

UNDERSTANDING HYBRID AGILE APPROACH: A CONCEPTUAL FRAMEWORK

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ABSTRACT

Hybrid agile approach involves combining both agile and non-agile techniques in managing projects within organizations. While hybrid agile is an emerging approach that is gaining popularity, its nature is not well-defined, and there is limited research on the outcomes of this approach in areas such as project success, people skills, and IT project management. This study aims to address these gaps by developing a conceptual framework and conducting case studies to examine hybrid agile from various perspectives. The findings suggest that the hybrid agile approach is more effective than pure agile due to its flexibility in utilizing a variety of approaches, frameworks, and practices while also addressing both internal and external success measures. The study also highlights the importance of people culture and an agile mindset in building effective teams. By leveraging the flexibility of the hybrid agile approach, organizations can tailor their project management strategies to meet their specific needs. The proposed conceptual framework can be applied to evaluate any project management approach and offer insights to overcome challenges within organizations.

KEYWORDS

Hybrid Agile, Information Systems, Success Measures, Project Management

1. INTRODUCTION

Hybrid Agile is a combination of agile and non-agile practices used in project management (Hartman, 2017). The use of this approach has been considered effective in IT projects and is claimed to increase the success of project outcomes compared to traditional methods (Copola Azenha et al., 2021; Digital.ai, 2021; Gemino et al., 2021; Serrador & Pinto, 2015). The recent research has mostly focused on identifying the agile practices with little research on exploring how organizations can effectively combine different approaches with purpose of achieving results (Copola Azenha et al., 2021). However, there is limited research on how organizations can effectively use the Hybrid Agile approach to manage IT projects. Also, hybrid agile is an emerging approach that combines traditional agile methodologies with other project management approaches, such as waterfall or Lean. While hybrid agile is gaining popularity in various industries and organizations, there is still limited research on its outcomes in areas such as project success, team dynamics, and overall project management effectiveness (Gou et al., 2021; Ranganath et al., 2021; Manikas & Hansen, 2018). This approach allows organizations to customize their project management processes to suit their specific needs and goals. Hybrid agile recognizes that different projects and teams require different levels of flexibility and structure, and it seeks to find a balance between the two.

The importance of hybrid agile lies in its ability to provide organizations with the best of both worlds. It combines the flexibility and adaptability of agile with the structure and control of traditional project management approaches. This allows organizations to better manage risk, meet deadlines, and deliver high-quality products or services.

Despite its increasing popularity, there is still a gap in researching the outcomes of hybrid agile. While there are some studies that have explored the effectiveness of hybrid agile, there is still limited research on its outcomes in areas such as project success, team dynamics, and overall project management effectiveness. As a result, there is a need for more research on hybrid agile to better understand its impact and effectiveness.

This research aims to explore hybrid agile from an Information Systems perspective by examining its frameworks, tools, techniques, success measures, and people skills. The study of hybrid agile management has been a recent focus for researchers and the development of a conceptual framework for it can provide structure and standardization to the field. This research will first provide background on hybrid agile and its need for conceptualization, then develop a framework for it and apply it in the research design. The findings from the case studies will conclude the paper.

2. BACKGROUND

Hybrid agile approach is a combination of agile and non-agile practices that has been increasingly adopted in IS projects. The adoption of hybrid agile is driven by the need to leverage the benefits of agile while considering the constraints that large organizations face (Zasa et al., 2020). The integration of non-agile practices with agile environment enhances the effectiveness of agile implementation (Gill et al., 2018). The studies have shown that the hybrid-agile methods lead to better project outcomes and success (Serrador & Pinto, 2015).

However, there are several challenges in effectively managing agile projects, including the inability to support requirement changes during a project and lack of project predictability at the initial phase of a project (Kasauli et al., 2021; Heeger & Nielsen, 2018). The implementation of hybrid-agile processes enables project predictability and supports requirement changes during a project (Islam & Storer, 2020). Furthermore, while hybrid approaches aim to integrate traditional and agile project management methods, there is a lack of clarity on how this integration should be done and what the most effective strategies are for ensuring successful implementation (Bhattacharya, 2020).

