

# **The Second Generation of the Software Project Management Innovation (SPM) Methodology: Applying the Methodology in SME**

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## **Abstract**

This paper continues the journey of the first generation of the Software Project Management (SPM) methodology presented at the third 21<sup>st</sup> CAF conference at Harvard (2015). The current study described in this paper seeks to define a second generation of the agile process (SPM), which comes under the auspices of the Software Development Life Cycle (SDLC). This method manages IT projects through service-oriented iterations that follow the aspects and characteristics of sustainable agility. The second generation of the SPM is produced through applying, adopting, and testing the method into many IT projects.

**Keywords:** SPM, Software project management, Agile.

### Introduction

In the previous paper (Aleid, 2015), the author presented the first generation of the agile methodology called Software Project Management (SPM), which was developed and examined by the Software and Engineering Development Centre (SEDC). After two years of applying SPM the author developed a second generation SPM, which is described by this study. SPM is a developmental approach that originated in the field of IT to develop systems and applications that meet customers’ satisfaction in terms high quality and within a given timeframe.

This paper briefly mentions the first generation of SPM by way of an introduction and then proceeds to describe its second generation.

The study reviews the original SPM and its concepts, values, principles and characteristics. It describes the second version of SPM. Then it covers the added value of the updated SPM, which is the central feature of this study. The final section summarizes the research by describing its contribution to knowledge, its implications and its scope for further work in the field.

### Literature Review

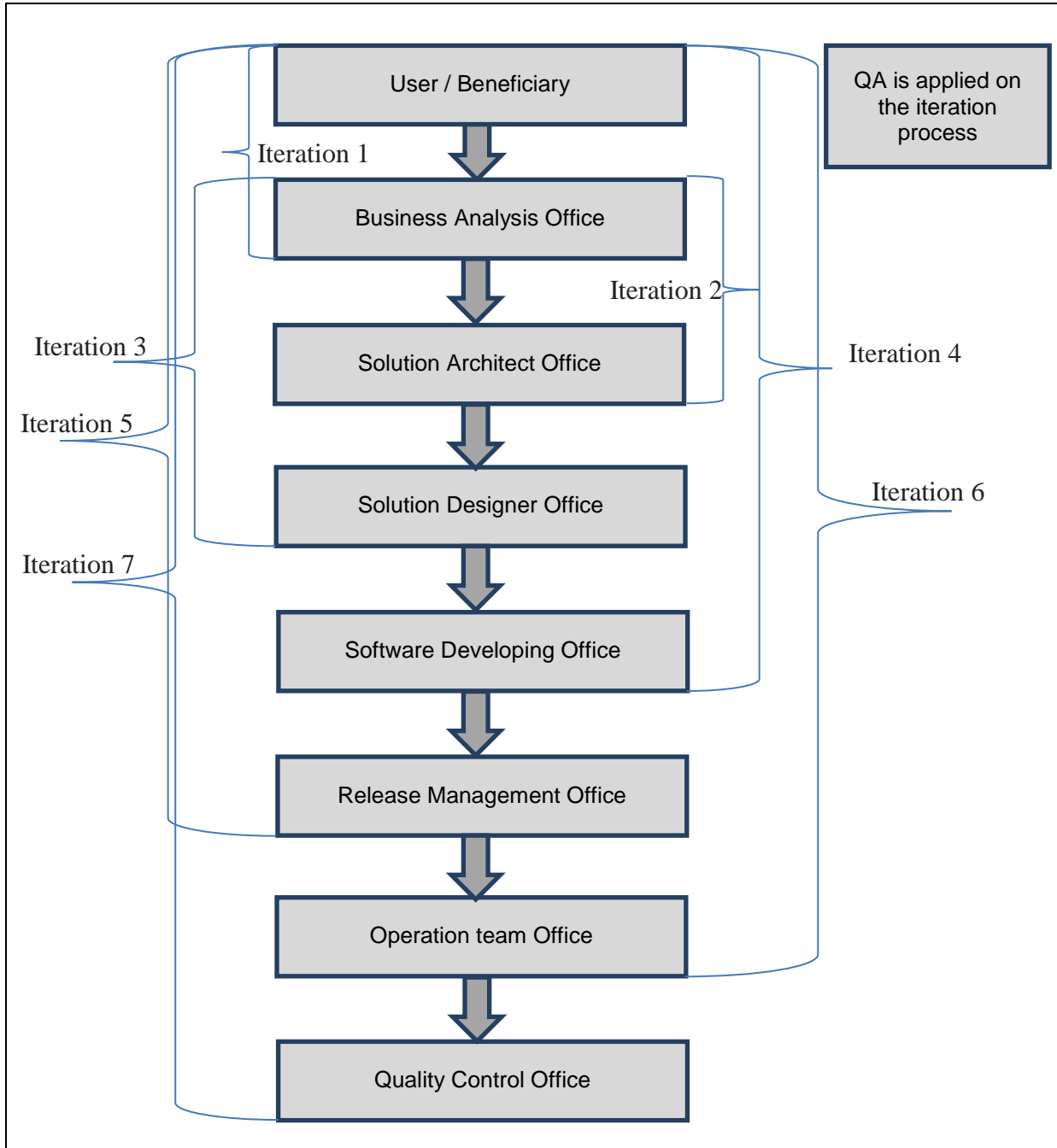
As the author mentioned in the previous study SPM is an agile method that adopts the twelve principles in the Agile Manifesto mentioned in (Aleid, 2015). These principles are customer satisfaction, the ability to change requirements, a cycle delivery achieved within a certain time. Developers and clients are able to work together in self-organised teams, hold face-to-face regular meetings and discussions to maintain a constant pace to deliver quality software quickly with simplicity. Moreover, it has been shown in the previous academic paper that SPM has agile characteristics being modular, iterative, time-bound, parsimony, adaptive, incremental, convergent, people-oriented and collaborative. There are four core values of the Agile Manifesto which are:

