Assessing The Value of an Agile Coach in Agile Method Adoption

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Abstract. This paper explores the value of Agile Coaching for companies adopting agile methods.in order to assist those who are adopting agile methods to decide on using or not using an Agile Coach by examining the value they can bring to companies adopting agile methods. In our research we surveyed three distinct groups: companies that used an Agile Coach for agile adoption, companies that adopted agile on their own and Agile Coaches themselves without the help of an Agile Coach. The data collected indicates that Agile Coaches can bring numerous benefits to companies, which in fact exceed the financial costs of using an Agile Coach. Therefore we suggest that there is financial value in using an Agile Coach for agile adoption, which is represented by faster return on investment (ROI) on the change.

Keywords: Agile Methods, Agile Coach, SPI

1 Introduction

Since the introduction of Agile Manifesto in 2001, many companies engaging in software development have replaced the traditional methodologies by agile methods [1]. To help companies adopt agile methods smoothly, a new field of Agile Coaching has been introduced and is constantly gaining in popularity. Conferences are being held on Agile Coaching where experienced practitioners share their ideas, and some of them even started to offer Agile Coaching courses in order to teach others how to become a qualified Agile Coach [2]. In addition, some organizations developed Agile Coaching certification programs to standardize the qualification process. As a consequence, the agile community grows, however, there is evidence from numerous sources indicating a lack of qualified and well-experienced coaches to support the demand [3] [4].

The goal of this research is to assist companies who are adopting agile methods decide on using or not using an Agile Coach. This is achieved by examining the value Agile Coaches can bring to companies adopting agile methods, as so far there has been no supporting research evidence about the value they can bring to companies and whether the benefits brought exceed the financial costs. This objective is accomplished by an investigation involving Agile Coaches, companies that adopted agile methods with the help of an Agile Coach, as well as companies that adopted

agile methods on their own. The value can be then identified by analyzing and comparing responses from all parties in order to get an objective point of view. Moreover, the value of different types of Agile Coaches should be understood and compared. The research should be beneficial for companies planning to adopt agile methods, but hesitating on whether to utilize an Agile Coach or not. In addition, once the company decides to use Agile Coaching for agile adoption, the research should help them identify the right type of an Agile Coach based on the company's characteristics, as well as to choose the right candidate by providing a baseline profile of an Agile Coach. Last, but not least, the dissertation will investigate how to best facilitate an Agile Coach in terms of authority given, in order to create a productive coaching environment within a company.

1.1 Agile Adoption

Agile Adoption is a term used to describe a process of adopting and implementing agile practices, processes and values in software development. The practices to be implemented may either correspond to just one agile method or to a combination of multiple agile methods. According to numerous surveys [5, 6, 7], the most popular combination of agile methods is Scrum with XP. In addition, organizations or development teams often do not implement all practices of the chosen agile method(s), but select only the ones that are compatible with the organization and/or the team. Such an adoption is called 'a la carte' agile adoption [8]. To conclude, some even customize the agile practices to suit the company's development environment [9]. Typically, the agile adoption process contains the following steps [10]:

- Set business goals (e.g. reduce time to market)
- Choose a pilot project
- Analyze company's and project's characteristics (size, criticality, etc.) and current practices
- Choose the method(s) to adopt
- Choose the practices to adopt (in case of an 'a la carte' agile adoption)
- Train the development team and the management
- Start applying the chosen practices

An interesting point to note is that despite the fact that most agile practices are considered to be very straightforward, the adoption of agile methods is not easy. The reason for that is that agile adoption represents an organizational change that will affect the company's organizational structure, processes, as well as people's behavior, and therefore it requires a carefully thought-out preparation [11]. In relation to this, a 2010 survey by Version One incorporating 4770 participants from 91 countries revealed the following list of leading causes of the failed agile projects [6]:

- Lack of experience with agile methods (14% of respondents)
- Company philosophy/culture at odds with core agile values (11%)
- External pressure to follow traditional waterfall practices (10 %)
- Reason not known (11%)
- Lack of management support (7%)

- Lack of cultural transition (8%)
- Insufficient training (5%)

In addition to this, the agile adoption process is even more difficult within large organizations, as they usually have many formalized processes, have to conform to numerous norms and standards and consist of many teams often geographically dispersed with time differences between the locations of these teams. All of this causes even bigger problems when trying to implement agile methods, therefore it is not a surprise that some companies either fail completely and reject the agile adoption for years, or they adopt an 'Agile-But', meaning that they drop the key practices and as a result the adoption may not bring the company any noticeable improvements.