In hybrid agile environment, it requires effective communication and stakeholder management to succeed. However, there is a need for further research on how to effectively communicate and manage stakeholders in hybrid project management environments, especially in complex or large-scale projects as well as the need for new metrics and performance measurements methods to accurately assess project progress and success (Gupta et al., 2021). Also, it requires effective team collaboration and coordination. However, there is a need for further research on how to promote and sustain team collaboration in hybrid project management environments, especially when team members come from diverse backgrounds and may have different ways of working (Bhattacharya, 2020).

Several studies have highlighted the importance of understanding the outcomes of hybrid agile in project management. For example, Ranganath et al. (2021) found that hybrid agile methods can have a positive impact on project performance in the IT industry. However, there is still a lack of research on the outcomes of hybrid agile in other industries and contexts.

Furthermore, Gou et al. (2021) conducted a systematic mapping study of hybrid agile software development and found that there is limited research on the effectiveness of hybrid agile in areas such as team dynamics, project success, and overall project management effectiveness. This highlights the need for more research on hybrid agile to better understand its impact and effectiveness in project management.

Manikas and Hansen (2018) also conducted a review of the literature on hybrid agile project management approaches and found that there is still a lack of understanding of the optimal approach to hybrid agile. They emphasized the need for further research to identify best practices and effective ways to implement hybrid agile in project management.

3. DEVELOPMENT OF CONCEPTUAL FRAMEWORK

The call for investigating hybrid agile approach is demonstrated in the previous sections and by many researchers. This paper tries to develop a conceptual framework that looks at hybrid agile from several angles in order to provide a comprehensive understanding about the phenomena.

The conceptual framework for understanding hybrid agile approach in IT project management is developed based on a literature review of existing studies and research in the field. The framework aims to provide clarity and completeness in understanding the concept of hybrid agile and how it can be successfully implemented in organizations. The framework consists of several elements, including the approaches and frameworks that make up hybrid agile, the practices, tools, and techniques used in implementing hybrid agile, the benefits and

challenges of adoption, and the success measures used to evaluate the success of hybrid agile delivery. The conceptual framework seeks to fill the gap in the existing knowledge about hybrid agile and provide a basis for further primary studies on the topic.

The conceptual framework development is derived from the literature review of agile environments and referring to IT project management concepts to better examine hybrid agile approaches. Below we discuss the elements and concepts which construct the conceptual framework.

3.1 Hybrid Agile Conceptual Framework

The development of a conceptual framework for understanding hybrid agile approaches aims to formalize a theory to explore a less researched concept. The framework is based on two main areas: factors of benefits and challenges of hybrid agile, and the exploration of how organizations can successfully implement hybrid agile through practices, tools and techniques, success measures, and people factors. The framework aims to clarify and complete the understanding of hybrid agile, by exploring why it is selected, the benefits and challenges of adoption, and how it can be successfully implemented. The conceptual framework includes elements such as the kind of frameworks and approaches that make up hybrid agile, practices, tools, and techniques, benefits and challenges of adoption, success measures, and people factors. The framework is based on existing studies and the importance of understanding these elements in building a successful hybrid agile environment. The conceptual framework is shown in figure 1.

