

Poster: Sources of Satisfaction in Agile Software Development

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ABSTRACT

In this paper we address the topic of satisfaction by analysis of the results of a national survey of software development in Switzerland. We found that satisfaction is reported more by those using Agile development than with plan-driven processes. We explored how satisfaction relates to other elements in the development process, including the use of various practices, and the influences on business, team and software issues. We found that certain practices and influences have high correlations to satisfaction, and that collaborative processes are closely related to satisfaction, especially when combined with technical practices. Our intention in this analysis is principally descriptive, but we think the results are important to understand the challenges for everyone involved in Agile development, and can help in the transformation to Agile.

CCS CONCEPTS

• **Software and its engineering** → **Software development process management**; **Agile software development**;

KEYWORDS

Agile Software Development; Satisfaction

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1 INTRODUCTION

Studies also show that Agile team members themselves report stronger satisfaction compared with their experience with plan-driven approaches (e.g. Whitworth and Biddle [5]). However, not much is known about the most powerful reasons for the satisfaction. In this brief paper we present a study of satisfaction by analyzing

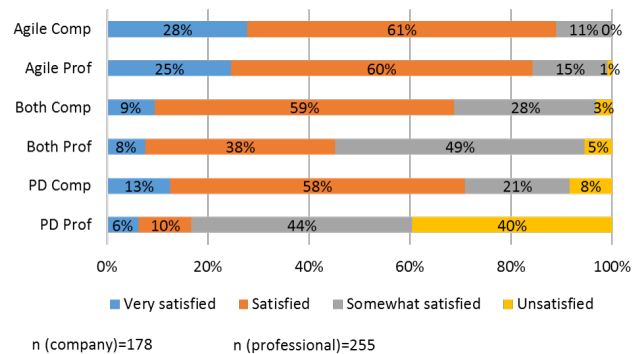


Figure 1: Satisfaction with the methodology aggregated to agile (pure agile and mostly agile), both, plan-driven (mostly plan-driven, pure plan-driven) for companies and professionals (Agile Comp, Agile Prof, Both Comp, Both Prof, PD Comp, PD Prof).

the results of a national survey. We wanted to check if Agile development leads to higher satisfaction than plan-driven approaches, and we wanted to know which practices and outcomes matter most.

Several studies of satisfaction in Agile development were conducted when Agile was quite new [2, 3], finding satisfaction was greater in Agile processes. In 2014 Tripp and Riemenschneider addressed theoretical underpinnings [4], again finding evidence that Agile methods related to most elements of a satisfaction model, although not the “autonomy” element.

Our study was a nationwide online survey conducted by us in Switzerland about the usage of development methods and practices in the IT industry, and about the influence of applying Agile methods on projects [1]. The study addressed both Agile and non-Agile companies as well as both Agile and non-Agile IT professionals. 142 companies and 185 IT professionals completed the survey. In the company survey we addressed representatives of the company at the management level. The responding IT professionals were those directly involved with the development team.

2 FINDINGS

The survey question concerning satisfaction asked *1.3 How satisfied are you with your current methodology?* The scale was 1 (unsatisfied)

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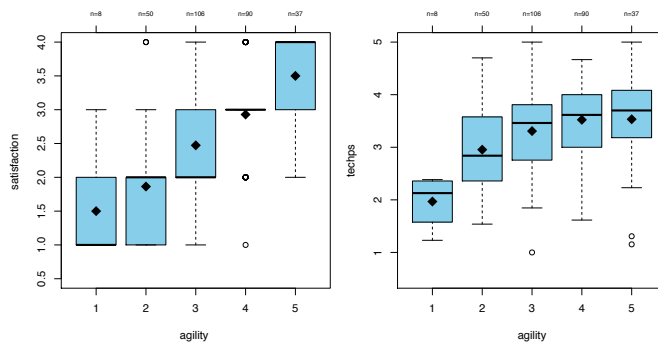