“Individuals and interactions	Over	Processes and tools
Working software	Over	Comprehensive documentation
Customer collaboration	Over	Contract negotiation
Responding to change	Over	Following a plan ”

(Agile Alliance, 2013).

### Software project Management (SPM): Second Edition

Depending on different practices and experiments in the SEDC (Software Engineering and Development Centre), the second version of the SPM appears as shown in figure 1 and figure 2.



**Figure 1:** Iterations in SPM

In SMEs (small-to-medium enterprises) where there are often many IT projects and limited IT professionals, the second version of SPM aims to utilize every resource organizations possess. As mentioned in the previous study (Aleid, 2015), the author demonstrated that for each IT project, an SME needs a team of three to nine persons consisting of system architects, programmers, system analysts, documenters, testers, quality assurance specialist, customers' representative etc. Where organizations have a shortage of specialists, they are limited to the number of IT projects they can develop and manage. This is because each project will require one specialist from each different service to be involved. Therefore, a second version of SPM was developed that is service oriented rather than dependent upon the individual as seen in figure 1. In order to enhance efficiency in terms of time and effort for SMEs, the project team has amended the methodology depending on the

stage the project has reached. This is achieved by representatives from each service engaging the process at the appropriate stage. In this version of SPM, iterations are based upon service oriented; therefore, if one staff member goes another is ready to join.

For example, at the beginning of a project, not everyone is involved. It usually involves just the user/customer and a representative of system's analyst team preparing the initial business document. Here iteration may take between three to ten working days. During this stage, SPM saves time and effort for the other related staff in SMEs.

The second iteration occurs after completion of the initial business document and involves the solution architect's service to develop the structure, design the solution to the requirements stated in the business document. It also involves the decision of the need to develop a new system/application or add some functionality to a current one to meet the customer's requirements and the prerequisite to integrate it with other systems. The solution architect document is the result of this iteration. Then, the third iteration involves the solution designer's service who defines the IT solution for those requirements which are represented by the solution design document.

The fourth iteration involves software development service, which is responsible for developing the software. The fifth iteration involves the release management service that plans for release of the project. The sixth iteration involves the IT Operations service which responsible for the infrastructure and application deployment. The seventh iteration involves the quality control service where there is a quality assurance that ensures the team is doing the right things in the right way.

Each specialist in the organization should be oriented about each project in which their service is involved. Figure 2 below shows the development life cycle in SPM methodology.