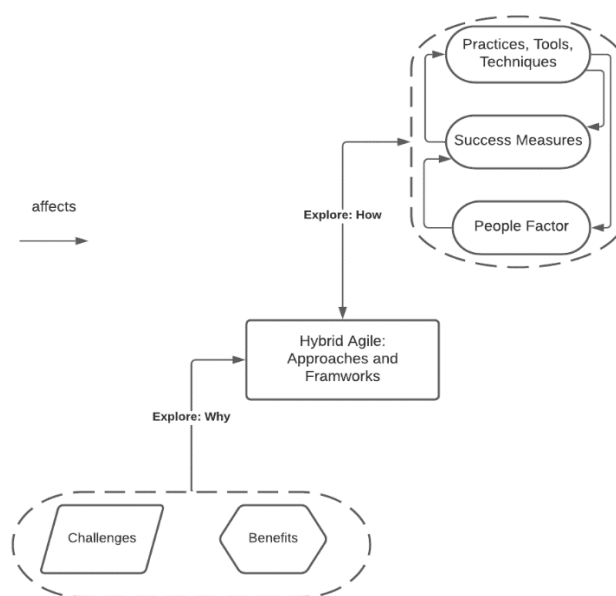


Figure 1. Hybrid Agile Approach Conceptual Framework

There are two characteristics for the conceptual framework which can make it unique and useful for understanding hybrid agile use in organisations. The characteristics of the conceptual framework are clarity and completeness. Clarity is derived from understanding why hybrid agile can be selected in organisation as their management approach by understanding the benefits of the adoption of hybrid agile and the challenges of such adoption. By understanding such two important things about hybrid agile, it can clarify to whomever would like to implement and adopt the same approach and framework.

In relation to completeness, the decision of choosing the practices, tools and techniques, success measures, and people factor can also enrich the understanding of the concept of hybrid agile and contribute to the completeness of our understanding of the new concept. Such clarify and completeness would justify the importance of the conceptual framework in investigating the hybrid agile concept to help in successfully management of IT projects.

In terms of practices, tools, and techniques, each approach and framework have a set of practices, tools, and techniques that help in following it. It is important to cover the practices, tools, and techniques that help in following hybrid agile approaches. Currently, a wide range of tools support agile techniques and practices, so it is important to understand which tools could be associated with hybrid agile. The importance of identifying such information is aligned with studies such as the State of Agile report, which shows which agile techniques are used among practitioners when following the agile methodology.

The benefit of adopting hybrid agile approaches is another element that our conceptual framework consisted of. The rationale behind including the benefits of hybrid agile adoption is derived from studies like (Digital.ai, 2021). It is very important to understand hybrid agile adoption to understand the successful hybrid agile environment. The studies of the benefits of agile in the literature are extensive, and that added extra importance to the necessity of this element in our conceptual framework.

The challenges of hybrid agile approaches are another element of our conceptual framework. Such identification could help us to understand the hybrid agile adoption consequences. It adds to the value of understanding the successful hybrid agile environment. The importance of identifying the key challenges that organizations face when adopting hybrid agile is derived from the literature around agile challenges in studies such as (Digital.ai, 2021). The two elements (benefits and challenges) are recommended to be the subjects of further primary studies evaluating agile hybrids and project management to benefit agile research (Hoda et al., 2017).

Another element of this conceptual framework is success measures. Understanding how organizations measure the success of hybrid agile delivery is important. Many studies have focused on success measures and factors. Therefore, the success measures help to understand the hybrid agile environment and build an image around how to successfully deliver projects in hybrid agile environments, as well as the success measures around specific frameworks and approaches. The annual State of Agile report provides the significant measures that organizations use in determining agile transformation success. Also, the literature review analyzed other papers that looked at the success factors of agile: those studies show the importance of identifying the success measures around any project delivery. Consequently, the conceptual framework includes the success measures that could be used in assessing and determining the success of hybrid agile delivery.

The last element of the conceptual framework is people factors. Agile is known for being people-focused, and studies on people factors in the literature underscore the importance of including people factors to understand a successful hybrid agile environment as well as the kind of people factors associated with frameworks and approaches. Agile has put more emphasis on people factors, and one of the sections of the Agile Manifesto is about people, as explained earlier. The importance of identifying people factors that can be associated with successful hybrid agile environments was derived from the fact that agile is people-focused, and the Agile Manifesto puts people interactions over process and tools.