One way how companies can reduce the risk of failure when adopting agile methods is to use an Agile Coach. This role has evolved naturally to provide coaching and mentoring to agile teams, and is relatively new and little researched. Therefore our aim is to find out whether Agile Coaching is really beneficial for companies adopting agile and what value it can bring them.

1.2 Agile Coach Value

The literature provides many definitions of value based on the field the value is being defined in. In marketing for example, value is defined as a difference between the price and the worth of a product, or in other words, the difference between what a customer receives and has to give in return. In coaching, value can be defined as the difference between the costs of hiring/using a coach and the benefits brought by the coach to the company in question. The value (benefits minus costs) provided by the coach can be also categorized as financial and non-financial. For evidence, a 2006 survey incorporating 30 companies revealed that coaching can bring numerous non-financial benefits (e.g. acquiring a new skill, increased motivation) as well as financial benefits (increased sales and revenue), however the financial benefits were secondary and not measurable [12].

Building upon this, value in Agile Coaching can be determined as the difference between the costs of hiring/using an Agile Coach and the benefits brought by the Agile Coach to the company in question. Despite the fact that the value of Agile Coaching is not yet researched, deriving from the previous comments about coaching it is reasonable to state that Agile Coaching may also provide financial and non-financial costs and benefits. However, these and the differences between them (i.e. financial and non-financial value) are not known and thus will be researched as part of this dissertation, with the primary focus on the non-financial value. Therefore for the purposes of this dissertation by the value in Agile Coaching we mean the non-financial value unless stated otherwise.

1.3 Research Problem

The goal of this research is to assist companies adopting agile methods decide on using or not using an Agile Coach. The motivation for this research comes from an

identified gap in the literature. It is apparent that there is little published research on the area of Agile Coaching, and no published research on the value that Agile Coaches can bring to companies adopting agile methods. Moreover, there is no integrated research on what companies can benefit/not benefit from the use of an Agile Coach, and what type of an Agile Coach is most suitable for what type of companies.

On this basis, the main objective of this dissertation is to provide an answer to the following three related questions:

- RQ1: What non-financial value can Agile Coaches bring to companies adopting agile methods?
- RQ2: What factors determine whether a company should use/not use an Agile Coach for agile adoption?
- RQ3: What type of an Agile Coach is most suitable for what type of companies?

The answers to these research questions should help companies decide whether to use an Agile Coach for agile adoption and if so, what type of Agile Coach to use. To conclude, the findings of this dissertation should be beneficial from a practical point of view, and thus used in real world scenarios.

2 Agile Coaching

Agile Coaching is a subfield of coaching whose focus is to "help teams or individuals adopt and improve agile methods and practice" and "rethink and change the way they go about development" [13]. In the following sections we will look at the origins of Agile Coaching, the roles, activities, skills, competencies as well as different types of Agile Coaches. Since Agile Coaching is primarily based on the knowledge from the field of coaching, the discipline of coaching will be explained first.

Coaching has been used in many areas where guidance and advice from a more experienced person is needed, including sports, professional life and business. Despite that coaching is still a young discipline that is constantly developing. In practice, coaching is used as a technique for helping teams or individuals learn in order to improve their performance, or to develop and grow [14]. By providing the guidance of an expert the teams or individuals receive valuable information that speed up the learning process and reduce the error rate.

Since agile software development is based on teamwork and the team's performance is critical for the success of the software development project, it is not surprising that coaching has been also applied to the area of agile methods. Coaching in the context of agile methods (i.e. Agile Coaching) is intended to help software development teams learn agile practices and then to use them in an effective and efficient way, which would ultimately improve their performance [15].

