**Discussion:**

Last week, as part of our discussion topic, we talked about CMMI. CMMI has been used, historically, with traditional software methodologies. However, Agile development has become more popular in software engineering. Do you think that an organization using one of the Agile methods can achieve a high level CMMI rating? If not, please explain why you think it is not possible. If yes, discuss how this might be done and why it is possible. Resources outside of our textbook may be consulted (but please remember to use APA format citations when needed).

**Answer:**

Agile development methodologies like SCRUM, Kanban, Lean, XP have become popular choices for software development approaches taken by various organizations. On the other hand, CMMI framework is also gaining its popularity in organizations that follow the agile methodologies. CMMI and agile frameworks can co-exist without any conflict are, those are applied in the right project. Historically, CMMI went well with traditional software engineering processes. However, that does not limit its capability and applicability in an agile methodology based software development processes followed in various organizations.

In my opinion, there is no solution that fits for all. Rather, it depends on the different factors of a software development project, including the team, the methods being followed, the skills and knowledge of the team members. As said by Bernard Baruch, ‘If all you have is a hammer in a toolbox, everything looks like a nail.” (Rongley, 2016). CMMI is not the hammer in a project management toolbox. CMMI goes well with agile practices when the project is focused on delivering minimum viable products (Rongley, 2016) and the project team contains a group of senior and experienced team members (Shelton, 2008).

CMMI is fundamental, an approach towards process improvement in an organization. Different processes of an organization may have different CMMI levels. Collectively, the CMMI framework provides various essential elements for improvement of different organizational processes. It is also applicable for the improvement of projects carried out by an organization. CMMI helps in integrating different organizational processes and goes through process improvements to fulfill the priorities and goals set for the qualities in the deliverables (Jakobsen & Johnson, 2008).

Scrum and XP are two agile approaches that can be covered by CMMI in details. The CMMI process areas can be integrated with the agile approaches to fulfill the goals of the CMMI framework. CMMI can help to address various shortcomings of agile approaches. However, studies have shown that agile methods can go well with CMMI up to level three. From level four and five, conflicts between CMMI and agile principles increase (Fritzsche & Keil, 2007). Up to CMMI level two and three, major adaptations can be avoided or can be limited. Hence, it does not create many conflicts with the CMMI process areas (Fritzsche & Keil, 2007).

However, CMMI can help to resolve many challenges of agile methodologies. It is a challenge to apply SCRUM in large and complex software development projects. Usually, multiple SCRUM project teams work on such large projects. Hence, the issues are generally related to lack of coordination between teams, the wrong implementation of the system requirements, challenges in balancing the cost, scope, time and quality of the project, challenges in system integration, risk management and so on. CMMI can help to address such challenges by providing suitable practices to follow for implementation and project management. CMMI helps to achieve some real-time improvements through regular feedbacks, retrospective meetings. That helps to ensure organizational supports in SCRUM projects. So, CMMI can help to achieve faster improvements in agile practices (McMahon, 2010).

# **References**

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