# Applying an Agility/Discipline Assessment for a Small Software Organisation

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**Abstract.** The adoption of agile software development methodologies may appear to be a rather straightforward process yielding instantly improved software in less time and increasingly satisfied customers. This paper will show that such a notion is a misunderstanding and can be harmful to small software development organisations. A more reasonable approach involves a careful risk assessment and framework for introducing agile practices to address specific risks. A case study with a small software development organisation is provided to show the assessment in practice and the resulting risk mitigation strategies for process improvement.

## 1 Introduction

Readers of software process research papers and books may find it difficult to believe that there are software development organisations with no discernable process to help guide development. The authors of this paper have spent over six months observing development meetings and interviewing software engineers and managers from a range of companies varying in size and product domain. Some of the large organisations, particularly in the telecoms domain, have been using specific established processes for years. Some of the smaller organisations have developed their own process and are very successful.

However, there is also a set of smaller organisations, typically with fewer than ten employees, that are not using any defined process. This paper is concerned with such organisations. They can still develop successful products and provide excellent support for their customers but they are at great risk from issues such as an increasing number of new contracts, employee turnover, misunderstood requirements and so forth. Such organisations, to be successful, often work at an unsustainable pace. This situation is obviously detrimental for a small business and something which an agile approach attempts to address. It is in such organisations that an agile approach to development is often seen to be the quick and easy solution for preparing the business to grow by building better products and satisfying more customers. A cursory glance at

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some of the agile literature or hearing a short talk on the topic can give the mistaken belief that an agile development approach will be straightforward to adopt and result in instant success.

A better approach for adopting agile methods is to take the time to assess what an organisation's risks are and what it does to manage these risks. This understanding can then be used to inform process improvement.

This paper aims to show how the authors adapted the assessment developed by Boehm and Turner [1], [2], [3], [4] to help a small software development organisation take a reasoned step towards process improvement and an Agile approach to satisfying their customers.

The paper is organised as follows. The second section provides a short historical context for agile methods by discussing their evolution. The third section will discuss approaches to adopting agile methods and the fourth section will introduce Boehm and Turner's Agility/Discipline assessment. Section five presents the case study with the company Servasport and how the authors utilised Boehm and Turner's Agility/Discipline assessment. Section six generalizes the risk mitigation process for introducing agile methods. The seventh section concludes this paper, summarising the key findings.

## 2 Agile Methods in Context

This section will briefly present a historical evolution of agile methods and thereby counter some of the misunderstandings that software organisations may have regarding their validity. For overviews of individual agile methods the reader can consult Abrahamsson et al [5] and Highsmith [6].

Larman and Basili [7], [8] have carefully provided the context for current agile methods. They argue convincingly that many of the practices which appear to be novel in agile methods, most notably incremental and iterative development (IID), have actually been practiced since software began to be developed in the 1950's.

Figure 1 shows the context of agile methods. When software began to be developed there were two approaches, IID and ad hoc. The waterfall process [9] was developed to improve those ad hoc development efforts and not necessarily to replace IID. At some point the waterfall process became the dominant approach, possibly due to its conceptual simplicity, and was used on many projects which would have been better suited to IID. This issue began to be addressed in the early to mid 1990's resulting in what would later be known as Agile Methods.

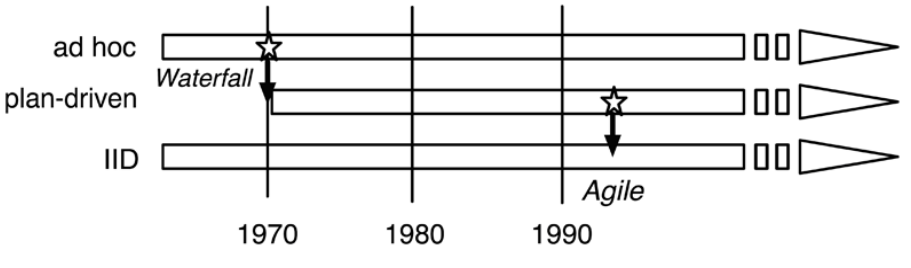


**Fig. 1.** The historical context for agile methods