Since there are numerous agile methods, an Agile Coach can specialize in one of the agile methods primarily. Therefore based on the type of agile method promoted we recognize a Scrum coach, DSDM coach, Lean coach, etc. Depending on the coach's mission, i.e. whether his/her objective is to manage the agile adoption of a team that is transferring to agile or to improve the performance of a team that has

already started using agile and is struggling with it, we can identify adoption coaches and after-adoption coaches. As already stated, the focus of this dissertation is primarily on adoption coaches. Another classification is based on whether the Agile Coach is a member of the organization that is using the coach. In this case we recognize two types of Agile Coaches - external Agile Coaches and internal Agile Coaches. This classification seems to be the most commonly used one [15]. Depending on whether the Agile Coach stays with the team full-time and thus is coaching only one team at a time, or whether the coach stays with the team part-time and thus can coach multiple teams at once, we can classify the coach either as a full-time Agile Coach or a part-time Agile Coach [16].

3 Research Study

As stated above, the main purpose of this dissertation is to provide an answer to the following three related research questions stated in section 2. Furthermore our analysis of the Agile Coaching literature has led to more questions, which are related to the research questions above. Some of the additional research questions that were raised by the preliminary investigation were as follows. It is important to note that a lot more questions were initially raised, but I have chosen to ask the following set of additional questions from not only time constraints imposed on this research, but also from conceptual reason (i.e. the questions seemed to be conceptually related):

- RQ4: How do companies decide about whether to use an Agile Coach for agile adoption?
- RQ5: How do companies perceive the role of an Agile Coach?
- RQ6: What are the common adoption problems that companies cannot solve without the help of an Agile Coach?
- RQ7: Is there a financial value in using an Agile Coach for agile adoption?
- RQ8: What is the difference in value provided to companies by different types of Agile Coaches?
- RQ9: What profile should companies look for in an Agile Coach?
- RQ10: How much authority does an Agile Coach need in order to do his/her job properly?
- RQ11: When do Agile Coaches withdraw from the team?

The answers to these questions should help companies decide whether to use an Agile coach for agile adoption and if so, what type of Agile Coach to use in order to maximize the value received. Nevertheless, we acknowledge that the selected research questions are quite broad in a way that the time scope of this research does not allow us to perform a detailed analysis when attempting to answer these questions, but as already stated, the goal of this research is to do a preliminary analysis that would represent an incremental step on the way towards understanding these issues more deeply in the future.

3.1 Data Collection

This investigation involving three different groups of research participants:
1. Agile Coaches
2. Companies that used an Agile Coach for agile adoption
3. Companies that adopted agile without the help of an Agile Coach

The research participants consisted of a mixture of individuals known second-hand to the researchers and direct emails were sent to well-known Agile Coaches that contributed to the area of Agile Coaching in form of literature or online articles. In total 8 Agile Coaches participated, who had between 2 and 15 years experience (average 6) in coaching and coached companies in adopting Scrum XP, Lean, Kanban, DSDM and FDD. A total of 5 companies that used an Agile Coach for agile adoption participated via persons with key job titles of CTO and development manager. These companies varied in size from 22 to 100 persons and were involved in a range of software domains from Internet systems development to Middleware systems. Finally, 5 Companies that adopted agile without the help of an Agile Coach participated via persons with key job titles of development manager, project manager and CTO. The companies varied in size from size 10 to 40 persons and represented a range of business domains including: telecommunications, payment solutions and financial services software.

