

# Achieving Success in Supply Chain Management Software by Agility

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**Abstract.** Supply chain management is comprehensive software. Due to its scope and unpredictable, complex and unstable requirements, it is not possible to develop it with predictable development process models. Agile methodologies are targeted towards such kind of problems that involves change and uncertainty, and are adaptive rather than predictive. The aim of this paper is to analyze the management and development methodologies used in development of supply chain management software. This paper shows how to overcome risks and handicaps in each development phase of a complex inventive project. It also provides a set of guidelines regarding how the agile methods may be adopted, combined and used in these kinds of projects.

**Keywords:** Agile methods, DSDM, FDD, Scrum, XP, Adaptive development, SCM.

## 1 Introduction

Software development is a cooperative game of invention and communication [2]. All agile methods such as Scrum, FDD, DSDM, Adaptive Software Development and especially Extreme Programming recognize this approach. Some of the key practices of agile methods are: scheduling according to feature priorities, incremental delivery of software, feedback from expert users, emphasis on face-to-face communication, pair development, minimalist design combined with refactoring, test-driven development, automated regression testing, daily integration, self organizing teams, and periodic tuning of methods. Working software is the primary measure of success [9]. Agile methods stress early and continuous delivery of software, welcome changing requirements, and value early feedback from customers. Agile methods seek to cut out inefficiency, bureaucracy, and anything that adds no value to a software product [9].

“Manifesto for Agile Software Development” describes the four comparative values underlying the agile position [10]:

- Individuals and interactions over processes and tools,
- Working software over comprehensive documentation,
- Customer collaboration over contract negotiation,
- Responding to change over following a plan.

In particular, agile methodologies are targeted toward problems involving change and uncertainty, and are adaptive rather than predictive [4]. Agile methodologies also emphasize collaboration and team interaction, valuing people over process. Agile methodologies commonly advocate a barely sufficient process [3].

The aim of this paper is to analyze the management and development methodologies used in development of supply chain management software. This paper shows how to overcome risks and handicaps in each development phase of a complex and inventive project. It also provides a set of guidelines regarding how agile methods may be adopted, combined and used in these kinds of projects.

## 2 Project Background

When the decision was taken to develop supply chain management software, the market analysis was performed within the company. This software was not intended for a specific customer. It was developed to be marketed. A team that includes a marketing expert, a manager and a domain analyst contacted many customers in order to define potential customer sectors and required services and functionalities. This market analysis was actually based on optimization requirements since it is the most important functionality that should be provided. After a couple of weeks, an abstract scope of the product was defined. The base distinction that should be decided is if the project is *predictable* or *inventive* [4] [6]. The development process, management values, planning and estimation models appropriately associated with these two domains are different. So, we analyzed the product and domain characteristics as following:

- Large scale of project
- Project complexity is high
- Acquaintance with the domain was less
- Insufficient requirement specification initially
- Requirement volatility was high
- Variety of customers
- Quick release was important to have an edge in the market
- There were multiple development teams and each team size was small. These teams concurrently developed different parts of SCM (Supply Chain Management) software.
- Getting near the start, reliable estimate of effort and cost was difficult.

Therefore, it would be a wrong decision to choose one of the traditional approaches (predictive methods) (i.e. waterfall methodology etc.) that are used for more predictable kind of projects. As the evidence shows that this project is an inventive project and it should be developed within the motivation of agile and iterative methods [6]. These methods can give you control over unpredictability by benefits of adaptivity. In order to control unpredictability, the key is iterative and incremental development as well as adaptive development. The success of supply chain management software project was based on starting with agile methods and achieving optimal processes by customizing them according to vision and benefiting from adaptivity. Since there is no