Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 4 Issue 3 (2024)

A Study of Research Methodologies adopted and Literary work Published on factors affecting Agile Project Success

Saurabh Vilas Kane[1], Dr. Prasad Jeevan Pathak[2]

[1]Ph.D. Research Scholar, Ramcharan School of Leadership, Faculty of Business and Leadership, Dr. Vishwanath Karad MIT World Peace University, Pune, India

[2]Associate Professor, School of Business, Faculty of Business and Leadership, Dr. Vishwanath Karad MIT World Peace University, Pune, India

Abstract:

With a growing influence of the Agile Methodology in the field of Information Technology Projects, Researchers wanted to explore the research performed in this domain. Researchers opted for Systematic Literature Review (SLR) method for performing research given its comprehensive and structured approach. With the SLR on a Scopus database with a curated keywords specific to the research domain, researchers have tried to narrow down on the research approach and research gaps in the concerned research field.

Keywords: Agile Project Management, Project Management, Agile, Scrum, SDLC, Agile Mindset

Introduction:

Agile Projects Success Factors:

The increasing adoption of agile methodologies in software development has sparked a growing body of research examining the factors that contribute to the success of agile projects. Recent studies indicate that while many claims about agile success remain anecdotal, quantitative analyses provide invaluable insights into how these methodologies outperform traditional approaches in achieving project goals and metrics of success (Serrador & Pinto, 2015). Moreover, a substantial exploration of critical success factors has revealed a concise set of elements that can significantly influence the outcomes of agile software projects, highlighting the importance of quality, scope, time, and cost as measurable criteria for success (Serrador & Pinto, 2015) (Chow & Cao, 2008).

Additionally, it has been shown that organizational contexts and interpersonal dynamics play pivotal roles in facilitating successful agile practices, where factors such as team confidence and the accessibility of information markedly enhance collaborative efforts and overall project outcomes (Chow & Cao, 2008) (Arcos-Medina & Mauricio, 2020). Furthermore, the identification of specific relationships between organizational factors and agile practices underscores the necessity for teams to cultivate an environment that fosters self-efficacy and integrity, as these dimensions have been shown to directly correlate with enhanced teamwork and, consequently, project success (Arcos-Medina & Mauricio, 2020).

Systematic Literature Review:

The systematic literature review is a comprehensive and structured approach to identifying, synthesizing, and evaluating the existing body of knowledge on a specific topic. This methodology

ensures that the review is reproducible, transparent, and can be updated to reflect new findings as they emerge within the field of study (Sriganesh et al., 2016) (Caldwell & Bennett, 2020). Furthermore, the systematic review process typically involves a series of defined steps that guide researchers through the identification of relevant literature, the establishment of inclusion and exclusion criteria, and the critical appraisal of selected studies, ultimately leading to a synthesis of findings that can inform future research and practice (Benachio et al., 2019) (Caldwell & Bennett, 2020) (Alsalami, 2022).

The importance of the systematic literature review in the research process cannot be overstated. It serves as a foundational component that not only highlights existing knowledge but also reveals gaps in the literature that warrant further investigation, thereby guiding future research efforts and enhancing the overall quality of scholarly work in the field (Xiao & Watson, 2017) (Alsalami, 2022). In addition, systematic reviews contribute to the reliability of research by providing comprehensive summaries that highlight inconsistencies and contradictions within existing studies, which can inform the development of new theories and practices within the discipline (Xiao & Watson, 2017). As a critical step in the research process, a systematic literature review not only aggregates and synthesizes empirical findings but also plays a vital role in establishing a framework for evidence-based practice, thereby ensuring that knowledge accumulation within a discipline remains robust and reliable. Recognizing the value of this approach, researchers in the field of green supply chain management in the construction industry have increasingly turned to the systematic literature review as a means of thoroughly examining the current state of research, identifying emerging trends, and determining areas for future exploration (Xiao & Watson, 2017) (Rosário & Dias, 2022) (Ejidike & Mewomo, 2023) (Seuring & Gold, 2012).

Data Collection:

Researchers elected Systematic Literature Review approach given its advantages and effectiveness to extract required information in methodical way from a massive database.