Prior to undertaking the study three interview guides for the three groups of respondents was developed. The interview guide for Agile Coaches involved 56 questions that were divided into 5 categories:
1. Agile Coach's details
2. Adoption strategy
3. Agile Coaching qualities
4. The value of Agile Coaching
5. Additional information

The interview questions for companies that adopted agile with the help of an Agile Coach (31 in total) were divided into 4 categories:
1. Company details
2. Adoption details
3. Agile Coaching qualities
4. The value of Agile Coaching

Finally, the interview guide for companies that adopted agile on their own consisted of 24 questions, which again were grouped into 3 categories:
1. Company details
2. Adoption details
3. The value of Agile Coaching

3.3 Data Analysis

The responses from each group of participants were copied into response tables to make the comparison of responses easier and more structured. Response table is a data analysis technique that allows to "view the responses of all the respondents for

each of the selected questions in a survey" [17]. This technique is commonly used not only in survey-based research fields, such as marketing, but also in more technical fields such as physics to compare the achieved results under different factors. A typical response table used in a survey-based research consists of table rows that contain the survey questions and table columns that contain the names of the respondents. In total three response tables were created - one with responses from Agile Coaches, the second response table with responses from companies with an Agile Coach and the third table with responses from companies without an Agile Coach by copying the responses from the questionnaires and interview response forms.

Subsequently, common questions were identified in the three response tables, and these were then extracted together with the corresponding responses into one summary response table, which represents the selected approach to the research. Then a data pattern was looked for in the responses from each group. By a sought data pattern we mean a clear repetition of data within the responses for a particular survey question. It should be noted that some questions, however, could not be given to all three groups from logical reasons (e.g. there is no point asking respondents from companies that had not used an Agile Coach how much authority an Agile Coach needs to do his job properly). In such case, i.e. a case when a particular question did not involve all three groups of participants, the provisional hypothesis was formulated based on a clear repetition of data from within one or two response tables only.

4 Findings

A rich set of data was collected and analyzed as part of this study. Space limitations prevent a complete description of the findings this paper however, the major themes will be presented in this section.

4.1 Making the decision to use an Agile Coach

To *address RQ4: How do companies decide about whether to use an Agile Coach for agile adoption?* according to the Agile Coaches, companies' decision about whether to use /not to use an Agile Coach for agile adoption is based on the following factors:
- scale of the change
- ability to figure it on their own
- success (failure) of a pilot project
- ability to learn from pilot's failure
- costs of using an Agile Coach   references   about   successful implementations with/out the help of an Agile Coach in other companies
- type of company's industry

In fact, the costs were mentioned as a decision factor in the majority of responses. The following extract from Agile Coach 3 is a typical response: "*Coaches are expenses*

and it requires a strong commitment and buy-in from management. Therefore companies may opt for figuring it out themselves first".

To address RQ5: How do companies perceive the role of an Agile Coach? The Agile Coaches reported that organizations have the following perceptions about Agile Coaching:

- There is not enough awareness about the service.
- Companies perceive an Agile Coach as a savior or miracle worker.
- Agile Coaching is perceived to be expensive.
- Agile Coaching is becoming very popular.

On the contrary, companies have the following perceptions:

- Agile Coach is an expensive consultant.
- Agile Coach is a guarantee of a successful agile transition.
- Hiring an Agile Coach is an option of how to improve agile knowledge internally.

The response from Agile Coach 1 best captures the companies' current perceptions of Agile Coaching: "*Most people do not know about this service and even if they do, they think it is too expensive*".

4.2 What companies should use an Agile Coach?

In order to determine which companies should use an Agile Coach for agile adoption, the respondents from the group of Agile Coaches were asked to provide an objective view on this topic. Based on the responses a list of factors was assembled. The factors that determine whether a company should use/not use an Agile Coach for agile adoption are:

- existing agile expertise within the company
- the size/structure of a company (if a small company with a few departments, no need to use an Agile Coach)
- complexity of company processes (if simple, then no need to use an Agile Coach)
- nature of the company industry (if not a common industry, use an Agile Coach)
- impact of the agile adoption failure on a company (if critical, use an Agile Coach)
- distribution of teams (if geographically dispersed, adoption is more difficult, therefore use an Agile Coach)
- presence of continuous improvement and collaborative culture within the company (e.g. Kaizen culture) (if present, then no need to use an Agile Coach)

•4.3 Common adoption problems requiring an Agile Coach

When asked about the common agile adoption problems that teams cannot solve without the help of an Agile Coach, Agile Coach 3 stated: "There are tons of practicalities that the coach will help with". The Agile Coaches gave the following examples:

- how to do agile requirement management
- how to get rid of the documentation
- how to apply agile to a legacy code
- how to keep the quality of code high
- how to do incremental design
- how to track progress of an agile project
- how to get testing done within a short iteration
- what are the things that should happen before items hit the backlog

Other coaches mentioned the following adoption problems that can be avoided by using an Agile Coach for agile adoption:

- struggling with industry related agile challenges
- NIH (Not-Invented-Here) syndrome, i.e. adopting an original version of agile methodology
- how to align other (non-development) processes with the change
- still doing a lot of useless things (such as documentation) despite claiming to be 'agile'.

