, but the solution and how to get there is unclear, it is necessary to use APM (Futrell et al., 2002). Moreover, if the projects are complex, the APM is also considered as a more appropriate project management approach.

If a traditional project management approach has been used, it is used to plan out details up front. This is called a plan-driven approach. However, APM are change "plan-driven". Further, APM uses iterative cycles of development, with a self-managed team following "light-but-sufficient" communication-oriented rules (Serrador and Pinto, 2015). This means that instead of avoiding changes in the project, changes are considered. This causes a more dynamic relationship between the team that creates the product, and the external stakeholders which requested it. When using APM, the stakeholders are more involved in the process, but the end result will be much closer to what they really wanted. Since the end solution is unclear at the beginning, it is defined throughout the project, based on feedback from the customer and other stakeholders.

On the other hand, APM is to include plan in the implementation. Feedback from stakeholders is welcome and considered an integral part of the process. Based on the feedback and the overall vision of the product, a new iteration is planned, executed and deployed. This way, the solution is not fully known at the beginning, but is defined throughout the project lifetime. When the project is complex, an adaptive APM is more favorable for the project (Wysocki and McGary, 2003).

APM always focuses on people and teamwork as well as the social perspectives of project development. Also, APM would like to use shared visualization systems, focused on doable and transparent tasks. When using APM, it is always the facilitator to help with coordination and conflict resolution, and ensuring that team members contribute. In addition, APM is to use a workflow visualization tool for reflecting progress, which is an artefact that enables documentation and transparency of project activities (Leach, 2005). The agile project management approach is most suitable for projects which involve uncertainty and constant change, in which the traditional techniques of project management does not fully meet the requirements of flexibility to absorb changes in the project. The agile approach is best suited for dynamic environments that have a business environment influenced by constant change (Cohn, 2005).

Lego is an organization which successfully used and implement Scaled Agile Framework to design and produce their products. LEGO began its journey to

agility by introducing changes at the team level. The result of that initial change was that although individual teams had become Agile, they still couldn't cooperate effectively together. At LEGO, the team of teams was meeting every 8 weeks for a big room planning session, which lasted for one and a half days. During this meeting, teams showcased their work, worked out the dependencies, estimated risks, and planned for the next release period. With APM, the developers now give more accurate estimates, and the outcomes have become more predictable. Lego has given people independence to make them more motivated, and they do better work. As Lego focuses on product innovation, independence and motivation has positive influences on the innovation activities in the company. Therefore, agile approach is appropriate for them to manage the new product development projects.

2. The three criteria "on time, on budget and to scope" have sometimes been used to provide a simple definition of success for software development projects. Discuss what other factors might be important in characterizing project success and the reasons for their importance.

Project management success is considered the ability to comply with time, cost, and scope requirements. These triple constraints are called, in literature, the "golden triangle" and are concerned with the efficiency of the project organization. Project management success is also described as a narrow view of success. According to Hussein (2013), defining success criteria upfront is helpful to establish agreement on how and when a project will be evaluated, which helps create a common vision about the outcome, which is in itself a significant driver of project management success. Hussein et al. (2015) supported this view and recommended defining a project's success criteria at the start as good project management practice.

Success factors can be perceived as main variables that contribute to projects' success, as levers that can be operated by project managers to increase chances of obtaining the desired outcomes. A combination of factors determines the success or failure of a project and influencing these factors at the right time makes success more probable. In earlier project management literature, the main focus was on identifying generic factors that contribute to projects' success. Within the last years, authors emphasized on the existence of different success factors depending on project type. The struggle to identify the critical success factors is an ongoing topic, approached by many researchers especially due to the pressure of implementing successful projects in a dynamic global market and ever-changing business world, where continuous innovation is a must in order to achieve competitive advantage.

Pinto and Slevin's paper from 1987 represent a reference point by establishing a list of ten success factors, recognised by other authors as accurate. These ten factors include project mission, top management support, schedule and plans, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication, trouble-shooting (Pinto, Slevin, 1987). Davis (2014) adopted in her paper a set of nine themes in order to describe success factors of projects: cooperation

and communication, timing, identifying/ agreeing objectives, stakeholder satisfaction, acceptance and use of final products, cost/ budget aspects, competencies of the project manager, strategic benefits of the project and top management support.

