

Agile Methodology Adoption

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INTRODUCTION

Discussions on agile software development methodologies have a tendency to develop into an argument between proponents of agile methods and proponents of more traditional process-oriented methodologies. The terminology used in these debates is often unhelpful, and in many cases are inaccurate and biased representations. It needs to be accepted that there are no “silver bullets” providing universal solutions (Jeffries, 2001). Bearing this in mind, the decision to adopt a particular software development methodology is a difficult one, and the decision to choose an agile method is no exception. In theory, as in practice, definitions and descriptions of the various agile methods are presented, yet the factors considered in the decision to adopt, or not adopt, an agile method are not addressed. While agile methodologies try to avoid the excessive use of procedures or tools (Beck & Fowler, 2001), one agile methodology, dynamic systems development method (DSDM), does recommend the use of appropriate tools during the development process (Coesmans, 2003). However, it appears that none of the available agile methodologies suggest a tool to assist decision makers at the project initiation phase, therefore, the debate on agile suitability is usually a debate on agile versus traditional methods (DeMarco & Boehm, 2002), rather than an examination of the suitability of agile methods for a particular project. While the “agile debate” rages, individual projects are not adequately assessed prior to the adoption of a method.

BACKGROUND

To describe the agile method is a misnomer. The agile software development method does not exist; it is instead a collection of methodologies with common core values, where examples of agile approaches include: Extreme Programming (XP); Crystal Methods; SCRUM¹; DSDM; Feature Driven Development (FDD); and Adaptive Software Development (ASD) (Highsmith, 2001; Sutherland, 2001). For many proponents of the agile methodologies, the epoch of the agile movement was February 11th, 2001, when representatives of the different agile methodologies convened

in the mountains of Utah to create the “Manifesto for Agile Software Development.”

The agile manifesto is a collection of values that underlie all agile methodologies:

- Individuals are more important than processes and tools.
- Working software is more important than comprehensive documentation.
- Customer collaboration is more important than contract negotiation.
- Responding to change is more important than following a plan.

Therefore, agile methods are a response to the inability of traditional methods to embrace change in a turbulent business environment that demands software to meet its needs quickly (Highsmith & Cockburn, 2001), and Rising and Janoff (2000) describe it as the need to “meet customer needs and turn this chaos to our advantage” (p. 3). The manifesto, its origins, and its importance to the agile methods are discussed in a variety of research including: Boehm and Turner (2003, 2004); Fowler and Highsmith (2001); Highsmith (2004); Koch (2004); and Lindvall et al. (2002).

VIABILITY OF ADOPTING AN AGILE APPROACH

Throughout the available literature relating to agile methodologies, factors important to the success of an agile project are discussed, yet these factors are not specifically used to determine the viability of adopting an agile approach. For example, the agile manifesto, described in Abrahamsson, Salo, Ronkainen, and Warsta (2002), is a list of aspirations or ideals, and as such is not readily quantifiable as a method of adoption assessment. However, some researchers have provided a number of approaches to assessing various aspects of suitability for agile.

Boehm and Turner (2003, 2004) provide five factors (or dimensions, to use their term) in a graphical approach to assess whether an organization is an agile or more traditional organization. Boehm and Turner’s (2003, 2004) graphical

analysis provides an evaluation of whether an agile or process-oriented (they use the term disciplined) approach represents the current state of a project or organisation. The graphical output highlights, by the location of ratings on five axes, whether the project or organisation, is leaning towards agile or disciplined (see Figure 1).

Boehm and Turner (2003, 2004) list five critical agile/disciplined decision factors:

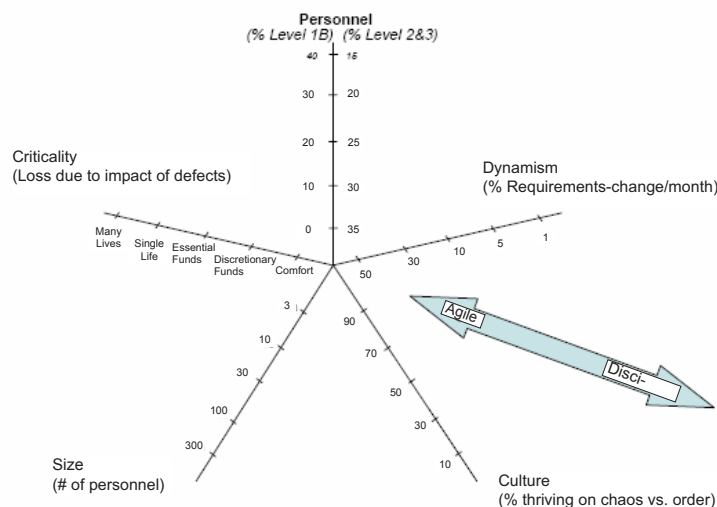
- the criticality of the project (the level of loss due to the impact of defects),
- the dynamism of the project (level of requirements change),
- the size of the project,
- the expertise of the team, and
- the culture of the project or organisation (empowerment versus process driven).

McAvoy and Sammon (2005) investigate the suitability of an agile approach for a project through conducting a series of workshops in a number of software development companies. McAvoy and Sammon developed a simple decision support tool, referred to as an Adoption Assessment Matrix, as illustrated in Figure 2, based on critical adoption factors relating to agile methods, addressing a need in industry; namely, to improve the overall understanding of the constituent parts of agile systems development methodologies. The critical adoption factors are described in more detail later on when discussing the groupings of critical adoption factors. It is argued by McAvoy and Sammon (2005) that the use of a

decision support tool, aiding decision makers, to determine the viability of an agile method for a specific software project has proved hugely beneficial, for example, a major benefit of the tool is that it guides discussion, concentrating the debate on the critical factors, applied to the individual project. According to McAvoy and Sammon (2005), these discussions proved to be as valuable as the output of the tool itself. The results of these workshops show that an argument can be made for the use and benefit of such a decision support process in industry, in supporting the decision to adopt an agile approach.

The research work of Boehm and Turner (2003, 2004), and McAvoy and Sammon (2005) presents a high-level grouping of factors which can form the basis for a discussion around the agility of an organization, a particular project and its suitability for an agile approach, while assessing the likelihood of success. These groupings referred to as *project*; *customer*; *team*; and *organisation* are open to debate and refinement. Like any list, for example, be it top 10 athletes or favorite music, there will never be universal agreement on its constituent parts. The list is not set in stone, but an extremely important starting point. For example, both Boehm and Turner (2003, 2004), and McAvoy and Sammon (2005) agree on the issue that criticality of a project is an important factor (life-critical projects should be automatically excluded as possibilities for an agile approach), while McAvoy and Sammon add factors relating to the relationship with the customer as also warranting consideration. These groupings are discussed in the next section.

Figure 1. Boehm and Turner (2003, p. 5) graphical scatter plot



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