

Study of Psychological Empowerment and Project Success in Agile Projects

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Abstract:- People factor is crucial in an Agile project. Entire Agile methodology is based on the concept of Agile mindset. The paper is a review article to study the research work performed to understand the psychological aspect of the team on the Agile project success. Making use of systematic literature review method, and analyzing the research papers, researchers have arrived at a model that showcase relationship between Agile mindset, Agile Organization and Project success. Researchers have thrown light on the “People” factor in Agile projects through this paper. The paper also tries to quench thirst of the fellow researchers by listing the gaps and future scope in the given area.

Keywords: Agile Methodology, Scrum, Project Management, Agile Framework, Software Development Life Cycle (SDLC), Socio-economic factors, Agile projects, psychological empowerment, Project success, Agile mindset, Agile Project Management Success factors

1. Introduction

“Change” is persistent in the cosmos. Software industry is no exception. With changing time, Legal mandates, Rules and user perceptions; integrating these change requests during SDLC process is a foremost task. Traditional waterfall methodology of project management had its own constraints in addressing this issue; which resulted in revamped “Agile” project management methodology which fairly addresses change requests received from the clients during execution of software.

Agile project management expects team members to follow Agile mindset to be successful. Agile advocates transparency, collaboration, team commitment and responsibility. People with different demographic differences reacts differently with the readiness to develop and accept this required Agile Mindset. With most of the industry currently inclined towards Agile project development thanks to enormous benefits that are offered; the aim of the review paper is to review the literature in the area of phycological and socio-economic factors and its relation to project success.

The review paper would help in following ways. Firstly, it will uncover more zones of Agile project management. Secondly, the review paper outcomes can help to determine the gap, Cause and effects which will help in further research in the related area.

2. Research Methodology

The researchers have elected systematic literature review to quench quest to pursuit answers of the listed research queries:

RQ1: What is literature available that describes or studies the Phycological and socio-economic behavior of the team members working on Agile projects?

RQ2: Is there any current literature that studies the impact of psychological factors impacting the performance of the Agile teams?

RQ3: What all factors from the People, Process and

Organization perspective affect the Agile project success?

Based on the above research questions, the data was searched in Google Scholar and Scopus database with keywords like Agile Project Management success factors, Socio-economic factors and team development, psychological empowerment and project success in Agile. The data thus obtained was analyzed to reach out at the model that describes the relationship between the Agile methodology, psychological empowerment and project success.

3. Literature Review

Agile methodology is based on the Agile manifesto [1] revealed by “The Agile Alliance” on 11th-13th February (2001).

“Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan”

Agile is a rationalized engineering-based approach than a traditional plan-based approach of managing projects [2].

We should look at Agility as the mindset and not a framework or the process [3]. This “Agile” mindset to look at the problem seeking solutions must be developed, deployed across teams and organization and frequently measure for improvement. Agile is faster and lighter implementation. While considerable efforts are made in initial planning in Agile, it is widely understood and aligned that there is high possibility of change in plans and the team must quickly adapt with the incoming changes and expectations. Agile assumes – Fluid constantly changing situations, Adaptive structure, Team responsibility and not bureaucratic process, continuous learning [4]. This makes it clear that a special mindset is required to be developed to encapsulate the said assumptions

Using Focus group meeting, it was identified that Culture and Servant leadership of the teams are responsible for agile teams to showcase desirable behaviour expected in Agile projects. [5]. In the research conducted, the researcher has helped Agile community to shortlist top 9 key Agile behaviours that distinguish itself from traditional projects. It has been proved in the research primarily focused on the team members from Philippines, Romania, Czech Republic, The Netherlands and Poland that psychological safety climate positively influences the team performance and engagement [6]. While no specific Phycological parameters were considered for the research but emphasized that trust between team members, decision making power and clarity of roles results in positive psychological safety climate. While studying Pros and Cons in implementing Agile project management for an ERP application, one of the striking negative observations was due to improved visibility of the road map due to sprint planning, team members feel pressurized and psychologically depressed [7]. With the study of other literature reviews, we always have scope open to understand what other factors apart from visibility results in this behavior of the team members. Balanced leadership is high in case of Agile projects where the leadership tends towards shifting to teams than vertical leadership [8]. The balance leadership help in empowering the team. This indicates team accountability for project delivery. It is to be noted that the case study research was conducted across three continents – Australia, Europe and America (Canada).