4. RESEARCH METHOD

The research design for this study is a case study approach to investigate the implementation of the hybrid approach in organizations. Figure 2 presents an overview of the research design utilized in this study, providing a visual summary of its key components. The study includes three case studies from government and non-government organizations, with 19 participants interviewed and more than eight documents reviewed. The participants included the following roles: program manager, scrum master, agile coach, product owner, system analyst and senior project manager.

The data was collected using semi-structured interviews and document review. The four criteria tests in social sciences, construct validity, internal validity, external validity, and reliability, were addressed by using techniques such as establishing a chain of evidence, structural coding, content analysis, thematic coding, and inter-coder reliability. The research questions were developed using both means-ends and framework perspectives, focusing on three parts. The first part is an introduction to the interview to provide a convenient environment. The second part covers why organizations apply the hybrid approach, and how they manage their hybrid agile environment. The third part of the interview protocol covers how organizations measure project success, and what team and people requirements affect the success of hybrid-agile projects. The developed framework was used to structure the research project and evaluate the literature.

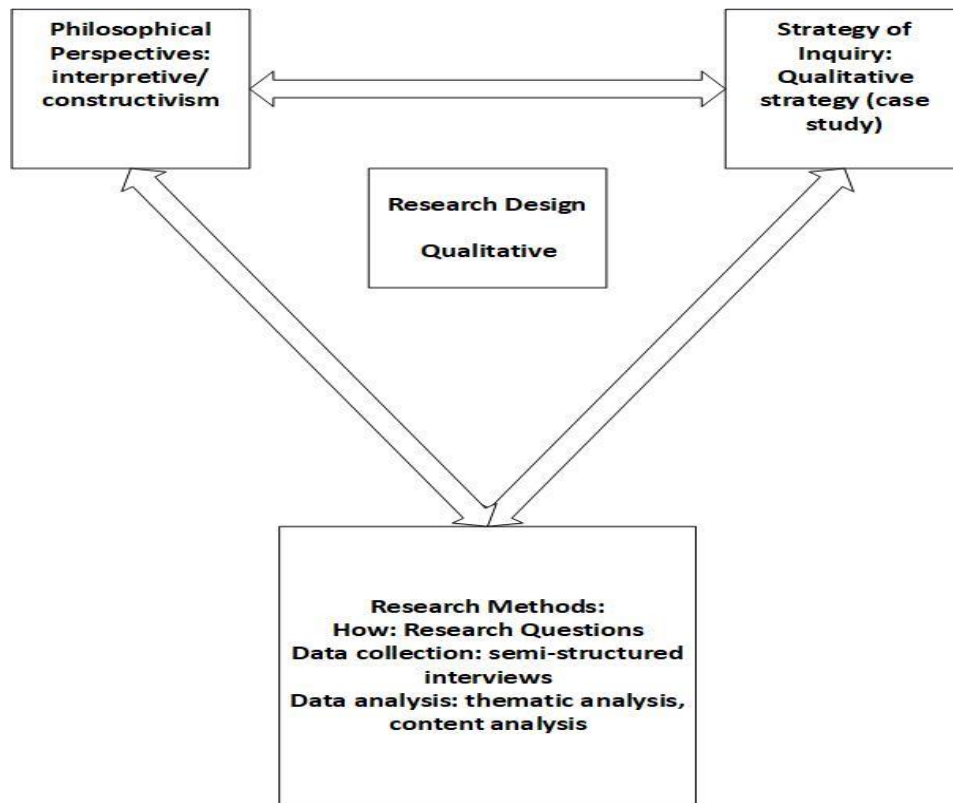


Figure 2. Framework for design: the interconnection of worldviews, strategy of inquiry, and research methods for this study

5. RESULTS AND DISCUSSION

The study collected data from three large case studies and expert interviews to explore themes in hybrid agile environments. The study identified five main themes: agile, hybrid agile, scaled agile, structured frameworks, and lean principles. The most common combination of approaches and frameworks in hybrid agile were the scrum framework, in-house hybrid agile approach, and SAFe. Success in hybrid agile was focused on both internal and external measures, with agile metrics, customer and user satisfaction, product scope, and triple constraint as the most cited success measures. People themes emphasized the importance of an agile mindset and culture, continuous improvement and learning, and team member soft skills. Adopting hybrid agile brings benefits such as clear requirements, customer satisfaction, and team development satisfaction. Common barriers to adopting hybrid agile include change in scope, lack of integration of non-development functions, and lack of documentation.

