

Exploring the link between project management approach and project success dimensions: A structural model approach

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ABSTRACT

Aligning the project management approach to a particular project is considered to be essential for project success. Based on the literature review, in this research, the project management approach is analyzed through differentiation between agile and traditional approaches within the specific managerial aspects. This research aimed to contrast these two project management approaches and explore their impact on different project success dimensions. The research was conducted on a sample of 227 project management professionals worldwide, using the PLS-SEM method. Research results denounced that, in most cases, the traditional approach is applied in project initiation and planning. It has proven to provide higher-level of project success, while, within all other managerial aspects considered in this research, they gravitate more towards the agile approach. By combining agile and traditional approaches, organizations can take advantage of some benefits of agile development without abandoning the stability provided by a traditional approach. The study is relevant for project management practitioners tailoring down the success-oriented project management approach and developing project management contingency theory for academics.

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1. Introduction

Contemporary challenges, dynamic, uncertain environments, and stakeholders increase project complexity [1]. There are many different, and in some cases, overlapping approaches to manage the complexities of any given project, make it difficult to determine which one is suitable to use to achieve project success [2]. Things get further complicated as the universal project success definition is still challenging to find as it is discordantly discussed in the literature. Despite extensive research in recent years, there has been little agreement on what causes project success and how. Many authors argue that aligning the project management approach to a particular project [2-4], particularly correctly matching the project characteristics [5], is essential for project success. In a current condition of rapid change and uncertainty, some authors considered that project success is determined by how project risks are managed [6]. Based on the literature review and relevant literature sources, in this research, a project management approach is analyzed through differentiation between agile and traditional approaches. The early adopters of agile believe that agile may positively affect project success [7-9]. Followers of a more traditional approach believe that agile is more chaotic and lacks the formal procedural rigor that the former possess [10], affecting project success. This raises questions about the value and effectiveness of different project management approaches and how they link with project success. There is a lack

of research in this field, signaling a clear gap in the literature. This research aims to contrast these two project management approaches and explore their impact on different project success dimensions. The following research question is posed: How agile and traditional project management approaches differentiate concerning their impact on different project success dimensions within the project management process's specific managerial aspects? To answer this question, we empirically tested the relationship between the project management approach, applied within the specific managerial aspect, and individual project success dimensions. This was done on a sample of 227 project management professionals worldwide, using the PLS-SEM method. Such a course of action was taken due to this research's exploratory nature [11]. The research is relevant for project management practitioners tailoring down the success-oriented project management approach and developing project management contingency theory for academics.

The paper's remainder is structured as follows. Section 2 reviews the literature on project management approach and project success. Section 3 research model with research questions and hypotheses is given, while in Section 4 research method, sample, and data collection process are presented. In Section 5, statistical data and results are presented and discussed, followed by a conclusion with limitations and suggestions for further research.

2. Literature review

2.1 Project management approach

As global demands change, organizations move from a traditional, hierarchical management approach based upon command and control to an agile project management approach based upon collaboration, flexibility, and dynamism [12]. The traditional approach pursues a goal of logical sequencing that required deliverables to be set in advance and project development evaluated based on performance at a series of capabilities gated reviews [13]. As opposed to the traditional ones, agile management relies much more heavily on the training and skills of a collaborative cross-functional team to adapt the methodology to a problem that they are attempting to solve and to deliver projects piece by piece and make rapid adjustments as needed to speed up the phases of the project [14]. Bringing a project to a successful closing requires integrating numerous management variables such as planning, directing, team building, team communication, cost and schedule management, client involvement, requirements, change management, stakeholders management, etc. The multiple factors involved in management that are subject to changes in variables external to the organization and organizational management models cannot be a static or deterministic concept [15]. To differentiate the agile and traditional project management approach, according to different project variables, identified in the literature, the authors defined five groups: (1) project initiation and planning, (2) personnel management, (3) client involvement, (4) modularity of work and (5) troubleshooting. Each group describes a specific managerial aspect of the project management process. Project initiation and planning refer to how the project is initiated and planned – the level and complexity of upfront planning, clarity, and stability of project scope and requirements. Personnel management refers to the way how the project team collaborates, how work is organised, and what is the management style. Client involvement describes the importance and level of client involvement and commitment throughout the whole project, lifecycle. The modularity of work refers to the way how project work is done, describing the development process (the value of modularized and incremental work, sequence of iterations, prioritization). Troubleshooting refers to the way how changes in requirements are managed and implemented. Differences between the agile and traditional project management approach within the specific managerial aspects of the project management process, identified in the literature, are presented in Table 1.