In an effort to recognize “People” factor on the agile project success, it was found that the Personal Characteristics (Communication skills, Resiliency and empathy) and Societal culture might not have direct impact on the Project success but does affect Team capability and customer involvement consequently affecting the project success [9]. It must be noted that the study was restricted to Portugal and validating and comparing the same across different nations would add new knowledge base. Studies at Mexico have also concluded that Team Maturity have direct impact on the Agile Project Productivity [10]. Team capabilities, Team environment and customer involvement constitutes 50% of the key success factors on agile projects [11]. These observations showcase equal importance

of the “People” factor along with the “Process”. The cultural background of the team influences the style in which the team works [12]. Vast cultural variation was found between participants in India, US and Canada in terms of Power Distance, uncertainty avoidance, gender and Orientation in terms of long and short terms. These factors affect the ease in which the agile mindset is developed especially in a team which have cross-cultural team members.

The core of any proposed Agile practice considers teams which are autonomous, self-managing which work as independent islands capable of delivering a working software [13]. Lack of trust within team members, non-standardized team norms, Complex interdependencies within the team, Unclear goals and lack of support at the organization level provides hindrances for a team to work in autonomous fashion.

Social agile practices like agile events and ceremonies that promote transparency and interpersonal interaction certainly influences psychological safety which in turn Impact productivity [14]. Iterative development, Sprint review, Incremental design, Sprint retrospective, improve collaboratively are top 5 practices than an teams must follow to be successful in Agile methodology [15]. It can be seen that the team members must exhibit different mindset compared to traditional project techniques in order to excel in these processes. Coordination, Transparency and sharing common goals between consumer and producer is a key aspect of any Agile Projects. Different artifacts like Foundational, Projective, Exposition, Indicative are required at various stages of software development aids in strengthening the mutual working between customer and Agile team making the project successful [16]

In another Study carried out in Service and manufacturing sector in India have also found out that psychological empowerment results in positively influence the organizational agility [17]. If members have clarity of the tasks, aware of the impact they can create, are intrinsically self-determined and motivated and competent to perform tasks, then it is easier to develop team with agile mindset. Another research conducted in Australia, in line with the previous observation, while trying to identify effect of agile antecedents on Phycological empowerment, found direct association among Autonomy of the team and Agile communication on the psychological empowerment. It was also concluded that no significant relationship exists between Team diversity and iterative development on psychological empowerment. [18]

4. Data Analysis and Discussions

Based on the scientific focused literature search, researchers performed detailed review of twenty articles. Through the optimal use of search criteria, researchers ensured that the data obtained represented heterogenous geographic regions and areas pertaining to Agile project management.

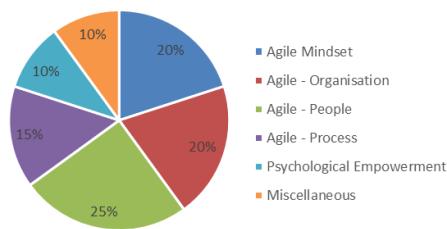
TABLE 1. Summary of Reviewed Papers

Sr No	Research Paper	Category of Research	Geographic Area
1	The effects of working agile on team performance and engagement	Agile – Organization	Philippines (Asia), Romania, Portugal, Netherland, Czech Republic (Europe), India (Asia)
2	Psychological Empowerment and Workforce Agility	Psychological Empowerment	Australia
3	Agile practices and performance: Examining the role of psychological empowerment	Psychological Empowerment	Portugal (Europe)
4	The factors influencing the success of on-going agile software development projects	Agile – People	Mexico (America)
5	Team Maturity in Agile Software Development: The Impact on Productivity	Agile – People	Australia
6	Coordination artifacts in Agile Software Development	Agile – Process	x
7	Identifying Key Agile Behaviours That Enhance Traditional Project Management Technology	Agile – Organization	

8	Investigating the “Socio” in Socio-Technical Development: The Case for Psychological Safety in Agile Information Systems Development	Agile – Process	Germany (Europe)
9	A qualitative case study on agile practices and project success in agile software projects	Agile – Process	Norway (Europe), Sri Lanka (Asia)
10	What Do We Know about Agile Software Development?	Agile Definition/Agile Mindset	Not Applicable
11	A survey study of critical success factors in agile software projects	Agile – People	Europe, America, Australia, Asia
12	Definitions of Agile Software Development and Agility	Agile Definition/Agile Mindset	Not Applicable
13	Agile Manifesto. (2001) https://agilemanifesto.org/	Agile Definition/ Agile Mindset	Not Applicable
14	Balancing leadership in projects: Role of the socio-cognitive space	Agile Organization	Australia, Canada (America), Netherland (Europe)
15	The impact of intercultural factors on global software development	Agile – People	Canada, The US (America), India (Asia)
16	Autonomous agile teams	Agile – People	Norway (Europe)
17	The Challenges of Implementing Agile Scrum in Information System's Project	Agile – Organization	Malaysia (Asia)
18	Agile: A New Way of Governing	Agile Definition/Agile Mindset	America
19	A self-reported questionnaire to assess changes in lifestyle-related behaviour during COVID 19 pandemic [19]	Miscellaneous	India (Asia)
20	The presentation of interpretivist research [20]	Miscellaneous	Not Applicable