•4.4 Financial perceptions of using an Agile Coach

The financial and non-financial benefits and drawbacks of Agile Coaching stated by all three groups of respondents were looked at and the financial and non-financial value of Agile Coaching was assessed. Finally, the overall value of Agile Coaching in agile adoption was examined by comparing the overall responses from companies that used an Agile Coach and from companies that did not use an Agile Coach in order to determine whether Agile Coaching is really beneficial or not.

The companies that used an Agile Coach consider the adoption to be a success and they would all use an Agile Coach again. They would also recommend other companies to use an Agile Coach for agile adoption, however, Company 1 "*would not recommend using a full-time Agile Coach if that was their only skill*".

On the other hand, companies that adopted agile without the help of an Agile Coach all claim the adoption was a success. However, as a drawback of this approach they mention a significant learning curve. When asked whether they would hire an Agile Coach if they had to undergo the agile transition again, only one company (Company 1) would do it, but "*lack of money is a real issue*". This company would also recommend using an Agile Coach to all companies that can afford it. Other companies on the other would send everyone to training. In fact, Company 3 had everyone sent to training, nevertheless, " *... if we didn't have somebody with experience of using Agile in another company, then hiring an Agile Coach would*

have been essential". In addition, none of the companies knew other companies that would completely fail by using a similar do-it-yourself approach.

• **4.5 Agile Coach Profile**

Agile Coaches were asked to rate the qualities on a scale based on the criticality. They rated the following qualities as critical:
- expertise in multiple agile methods
- long experience
- numerous references
- numerous IT skills
- soft skills
- knowledge on team work and team dynamics
- knowledge on change management

Two qualities were considered as not critical for an Agile Coach:
- Agile Coaching certification
- professional coaching certification

On the other hand, companies that used an Agile Coach were asked what profile they looked for when choosing an Agile Coach. They stated the following qualities:
- experience with agile implementations in companies of a similar size and complexity
- proven good track record
- strong knowledge of agile
- good cultural fit
- ability to deliver the message to senior management
- great interpersonal skills
- software development background

5 Discussion

The primary research data was collected from 8 Agile Coaches and 10 companies - 5 companies that used an Agile Coach and 5 companies that adopted agile without the help of an Agile Coach. The Agile Coaches and companies were geographically dispersed as so provided a general view on Agile Coaching. The research results can be summarized as follows:
- Half of the respondents believe that Agile Coaches are perceived as expensive consultants.
- Numerous factors determine whether a company should use an Agile Coach, such as the size of the company, complexity of its processes, the nature of its industry and company culture.
- Agile Coaches can provide both financial and non-financial benefits for companies adopting agile methods.

- According to the respondents, the benefits brought by an Agile Coach exceeded the financial costs.
- The value Agile Coaches provide is that they significantly reduce the risk of failure of agile adoption and speed up the adoption process.
- Other benefits of using an Agile Coach are tailoring of agile practices to company's needs, highlighting dysfunctions and waste in processes, sorting out industry related agile adoption challenges, etc.
- There are many practicalities Agile Coaches can help companies with, such as how to do incremental design among many others.
- All respondents from companies that used an Agile Coach for agile adoption would recommend it to other companies.
- There is difference in value provided by different types of Agile Coaches.
- External Agile Coaches can provide impartial view on the company and diverse experience, whereas internal Agile Coaches have a good understanding of the company's business and processes.
- Half of the respondents believe that non-directive coaches provide higher value than directive coaches because they teach coaches how to be self-coaching.
- Certified Agile Coaches do not necessarily provide higher value than non-certified coaches as experience matters, but they are more credible.
- Numerous factors influence companies' decision to use an Agile Coach, the major ones being existing/missing agile experience in company and the costs of hiring an Agile Coach.