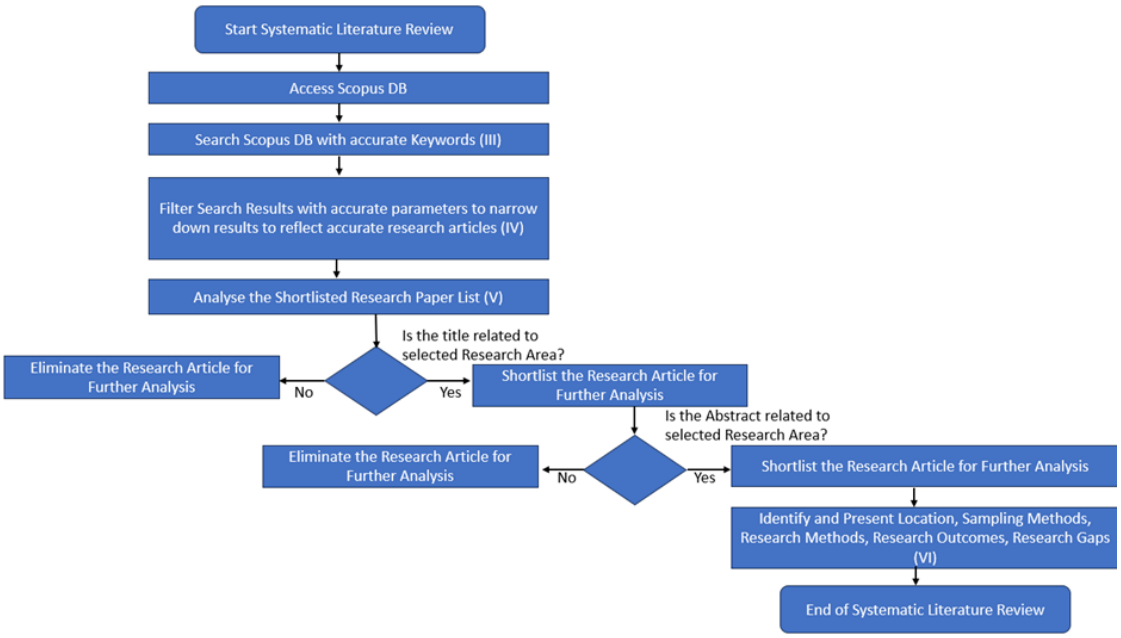

Fig 1: Systematic Literature Review Approach Flow chart

I. Initiate Systematic Literature Review

II. Researchers opted for Scopus Database for the SLR purpose.

III. Search database with Key words:

Researchers searched Scopus data using keywords like Agile Project Management, Project Management, Software Project Management, Software development lifecycle, SDLC, Agile, Scrum, Agile Mindset in the Title.

Below is the query that was used to search the Scopus database with the above keywords:

(TITLE-ABS-KEY ("agile project management") OR

TITLE-ABS-KEY ("project management") OR

TITLE-ABS-KEY ("software project management") OR

TITLE-ABS-KEY ("software development lifecycle") OR

TITLE-ABS-KEY ("sdlc") OR

TITLE-ABS-KEY ("agile") OR

TITLE-ABS-KEY ("scrum") OR

TITLE-ABS-KEY ("agile mindset"))

The above query resulted in 1,78, 455 search results containing above keywords.

IV. Filter Search Results with required parameters:

Considering the Practicality and accuracy, the researchers narrowed down the search articles using the following filter criteria:

Filter #	**Filter Name**	**Parameter**	**Description/ Details**	**Search Result Count**
1	Date Range	2020 - 2024	Recent data of last 5 years	32,972
2	Publication Type	Article	Research Articles and Conference Papers to be short listed	16,601
3	Publication Stage	Final	This will ensure that the final Published articles are referred	15,903
4	Keywords	• Project Management • Human Resource Management • Software Design	This will ensure to further shortlist the data to be more accurate	7279

		• Information Management • Agile • Innovation • Artificial Intelligence • Project Success • Agile Software Development • Project Performance • Software • Software Engineering • Agile Development • Software Development • Behavioral Research • Agile Methodologies		
5	Subject Area	• Business, Management and Accounting • Computer Science • Social Sciences • Multidisciplinary • Psychology		5377
6	Language	English	This is to refer Articles in English Language	5194
7	Open Access	All Open Access	Open access Articles are shortlisted so that we can refer the complete articles	2,595

Table 1: Filter Criteria for narrowing down search results

The query used for filtering the above parameters was as follows:

(TITLE-ABS-KEY ("agile project management") OR TITLE-ABS-KEY ("project management") OR TITLE-ABS-KEY ("software project management") OR TITLE-ABS-KEY ("software development lifecycle") OR TITLE-ABS-KEY ("sdlc") OR TITLE-ABS-KEY ("agile") OR TITLE-