The research papers studied were further categorized into Agile – Organization, Agile – People, Agile – Process, Agile Definition/Agile mindset to study all components pertaining to Agile projects. The count of the categorization is as represented in the pie-chart below along with the count. (Graph 1)

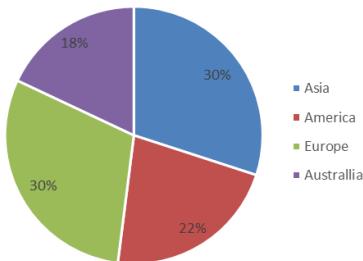
Graph 1: Categorization of Analysed Research Papers



Graph 1 – Categorization of the Research Papers

The research papers analyzed were spread across continents of Australia, Europe, America and Asia which ensured that there is no locational bias or constant variable of location in the study. The below figure depicts the geographical spread of the research articles reviewed. As the study being revolving around “People” factor and behavior, it becomes mandatory to have representation across globe.

Graph 2: Geographical Spread of Data in Analysed Paper



Graph 2 – Geographical Spread of Research Data

From the data collected and studied, it was observed Agile Manifesto advocates Agile Mindset to be the core of any agile environment. Any successful implementation Agile methodology or Agile projects depends on the Agile mindset. More the strength of Agile mindset, more is the stability of Agile environment. Agile environment consists of – Agile Organization, Agile Process and Agile Team (People) which are depicted in figure 1.

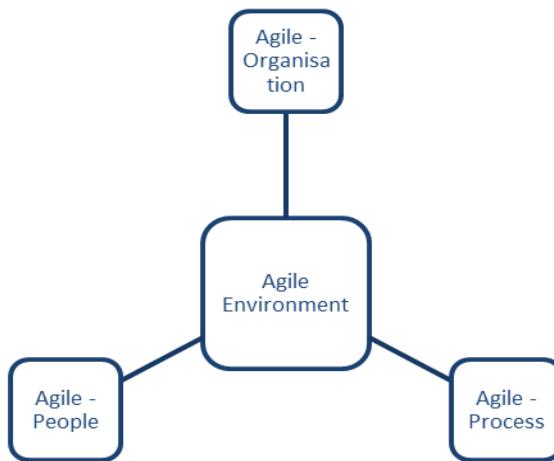


Figure 1: Components of Agile Environment

Researchers have arrived at the Model as shown in Figure 2 that represents relationship between Agile Mindset, Agile environment, Psychological Empowerment and project success. In order to develop, support and promote Agile mindset, the organization must develop an overall Agile culture that appreciates Agile principles. They should ensure an overall psychological safe climate for team members to perform in Agile way. If the team members trust the organizational support, they would tend to appreciate and inculcate the Agile mindset which is advocated and supported by the organization they work for.

The processes within the organization must be revamped according to the agile flavor. It should promote social practices, transparent communication within the team and among stakeholders, and give more priority in producing the deliverables which are in the lines of agile artifacts. This can also motivate co-creation. The process that are set should be such that they lead entire team in the direction to achieve communal goals.

Being in the Agile organization and following agile processes would make Agile team members develop transparency and elevate their capabilities. Growing in a fearless and agile surrounding would groom them for developing Agile mindset.

The positive agile mindset and agile environment results into psychological empowerment of the team members. If the team members feel psychologically empowered, it increases the productivity and quality of the outputs from the team which ultimately contributes to success of the project.



Figure 2: Relationship Model

5. Conclusion

From the literature review that was conducted across vide geographical terrain, researcher have proposed a model depicting relationship between Components of Agile Environment and Project success. They concluded that Psychology and People factor are key elements in the implementation and success of agile projects. There is a further research scope to identify socio-economic and psychological factors of the team members that impact agile project outcome. The review highlights the further scope of the study on Capability of individuals to respond to change. While most of the literature review is outside the geographical location of India, it would be valuable to study the same in the Indian context.

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