Table 1 Agile vs. traditional approach in project management [13, 16-19]

	Variable	Agile	Traditional
Project initiation and planning	Scope	Largely emergent, rapid change; designed for current and foreseeable requirements	Known early, largely stable; designed for current requirements
	Project planning	Complex; iterative	Linear
	Contract	Based on time and resources based (variable-price)	Based on fixed prices, time, and scope
Personnel management	Team collaboration	Collaborative; agile	Plan oriented; less collaboration
	Team location	Distributed due to different physical locations	Co-located-all located at the same place
	Team organization	Self-organized and cross-functional teams; 100 % dedicated to the project	Strict separation of roles; access to external knowledge; pre-structured teams; spread across different projects
	Management style	Leadership and collaboration	Command and control
Client involvement	Client involvement and commitment	Dedicated, knowledgeable; co-located; representative, frequent collaboration	Minimal commitments; not co-located and not empowered
Modularity of work	Development model	Evolutionary-delivery model (iterative or adaptive models)	Linear or incremental (anticipatory)
	Fundamental assumption	Continuous design improvement and testing based on rapid feedback and change	Systems are fully specifiable, predictable, and are built through meticulous and extensive planning
	Quality control	Continuous control of requirements; design and solutions, continuous testing	Heavy planning and strict control; late heavy testing
	Prioritization	Client prioritized; time-boxed delivery	Manager negotiated; scope-based delivery
Troubleshooting	Requirements	Creative, innovative; requirements unclear; changes expected	Precise initial requirements; low change rate expected

2.2 Project success dimensions

There are various opinions on what composes project success and criteria by which the project should be judged. Still, no general agreement on project success has emerged appropriate for all projects [20, 21]. A specific project should focus on its explicit dimensions, and these dimensions should be determined according to the particular project type [22]. Traditional project success measures focused on the so-called iron triangle, completing the defined scope of work to specification, and meeting the time and budget goals [23]. Although this may seem right in some cases and suitable in the short run when time is critical, quite often, what appeared to be a troubled project, with extensive delays and overruns, turned out later to be a great business success [24].

Table 2 The five dimensions of project success [21]

Project success dimension	Measures	Time
Project efficiency	Meeting schedule goal	End of the project
	Meeting budget goal	
Impact on the team	Team morale	End of the project
	Skill development	
	Team member growth	
	Team member retention	
Impact on the customer	Meeting functional performance	Months following project
	Meeting technical specifications	
	Fulfilling customer's needs	
	Solving customer's problem	
	The customer is using the products	
Business success	Commercial success	Years following project
	Creating a large market share	
Preparing for the future	Creating a new market	Years following project
	Creating a new product line	
	Developing a new technology	

But literature has also examined the broader impact of projects on the business. Pinto and Slevin [20] had acknowledged three aspects of project success concerning the implementation process, the perceived value of the project, and customer satisfaction with the delivered project outcome. Shenhar & Dvir [21] proposed a new way to look at project success. Rather than seeing projects as tasks that lead to the meeting time, budget, and performance goals, one should view projects in their broader sense. They suggested a model based on five project success dimensions, judged over different timescales (see Table 2). This model was selected to assess individual project success dimensions in this research.

3. The research model: The relationship between project management approach and project success dimensions

Organizations are using a particular project management approach to collect practices, expecting greatly improved project performance and project success. As a collection of practices, the project management approach collectively impacts different project success dimensions. However, one approach may have a more significant impact than others, and their impact could differ concerning different project success dimensions. As argued by some authors, the traditional project management approach, which exclusively pursues the success criteria of costs, time, quality, and meeting technical requirements, has become considered ineffective [25]. Previous studies analyzed the impact of individual approaches or specific project management practices, or management variables on project success, without considering the impact on different project success dimensions, as perceived in this research. Recognizing this as exploratory research, the authors intended merely to explore the research questions. The research framework (see Fig. 1) was developed to provide empirical evidence and test whether the agile and traditional approach differentiates concerning their impact on different project success dimensions, taking into account various management aspects. For research purposes, this research considered five questions and 25 hypotheses (see Table 3).