The five main themes of approaches and frameworks identified in this study which construct the hybrid agile environment are agile, hybrid agile, scaled agile, structured frameworks, and lean principles. Each theme consists of one or more approaches or/and frameworks. For example, Scrum and Kanban are considered under the agile theme. The agile theme is combined with all of the other themes which can lead to the fact that scrum and Kanban are the basic of hybrid agile approach. The hybrid agile theme consists of approaches and frameworks which are represented as an in-house built hybrid agile framework and Prince2 agile framework combinations. The scaled agile frameworks consist of SAFe, LeSS, Nexus, and Spotify. However, SAFe is the most common one. The structured frameworks are the waterfall and Prince2 frameworks. Finally, the lean principles are found common to be combined with constructing the approaches and frameworks in hybrid agile.

The concept of hybrid agile practices, tools, and techniques in the conceptual framework provides the specific ways to manage projects within the hybrid agile approach. In our study, there are twenty themes describing the practices, tools, and techniques in the hybrid agile environment. As explained before, the use of practices, tools, and techniques support the use of approaches and frameworks to manage projects. Further, the practices used are determined as an indication of maturity, and the tools are considered a key component for determining the success of an approach (Digital.ai, 2021). Most of the practices are derived from scrum practices and SAFe practices.

There are several combinations of approaches and frameworks that construct hybrid agile. However, the scrum framework, in-house built hybrid agile approach, and SAFe are the most common combinations. The importance of the mentioned approaches and frameworks is based on their popularity. The variety of combinations in hybrid agile indicates the flexibility of hybrid agile. The flexibility can allow organisations to leverage what suits them best to serve their needs in managing their projects.

The list of how organisations measure success in hybrid agile includes a spectrum of internal and external factors as well as addressing project management success and product success. The internal and external factors mean the driver's context of these factors and whether the business benefits identification that will result if the investment objectives are achieved and who can be influenced by such outcomes (Gomes & Romão, 2016). The project management success is the type of success which concern time, cost, quality, and satisfaction while product success is the type of success which concerns the value of outcomes. The pre-defined success measures can assist in better project management practices and ensure an effective impact on project success (Gomes & Romão, 2016). In this study, the use of agile metrics is the most common measurement metrics in hybrid agile environment. Customer and user satisfaction and product scope are equally seen as important measures of hybrid agile success.

It can be claimed that hybrid agile delivery success is focused on agile metrics with the metrics linked to every combination of hybrid agile approaches and frameworks and the high frequency of reporting them. It also can be argued that the hybrid agile delivery success is equally focused on external and internal measures, with the most cited success measures and the one linked to every kind of combination of hybrid agile approaches and frameworks. It is focused on agile metrics, customer and user satisfaction, product scope, and triple constraint. The focus on internal and external measures indicates the uniqueness of hybrid agile because it focuses on external measures in agile (Digital.ai, 2021). The focus of the success measures also includes both project management success and product success.

The people themes explored the importance of team characteristics and important for building effective teams around the hybrid agile environment. Amongst the nine themes, agile mindset and culture factors are the most important factors. The concepts of continuous improvement and learning, soft skills, openness to change, and organisation support are seen as equally important factors for team members.

The hybrid agile adoption presents various benefits that are achievable in organisations. The list of themes associated with the most important reasons and benefits for adopting hybrid agile include the ability to build quickly, having clear requirements, having customer satisfaction, and gaining team development satisfaction. The benefits that organizations gain when adopting hybrid agile approach can show that stakeholders inside and outside the organization are benefiting out this the developed product.