Figure 2: Satisfaction levels by level of agility claimed (left) 1–4, and mean level of technical practices by level of agility (right) 1–5 claimed.

to 4 (very satisfied). In the survey of companies, most representatives responding indicated satisfaction. In the survey of professionals, however, the results were balanced between unsatisfied and satisfied. We speculate that the difference between company representatives and individual professionals may stem from the representatives wanting to present a more positive view of their organization, or may indicate some detachment from the actual experience of software development. We were especially interested to explore whether Agile development leads to more satisfaction. Figure 1 shows the analysis of the above question divided into three participation categories. We can compare the level of satisfaction with the level of agility. This is shown in Figure 2, on the left, where each level of Agility is shown on the horizontal axis, and the distribution of satisfaction responses for each is shown by a boxplot. We also show (on the right) how the level of Agility compares to the mean level reported for a number of Agile technical practices. These demonstrate strong relationships.

Professionals were asked about a range of their experiences. First were questions about *practices*: technical practices, collaboration practices, and planning practices. Later were questions about *influences* or outcomes, business influences, team influences, and software influences. Details can be found in the survey report [1]. To examine the relationship between satisfaction and other issues, we compared the answers for satisfaction and for other issues on a person-by-person basis. We computed correlations, using Spearman’s non-parametric “rho” (ρ). We also calculated significance, and dismissed non-significant results.

We found the highest correlation for satisfaction with practices comes from the collaborative practice of a self-organizing team, followed by that of collective code ownership. Figure 3 presents boxplots for these two issues, showing how they relate to satisfaction. Moreover, the top 5 are all either collaborative practices or planning practices. For influences the most correlated issue was time to market, but interestingly, the second most highly correlated answer is about management of distributed teams. This might seem odd, because Agile methods are often regarded as poor on this aspect, but the finding simply means that when management of distributed teams is done well, satisfaction is high. The relationships for these are shown in the boxplots in Figure 4.

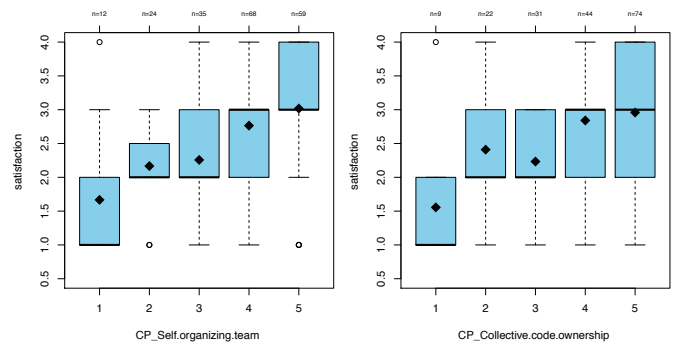


Figure 3: Satisfaction by Self-organizing team, Collective code ownership.

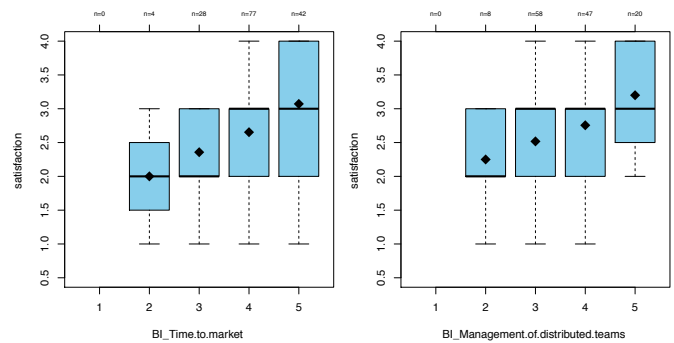


Figure 4: Satisfaction by Time to Market, Management of Distributed Teams.

3 CONCLUSIONS

Our study has important limitations: the data is self-reported, and we cannot assume correlation reflects causability. We speculate that Agile development may lead to greater satisfaction primarily because of collaborative practices and business outcomes. Technical practices and team influences are important, but at lesser levels.

4 ACKNOWLEDGEMENTS

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