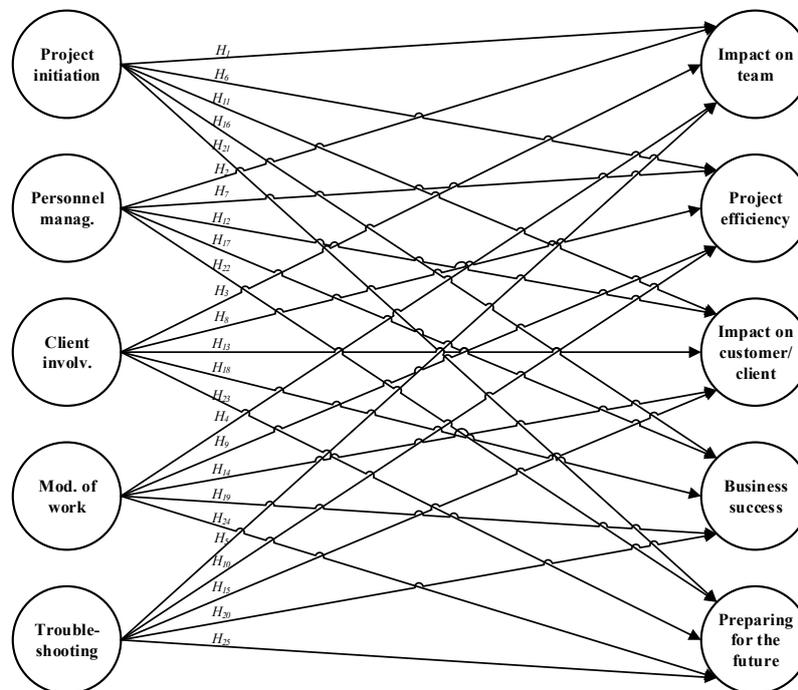


Fig. 1 The research model

Table 3 Research questions and hypothesis

Question 1	How agile and traditional project management approach differentiate concerning their impact on project success dimension - Impact on the team?
<i>H₁</i>	Agile vs. Traditional approach in Project initiation and planning - The project management approach is related to project success dimension - Impact on the team
<i>H₂</i>	Agile vs. Traditional approach in Personnel management - Project management approach is related to project success dimension - Impact on the team
<i>H₃</i>	Agile vs. Traditional approach in Client involvement - Project management approach is related to project success dimension - Impact on the team
<i>H₄</i>	Agile vs. Traditional approach in Modularity of work - Project management approach is related to project success dimension - Impact on the team
<i>H₅</i>	Agile vs. Traditional approach in Troubleshooting - Project management approach is related to project success dimension - Impact on the team
Question 2	How agile and traditional project management approach differentiate concerning their impact on project success dimension - Project efficiency?
<i>H₆</i>	Agile vs. Traditional approach in Project initiation and planning - Project management approach is related to project success dimension - Project efficiency
<i>H₇</i>	Agile vs. Traditional approach in Personnel management - Project management approach is related to project success dimension - Project efficiency
<i>H₈</i>	Agile vs. Traditional approach in Client involvement - Project management approach is related to project success dimension - Project efficiency
<i>H₉</i>	Agile vs. Traditional approach in Modularity of work - Project management approach is related to project success dimension - Project efficiency
<i>H₁₀</i>	Agile vs. Traditional approach in Troubleshooting - Project management approach is related to project success dimension - Project efficiency
Question 3	How agile and traditional project management approach differentiate concerning their impact on project success dimension - Impact on the customer/client?
<i>H₁₁</i>	Agile vs. Traditional approach in Project initiation and planning - Project management approach is related to project success dimension - Impact on the customer/client
<i>H₁₂</i>	Agile vs. Traditional approach in Personnel management - Project management approach is related to project success dimension - Impact on the customer/client
<i>H₁₃</i>	Agile vs. Traditional approach in Client involvement - Project management approach is related to project success dimension - Impact on the customer/client
<i>H₁₄</i>	Agile vs. Traditional approach in Modularity of work - Project management approach is related to project success dimension - Impact on the customer/client
<i>H₁₅</i>	Agile vs. Traditional approach in Troubleshooting - Project management approach is related to project success dimension - Impact on the customer/client
Question 4	How agile and traditional project management approach differentiate concerning their impact on project success dimension - Business success?
<i>H₁₆</i>	Agile vs. Traditional approach in Project initiation and planning - Project management approach is related to project success dimension - Business Success
<i>H₁₇</i>	Agile vs. Traditional approach in Personnel management - Project management approach is related to project success dimension - Business Success
<i>H₁₈</i>	Agile vs. Traditional approach in Client involvement - Project management approach is related to project success dimension - Business Success
<i>H₁₉</i>	Agile vs. Traditional approach in Modularity of work - Project management approach is related to project success dimension - Business Success
<i>H₂₀</i>	Agile vs. Traditional approach in Troubleshooting - Project management approach is related to project success dimension - Business Success
Question 5	How agile and traditional project management approach differentiate concerning their impact on project success dimension - Preparing for the future?
<i>H₂₁</i>	Agile vs. Traditional approach in Project initiation and planning - Project management approach is related to project success dimension - Preparing for the future
<i>H₂₂</i>	Agile vs. Traditional approach in Personnel management - Project management approach is related to project success dimension - Preparing for the future
<i>H₂₃</i>	Agile vs. Traditional approach in Client involvement - Project management approach is related to project success dimension - Preparing for the future
<i>H₂₄</i>	Agile vs. Traditional approach in Modularity of work - Project management approach is related to project success dimension - Preparing for the future
<i>H₂₅</i>	Agile vs. Traditional approach in Troubleshooting - Project management approach is related to project success dimension - Preparing for the future