The reasons that encourage organisations to adopt hybrid agile indicate the ability of organisations to meet their goals. The reasons span from the ability to build quickly to clear requirements. Both are critical to ensure the right product is successfully delivered. The ability to respond to change quickly is evidently critical since we live in a pandemic. It can be claimed that organisations can address their goals in hybrid agile adoption. The reasons customer satisfaction and team satisfaction and development focus on the alignment of the happiness of the customer and team members plays an important role in rapidly changing working environments. Additionally, the satisfaction of the customer and team members can play a critical role in ensuring the success of hybrid agile adoption.

On the other hand, the most common barriers and challenges when adopting hybrid agile approach are the change in scope, integration of non-development function, and lack of documentation. It is evident that organizations are frustrated with change in project scope while the purpose of using agile techniques is to initiate the project where there is a little clarity and scope. It seems that the change particularly in the hybrid environment, organisations require better understanding of scope and planning. In addition, the lack of documentation and lack of quality metrics are discovered as major challenges where hybrid approach requires clear quality metrics and detailed documentation.

In summary, there are number of different approaches that can be taken into consideration in hybrid management. In this study we reported on analyzed data for explored tools and techniques, success, and people requirements. We believe the conceptual framework benefits organization by providing a clear and complete picture of how they can consider the hybrid agile approach for achieving better outcomes. This can be extended to assess any other project management approach or any work settings.

6. CONCLUSION

This paper explored the hybrid-agile domain, which is a complex and evolving field in the project management. To address these challenges, the paper proposed a conceptual framework to structuring the study and applies it to organizational analysis. The study adopts a critical realist perspective to identify the socially, materially, and discursively real aspects of the phenomenon under investigation. The paper presents a framework that can be used to formulate research questions, design and collect data, and analyze findings. The contributions of the paper include a new method for conceptualizing management domains and an approach to conducting research that is particularly useful for complex problem areas.

The study provides valuable insights into hybrid agile approaches and frameworks and their implementation in organizations. It highlights both the benefits and challenges of adopting this approach and provides recommendations for organizations looking to adopt hybrid agile. The paper also highlights the need for further research to establish evidence-based practices for hybrid-agile management. The limitations of the paper include the small sample size and the limited scope of the study. Future research could benefit from larger sample sizes, additional data sources, and more comprehensive analyses. Another limitation can be the reliance on conceptualization approach. The paper relies heavily on the use of the conceptualizing approach for the analysis of the hybrid-agile domain. This could limit the validity and reliability of the findings if the approach is not applied correctly or if there are limitations in the approach itself.

Overall, the paper provides a valuable contribution to the study of hybrid-agile management and offers a new conceptual framework to research and analysis in complex problem areas. Future research also should focus on understanding the impact of hybrid agile in different industries and contexts, identifying best practices for its implementation, and exploring its effectiveness in areas such as team dynamics, project success, and overall project management effectiveness.

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REFERENCES

- Adelakun, O., Garcia, R., Tabaka, T., & Ismail, R. (2017). *Hybrid project management: Agile with discipline*. Paper presented at the International Conference on Information Resources Management (CONF-IRM).
- Bhattacharya, S. (2020). Hybrid project management: A review of the literature. *Journal of Modern Project Management*, 8(3), 32-49.
- Copola Azenha, F., Aparecida Reis, D., & Leme Fleury, A. (2021). The role and characteristics of hybrid approaches to project management in the development of technology-based products and services. *Project Management Journal*, 52(1), 90-110.
- Cram, W. A., & Marabelli, M. (2018). Have your cake and eat it too? Simultaneously pursuing the knowledge-sharing benefits of agile and traditional development approaches. *Information & Management*, 55(3), 322-339.
- Digital.ai. (2021). 15th State of Agile Report.
- Dybå, T., & Dingsøyr, T. (2008). Empirical studies of agile software development: A systematic review. *Information and Software Technology*, 50(9-10), 833-859.
- Fleetwood, S., & Ackroyd, S. (2004). *Critical realist applications in organisation and management studies* (Vol. 11): Psychology Press.

