

Introduction

Motivation in software engineering is reported to be a source for performance improvement, which leads to project overall success. Since it is a soft factor and difficult to quantify it is usually neglected. Research in this field is rather scarce and outdated. On the basis of a recent systematic review of software engineers' motivation [1] we set an agenda for further investigation of the role of motivation in contemporary projects. As software organizations nowadays seek opportunities inherited in both - global software development and agile projects, it is important to understand how different project environments influence motivation.

The aim - to understand how to achieve higher productivity and success ratio of distributed software projects by increasing software engineers' motivation.

Working assumptions

1 Distributed projects are more de-motivating than motivating by their nature.

2 Agile software development approach has a positive impact on software engineer motivation.

Research methods

Literature review is performed on motivation of software engineers working in different projects and measurement of motivation. We plan to base our investigation on the results of systematic literature review performed by Beecham et al. [1] where they have identified several motivating and de-motivating factors affecting software engineers' will to work well.

Case studies will consist of a self-administered survey and semi-structured interviews about motivation of software engineers working in differently distributed projects.

Survey

The aim of the survey is to investigate the trends towards motivation in the distributed software development projects and to serve as a basis for interview questions design.

We intend to survey both – sender and receiver sites, but the choice of the research objects is highly dependent on the organizations, where the research will be conducted.

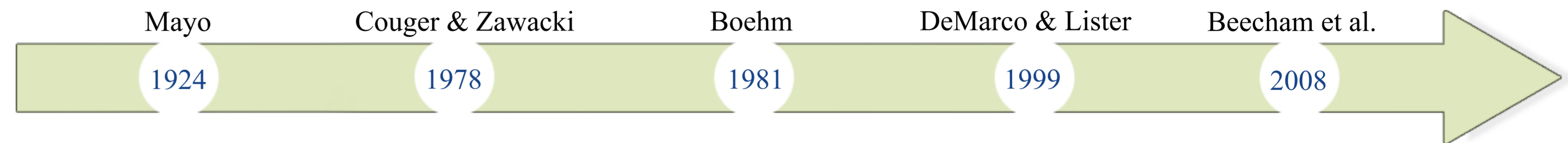
Interviews

After the analysis of survey data individual face-to-face or video interviews with survey respondents will be conducted to clarify their answers if needed and investigate their personal motivation and de-motivation in more details.

Analysis will be performed on data from homogenous projects within one organization practicing globally distributed development. Thus we will avoid mixing different organizational cultures and will be more able to recognize cultural differences regarding motivational needs.

Replication of our findings in another similar organization will be performed in order to evaluate the generalizability.

Evolution of motivational research



- motivation has the largest influence on productivity and quality
- workplaces are social environments
- software engineers form a distinct occupational group with similar needs and motives
- lists of 29 motivators and 15 de-motivators
- external signs associated with motivated and de-motivated software engineers: retention, productivity, project delivery time, budgets, absenteeism and project success
- existing models of motivation do not address the needs of software engineers in their cultural and environmental settings
- agile practices are beneficial for productivity and job satisfaction increase

"Motivation is a soft factor: It is difficult to quantify, and it often takes a back seat to other factors that might be less important but are easier to measure. Every organisation knows that motivation is important, but only a few organizations do anything about it." (McConnell, 1998)

"Job of software development has moved on globally distributed teams, agile approaches, more demanding users, etc. and old paradigms of motivation are increasingly outdated." (T. Hall, 2008)

Research questions

1 What motivates and de-motivates software engineers working in distributed software development projects?

2 What can we learn from agile projects to increase motivation in distributed software development projects?

3 How do differently distributed software development project settings influence software engineer motivation?

4 Are motivators and de-motivators universal for software engineers belonging to different cultures?

Research progress

So far literature review has been conducted and results addressing RQ1 and RQ2 have been reported in [2], in which we have investigated what motivates and de-motivates software engineers, and how the influencing factors are manifested in global software projects. Our observations suggest that in distributed projects many motivating factors are hindered while several de-motivating factors are inherent in their nature. Despite contradictory fundamental principles of agile and distribution, the paper suggests that blending agility into distribution might solve problems inherent in distributed environment.

Expected results

1. Better understanding of motivational factors in globally distributed project environment, i.e., links between:
 - motivation and distributed project environment
 - motivation and (levels of) agility
2. Useful knowledge of:
 - how to ensure motivation from the beginning
 - how to maintain motivation
 - how to move from demotivation to motivation
3. Evidences of peculiarities in motivational needs of software engineers belonging to diverse cultures and working in different environments.

References

- [1] S. Beecham, N. Baddoo, T. Hall, H. Robinson, and H. Sharp, "Motivation in software engineering: a systematic literature review," Information and software technology, vol. 50, no. 9, p. 860, 2008.
[2] L. Šteinberga and D. Šmite, "Towards a contemporary understanding of motivation in distributed software projects: solution proposal," Scientific Papers, University of Latvia, p. 15, 2011.