5.1 Limitations and Future Work

The main limitation of this study comes from the fact that a vast majority of respondents preferred questionnaires to interviews because of geographical and time constraints. The disadvantage of using questionnaires for a qualitative research is a lack of interactivity and immediate feedback.

Further work on this study could involve running another iteration of the research process. Given longer time scale, more data would be collected on areas where provisional hypotheses did not manage to develop further and new hypotheses would be formulated and tested for validity. Possible work by other researchers may involve carrying out case studies or focus groups within organizations that adopted agile with the help of an Agile Coach. In addition it may be appropriate to broaden the scope of this study to include situational factors [18] that affect the choice of a particular agile method and how these may impact upon the adoption decision and the ultimate success [19] of the software process.

To conclude, while the research results are positive and show promise, more work should be undertaken by other researchers in order to have fully generalizable results.

References

1. Ambler, S. W, Has Agile Peaked?, http://drdobbs.com/architecture-and-design/207600615?cid=Ambysoft
2. Agile Coach Training, http://www.training-classes.com/programs/00/90/9001_agile_coach_training.php
3. Silva, K. - Doss, Ch., The Growth of an Agile Coach Community at a Fortune 200 Company". Proceedings of the Agile, (2007), USA.
4. Chung M W, and Drummond B (2009). Agile @ yahoo! from the trenches, Paper presented at the Agile Conference, AGILE 2009, Chicago, IL, 113–118.
5. VersionOne, State of Agile Development 2009, http://trailridgeconsulting.com/surveys/state-of-agile-development-survey-2009.pdf
6. VersionOne, State of Agile Development 2010, http://www.versionone.com/state_of_agile_development_survey/10/page3.asp
7. VersionOne, Agile Methodologies, http://www.versionone.com/Agile101/Methodologies.asp
8. Hovorka, D. S.- Larsen, K. R., Enabling agile adoption practices through network organizations, European Journal of Information Systems, Volume 15 Issue 2, (2006).
9. Fitzgerald, B. - Hartnett, G. - Conboy, K., Customising agile methods to software practices at lntel Shannon, European Journal of Information Systems, Volume 15 Issue 2, (2006).
10. Sidky, A. - Arthur, J. - Bohner, S., A disciplined approach to adopting agile practices: the agile adoption framework, Proceedings of Innovations in Systems and Software Engineering, Volume 3, Number 3, (2007).
11. Nerur, S. - Mahapatra, R. - Mangalaraj, G. "Challenges of Migrating to Agile Methodologies". Magazine Communications of the ACM - Adaptive complex enterprises, Volume 48 Issue 5, May (2005).
12. Marber, R., Survey: What are the benefits of coaching, http://www.coachfederation.org/includes/docs/037WhatarethebenefitsofcoachingSummary Feb07.pdf
13. The Role of an Agile Coach, http://www.agilejournal.com/articles/columns/column-articles/1917-the-role-of-the-agile-coach
14. History of Coaching, www.performancecoachinginternational.com/resources/articles/historyofcoaching.asp
15. Davies, R., Adapting Your Agile Coaching Style, http://agilecoach.typepad.com/agile-coaching/2010/10/agile-coaching-zone.html
16. Certified Scrum Coach (CSC) Application, http://www.o-act.com/index.php/component/content/article/39-ed-willis/59-certified-scrum-coaching-application-ed-willis.html
17. Response Table, http://www.zarca.com/Online-Surveys-Product/RM/response-table.html
18. Clarke, P. and O'Connor, R., The situational factors that affect the software development process: Towards a comprehensive reference framework, Journal of Information and Software Technology, Vol. 54, Issue 5, May 2012. pp. 433-447
19. Clarke, P. and O'Connor, R.V., The influence of SPI on business success in software SMEs: An empirical study, Journal of Systems and Software, Vol. 85, No. 10, 2012. Pages 2356-2367