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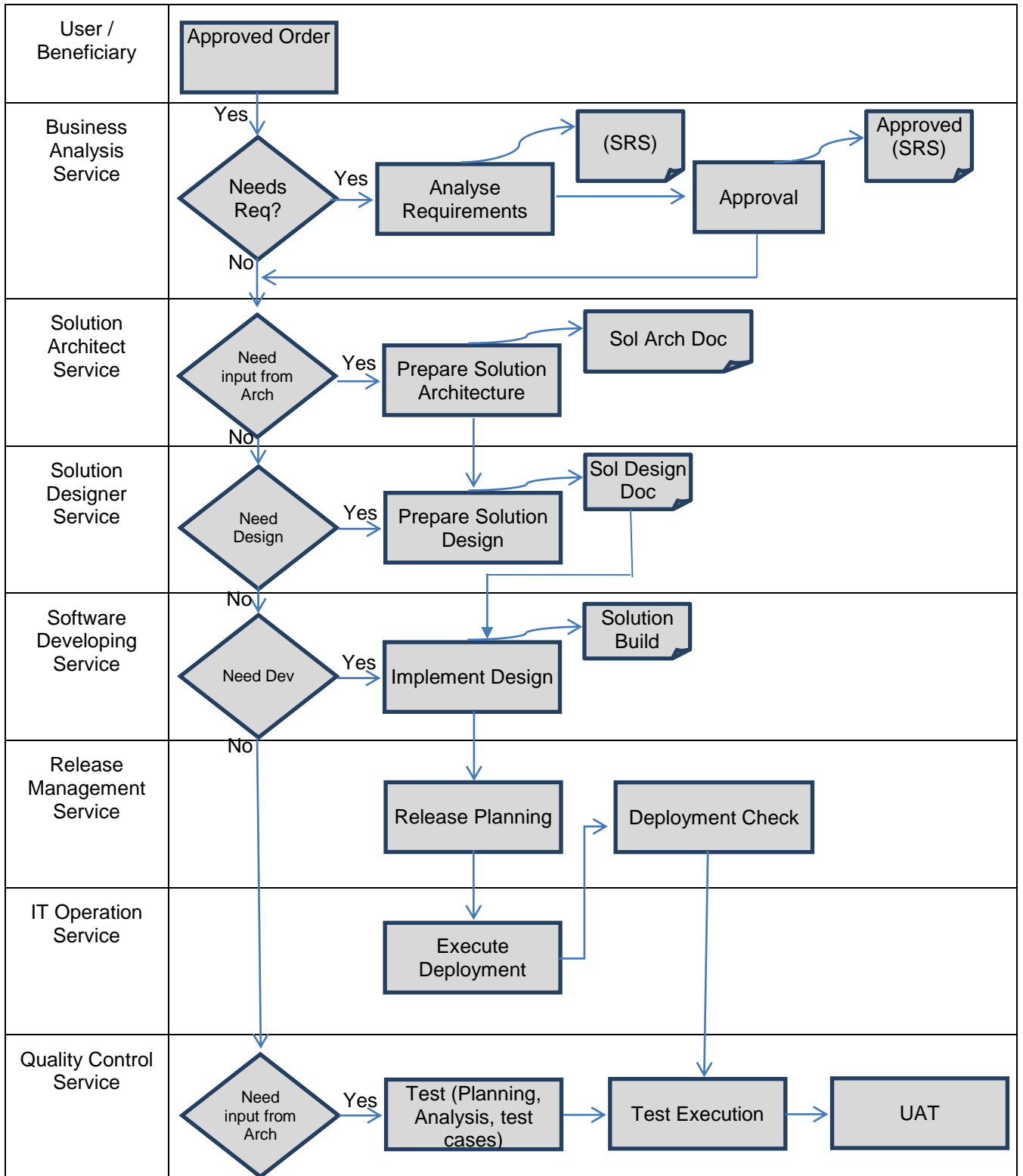


Figure 2: Development life cycle in SPM

## **Research Contribution To knowledge**

As mentioned earlier, this paper presents the second version of SPM, which is considered to form a good solid ground for improvement and can assist SMEs to develop their IT projects.

### **Implication of the study**

This paper has theoretical, practical and methodological implications for academics and firms to benefit. To begin with, the study presents a framework that can be applied as an initial one for further studies. The framework can be used by SMEs in their IT projects. Moreover, it provides a new version of one of the agile methodologies for theoretical discussion among academics.

### **Further work**

This paper continues the research based upon previous work conducted by (Aleid, 2015). Further work is required to confirm the researcher's findings and bring about improvements to the methodology.

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