ABS-KEY ("scrum") OR TITLE-ABS-KEY ("agile mindset")) AND PUBYEAR > 2019 AND PUBYEAR < 2025 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (EXACTKEYWORD , "Project Management") OR LIMIT-TO (EXACTKEYWORD , "Human Resource Management") OR LIMIT-TO (EXACTKEYWORD , "Software Design") OR LIMIT-TO (EXACTKEYWORD , "Information Management") OR LIMIT-TO (EXACTKEYWORD , "Agile") OR LIMIT-TO (EXACTKEYWORD , "Artificial Intelligence") OR LIMIT-TO (EXACTKEYWORD , "Innovation") OR LIMIT-TO (EXACTKEYWORD , "Project Success") OR LIMIT-TO (EXACTKEYWORD , "Agile Software Development") OR LIMIT-TO (EXACTKEYWORD , "Project Performance") OR LIMIT-TO (EXACTKEYWORD , "Software") OR LIMIT-TO (EXACTKEYWORD , "Software Engineering") OR LIMIT-TO (EXACTKEYWORD , "Agile Development") OR LIMIT-TO (EXACTKEYWORD , "Software Development") OR LIMIT-TO (EXACTKEYWORD , "Behavioral Research") OR LIMIT-TO (EXACTKEYWORD , "Agile Methodologies")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "COMP") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "MULT") OR LIMIT-TO (SUBJAREA , "PSYC")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (OA , "all"))

Researchers further applied filter to shortlist the research paper with citations more than 10 to ensure most referred papers in the said field.

Filter #	Filter Name	Parameter	Description/ Details	Search Result Count
8	Citation	More than 10	This will ensure that the cited research papers are selected for analysis	567

Table 2: Filter for Citation

Post this step, 567 research articles were sieved for further consideration.

V. Analyse the selected shortlisted Papers:

Researchers elected two step elimination process to further slim down the obtained search results. Using the “Title elimination Process”, Researchers went through the shortlisted titles and eliminated the results that were unrelated to the area of research, The resultant list was further fine tuned with “Abstract elimination Process”. As a part of Abstract elimination process, Researchers analysed the abstracts in detail and eliminated the search results that were unrelated to the field of study. 60 research papers were selected by researchers for the detailed analysis.

Researchers observed that “The factors influencing the success of on-going agile software development projects” (Tam C.; Moura E.J.D.C.; Oliveira T.; Varajão J., 2020) published by “International Journal of Project Management” was closest research paper in the field of study.

Data Interpretation:

On the detailed analysis performed on the shortlisted research papers following were observations from the research.

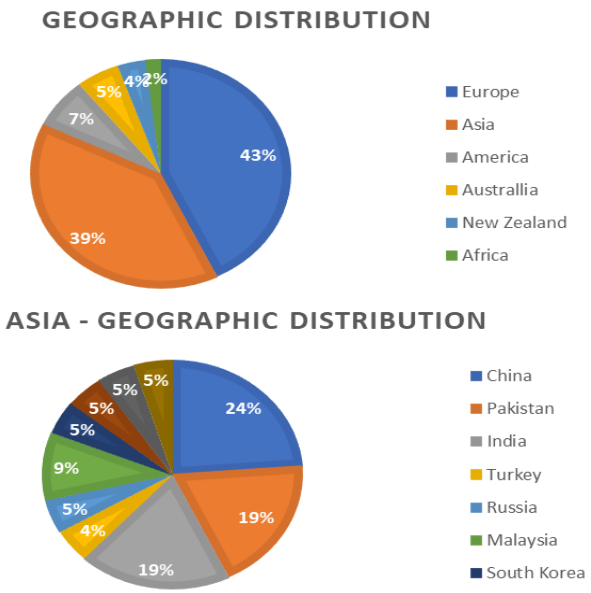

Fig 2: Geographic Distribution of Research

Figure 2 above showcases pie chart depicting the geographic distribution which was observed from the data analysed.

From the Research papers analysed, 43% research is carried in Europe followed by 39% in Asia. Only 2% research is observed in Africa.

From the research conducted in Asia, 19% research is conducted in geographic location of India. Highest percentage of research is carried out in China (24%). Out of the research papers analyzed only 7% research is carried out in India.

Figure 3 depicts the sampling techniques used by the researchers in research papers under analysis for the primary data collection.

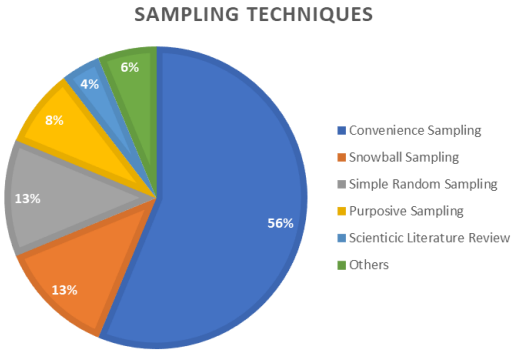

Fig 3: Sampling techniques

As it can be seen in Figure 3, Non-Probability Sampling methods like Convenience Sampling and Snowball Sampling are used by researchers in 69% research papers. For a research papers that aimed at primary data from the experts Purposive Sampling was used which constitutes 8%. 13% Research Papers used Simple Random Sampling techniques.

Figure 4 depicts data collection techniques that the researchers resorted to accumulate primary data.