Yu et al. (2005) discussed the timing of project evaluations which aim analyzing the success, concluding that the process is useful at any time between the first milestone until the completion of the project. The results of these evaluations might indicate inconsistencies that can have negative influence on the final outcomes. Whenever these situations occur, project managers should act in order to increase success chances by influencing the previously identified success factors.

Hussein (2013) considers the potential threats and challenges influencing the initial definition of criteria of project success, as well as the implementation and evaluation phases. Their study considers risk factors, if not accurately addressed at the start of the initiation phase, will lead to further complications in the execution and evaluation phases of the project. Hussein et al. (2015) stressed the importance of regarding projects as tools for value creation in an organization. This missing alignment may lead to several challenges for the performing organization during the execution phase such as lack of commitment, or lack of top management support which are both important success factors for projects.

Developers and other operational-view stakeholders agreed that in order to make successful projects it is necessary to understand customer problems, to have good programming style and team experience (Dyba and Dingsoyr, 2008). Project managers believe that most important for project success is to have very good project management and experienced team. Top managers and other strategic-view stakeholders agreed that complete and accurate requirements, understanding customer problems and his involvement in the project are necessary for the project success. Strategic and operational stakeholders also mentioned meeting quality requirements as one of the most important project characteristics of success (Cohn, 2005).

3. Software development projects are sometimes geographically distributed, employing a number of software development teams in differing cities, countries or continents. Discuss how agile project management would support those teams.
Agile project management (APM) is an emerging approach in software development and engineering, which aims to improve the quality of projects (Beck, 2001b). Because of the attractiveness and success of the APM approach, many project managers, who followed the traditional model (plan-based), gradually changed to projects management based on agile principles. The APM has been also used in the software development management which are geographically distributed employing a number of software development teams in differing cities, countries or continents.

Ideally, software development team members are working at the same location. Thus, developers have face-to-face meetings, same culture, and organization that enhance

the collaboration of team members and also makes easier to control. However, if the team members are not in the same geographies, the team members work at distributed locations that cause challenges such as different time-zones, communication difficulties, social and cultural differences (Sanchez & Nagi, 2001). Furthermore, team members need to make up a network of distributed sites due to locating in various isolated locations during software development lifecycle. In some instances, outsourcing of different organizations may occur; in other cases, these developers may be working for the same company.

The agile methods are applicable for distributed software development. In relation to being a team, the scrum practices in APM are useful and supportive with the help of activities as planning, retrospective, and review. Scrum is one of the implementations of agile methods, in which incremental builds are delivered to the customer in each two to three weeks' time (Sutherland, 2001). In detail, commitment principle of Scrum also promotes moving as a team and feeling of being a team in planning activity. Through the instrument of web technology, planning was published to a web page that was accessible from distributed locations that support the participation of every team member into the process.

When implementing Scrum framework, a team member had a short online meeting every day that is defined as "daily scrum". Meetings are held at the same time each day that reduces complexity (Davis, 2014). Every team member has a chance to speak and share the latest status of their tasks that promote coordination among team members. The Scrum planning could be used in order to increase the feeling of a team. Further, daily scrum could be used to establish mutual understanding and coordination between team members. The project could also use question and remarks session after the daily Scrum which can support the collaboration with all stakeholders and team members. The project team can use online communication tool on web or mobile so that the synchronous communication could be increased. The project team members could consider using Wiki and social platforms which support knowledge sharing among all distributed regions.

The applied practices supported by web tools as an online communication tool that works at web, pc, and mobile, creates an environment for synchronous communication of team members. Moreover, usage of wiki and company social pages is supportive for most of the tasks of communication, coordination, and documentation. Wiki is software that allows users to create new pages or edit information through any browser and lastly, historical versions were also stored. As a consequence, agile methods create flexibility for development teams to define their additional practices that may reduce the negative consequences of geographical distance. Moreover, technological innovations are also managing coordination and communication practices (Boehm and Turner, 2004).

In general, the Scrum frame work as one of agile product management approaches

could be used in the software development management which are geographically distributed employing a number of software development teams in differing cities, countries or continents. It can make contributions to effective information sharing, communication and coordination by leverage different web tools and methods.

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