- Gemino, A., Horner Reich, B., & Serrador, P. M. (2021). Agile, traditional, and hybrid approaches to project success: Is hybrid a poor second choice? *Project Management Journal*, 52(2), 161-175.
- Gill, A. Q., Henderson-Sellers, B., & Niazi, M. (2018). Scaling for agility: A reference model for hybrid traditional-agile software development methodologies. *Information Systems Frontiers*, 20(2), 315-341.
- Gomes, J., & Romão, M. (2016). Improving project success: A case study using benefits and project management. *Procedia Computer Science*, 100, 489-497.
- Gregor, S. (2006). The nature of theory in information systems. *MIS quarterly*, 611-642.
- Gou et al. (2021). "Hybrid Agile Software Development: A Systematic Mapping Study." *IEEE Access*, 9, 84926-84939.
- Gupta, et al. (2020). Hybrid project management framework: A systematic review. *Journal of Modern Project Management*, 8(2), 36-53.
- Hartman, B. (2017). What is hybrid agile, anyway? *Agile Alliance, Portland, OR, White Paper*.
- Heeager, L. T., & Nielsen, P. A. (2018). A conceptual model of agile software development in a safety-critical context: A systematic literature review. *Information and Software Technology*, 103, 22-39.
- Hoda, R., Salleh, N., Grundy, J., & Tee, H. M. (2017). Systematic literature reviews in agile software development: A tertiary study. *Information and Software Technology*, 85, 60-70.
- Islam, G., & Storer, T. (2020). A case study of agile software development for safety-Critical systems projects. *Reliability Engineering & System Safety*, 200, 106954.
- Kasauli, R., Knauss, E., Horkoff, J., Liebel, G., & de Oliveira Neto, F. G. (2021). Requirements engineering challenges and practices in large-scale agile system development. *Journal of Systems and Software*, 172, 110851.
- Manikas & Hansen (2018). "Hybrid Agile Project Management Approaches: A Review of the Literature." *International Journal of Project Management*, 36(2), 327-340.
- Nerur, S., Mahapatra, R., & Mangalaraj, G. (2005). Challenges of migrating to agile methodologies. *Communications of the ACM*, 48(5), 72-78.
- Noll, J., & Beecham, S. (2019). *How agile is hybrid agile? an analysis of the helena data*. Paper presented at the International Conference on Product-Focused Software Process Improvement.
- Ranganath et al. (2021). "Exploring the Relationship between Hybrid Agile Methods and IT Project Performance." *Journal of Enterprise Information Management*, 34(4), 938-958.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: John Wiley & sons.
- Serrador, P., & Pinto, J. K. (2015). Does Agile work?—A quantitative analysis of agile project success. *International journal of project management*, 33(5), 1040-1051.
- Sommer, A. F., Hedegaard, C., Dukovska-Popovska, I., & Steger-Jensen, K. (2015). Improved product development performance through agile/stage-gate hybrids: The next-generation stage-gate process? *Research-Technology Management*, 58(1), 34-45.
- Theocharis, G., Kuhrmann, M., Münch, J., & Diebold, P. (2015). *Is water-scrum-fall reality? on the use of agile and traditional development practices*. Paper presented at the International Conference on Product-Focused Software Process Improvement.
- Wideman, R. M. (2002). Comparing PRINCE2® with PMBoK®. *AEW Services, Vancouver, BC, Canada*, 13-16.
- Yin, R. K. (2017). *Case study research and applications: Design and methods*: Sage publications.
- Zasa, F. P., Patrucco, A., & Pellizzoni, E. (2020). Managing the hybrid organization: How can agile and traditional project management coexist? *Research-Technology Management*, 64(1), 54-63.