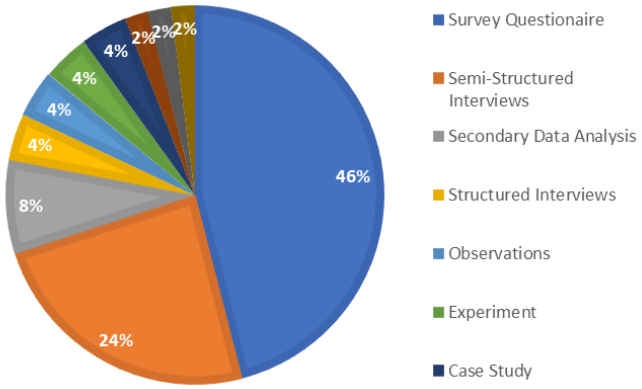

Fig 4: Data Collection Techniques

As observed in figure 4, 46% of Research Papers have used Survey Questionnaire for Primary Data collection followed by Semi-Structured interviews which constitutes 24%. Other Data collection techniques are also used based on the data to be collected for the research.

Conclusion:

It was observed by the researchers that while the geographical region covered in the research papers analyzed were across globe but comparatively limited research is being conducted in America and Africa continents. This unbolts an area where fellow researchers can explore. As far as Sampling is concerned in the selected area of the research, researchers mostly aid for convenient sampling technique. If data is to be collected from experts, Purposive sampling method was most sought of. Interviews and Questionnaire survey are most widely deployed primary data collection methods.

The closest Research Paper (Tam C.; Moura E.J.D.C.; Oliveira T.; Varajão J., 2020) in the core area of research interest of researchers mentioned about personal characteristics (Communication Skills, Empathy, Resiliency, Honesty, Motivation, Attitude and Readiness to learn), Societal culture (Values, Benefits and norms), Team Capabilities (Technical Competence, Technical Expertise and Agile knowledgeable Managers) and Training-Learning as factors influencing Agile Project success. But it also highlighted a gap and future research scope of performing qualitative research and prove which all personal characteristics can impact (positively or negatively) Agile Project success.

Reference:

1. Arcos-Medina, G., & Mauricio, D. (2020, June 25). Identifying Factors Influencing on Agile Practices for Software Development. University of Zagreb, Faculty of organization and informatics, 44(1), 1-31. https://doi.org/10.31341/jios.44.1.1

2. Chow, T S., & Cao, D. (2008, June 1). A survey study of critical success factors in agile software projects. Elsevier BV, 81(6), 961-971. https://doi.org/10.1016/j.jss.2007.08.020
3. Serrador, P., & Pinto, J K. (2015, July 1). Does Agile work? — A quantitative analysis of agile project success. Elsevier BV, 33(5), 1040-1051. https://doi.org/10.1016/j.ijproman.2015.01.006
4. Alsalami, A I. (2022, June 1). Literature review as a key step in research processes: case study of MA dissertations written on EFL of Saudi context. , 2(3), 153-169. https://doi.org/10.1108/sjls-04-2022-0044
5. Benachio, G L F., Freitas, M D C D., & Tavares, S F. (2019, February 24). Green Supply Chain Management in the Construction Industry: A literature review. IOP Publishing, 225, 012011-012011. https://doi.org/10.1088/1755-1315/225/1/012011
6. Caldwell, P., & Bennett, T. (2020, May 4). Easy guide to conducting a systematic review. Wiley, 56(6), 853-856. https://doi.org/10.1111/jpc.14853
7. Ejidike, C C., & Mewomo, M C. (2023, January 9). Benefits of adopting smart building technologies in building construction of developing countries: review of literature. Springer Nature, 5(2). https://doi.org/10.1007/s42452-022-05262-y
8. Rosário, A T., & Dias, J C. (2022, March 29). Sustainability and the Digital Transition: A Literature Review. Multidisciplinary Digital Publishing Institute, 14(7), 4072-4072. https://doi.org/10.3390/su14074072
9. Seuring, S., & Gold, S. (2012, August 3). Conducting content-analysis based literature reviews in supply chain management. Emerald Publishing Limited, 17(5), 544-555. https://doi.org/10.1108/13598541211258609
10. Sriganesh, K., Shanthanna, H., & Busse, J W. (2016, January 1). A brief overview of systematic reviews and meta-analyses. Medknow, 60(9), 689-689. https://doi.org/10.4103/0019-5049.190628
11. Xiao, Y., & Watson, M. (2017, August 28). Guidance on Conducting a Systematic Literature Review. SAGE Publishing, 39(1), 93-112. https://doi.org/10.1177/0739456x17723971
12. Tam C.; Moura E.J.D.C.; Oliveira T.; Varajão J. (2020). The factors influencing the success of on-going agile software development projects. International Journal of Project Management, 38(3), 165-176. https://doi.org/10.1016/j.ijproman.2020.02.001