4. The research method

This research was based on the PLS-SEM method due to its exploratory nature [11]. Aside from the theoretical interpretation in prior studies, to the best of authors' knowledge, dimensions of project management approach and project success still lacks in its empirical validation, concerning cross-sectional samples and diverse research populations, as well as from the lacks of inclusion of various organizational types, sectors, and industries in such studies. Shenhar *et al.* [22] have empirically validated only four factors of project success. Shenhar & Dvir [21] proposed the fifth factor's inclusion, "impact on the team", afterward. In time, the five-factor solution of project success was empirically tested with exploratory factor analysis (EFA) by Mir & Pinnington [26]. However, as a method of factor extraction, rather than to cofound factor solution on maximum likelihood (ML), the authors have used principal component analysis (PCA), which is a simple linear combination of variables; therefore, it cannot be considered as "true" factor analysis [27]. Similarly, the constitution of project management approach dimensions concerning their manifest variables has yet, to be empirically tested and validated within the context of various research environments and their specifics. Thus, rather than "confirm" factor structure, this research is focused more on exploring the relations between research dimensions. Nevertheless, to achieve this, construct reliability and validity for project success factors is carried out in section 5.1, while the factor structure of project management approach was mimicked by calculating the composite score across its 21 manifest variables (summation of respondents' scores). Specifically, following literature recommendations, four items were used to calculate respondents' score, for each of: "Project initiation" (Q30-Q33), "Client involvement" (Q39-Q42), and "Troubleshooting" (Q48-Q51), while five items were used in the same manner for: "Personnel management" (Q34-Q38) and "Modularity of work" (Q43-Q47).

4.1 Measures and questionnaire development

This research used the originally developed questionnaire for a self-reporting (subjective) assessment of project management approach and project success, as perceived by respondents. The questionnaire had five sections, with 66 questions in total. As an independent variable, the project management approach was operationalized with 21 questions and analyzed through differentiation between agile and traditional project management approaches (see Table 1). The variables were classified into five groups: (1) project initiation and planning, (2) personnel management, (3) client involvement, (4) modularity of work, and (5) troubleshooting. While the five-dimension framework for assessing project success, as a dependent variable, consisted of (1) project efficiency, (2) impact on team, (3) impact on customer/client, (4) business and direct organizational success, and (5) preparing for the future, taking the project success assessment questionnaire proposed by Shenhar & Dvir [21]. The operationalization of project success was measured with at least four manifest variables for project efficiency, impact on the customer/client, five questions for impact on the team, business and directional success, and preparing for the future. To capture respondents' self-reporting assessment of project management approach, to differentiate responses between agile and traditional, a continuum of seven-point, bipolar Likert type scale was used [28], where a far-left point (i.e., 1) is a measure of a more agile approach, opposed to a far-right measure of more, traditional approach (i.e., 7). Given that they are different by nature, in contrast to the aforementioned, a unipolar, five-point Likert type scale was used [28] to measure responses regarding the state of project success factors (1-strongly disagree, 5-strongly agree).

4.2 Data collection and sample demographic

The questionnaire was distributed through the Project Management Institute (PMI) worldwide network. PMI is the world's leading project management organization with over 500,000 global members, project professionals, and over 300 Local chapters internationally. Data collection was done electronically, using surveymonkey.com for the distribution process. Invitations to fill out the questionnaire were sent by email to PMI global members, through local chapters, and posted in PMI LinkedIn and other professional groups. This research was based on a random sample

method of project managers. The distribution process was conducted following Dillman's approach [29]; thus, only one reply was accepted from the respondents. The exact number of targeted project management professionals and response rate could not be specified, considering that PMI chapters worldwide distributed the questionnaire through their professional network, but they could not share the information about their contact list. After the two months, 314 responses were obtained; however, only 227 were treated as a "completed survey." 87 responses were omitted from the final respondents' database due to the potential risk of non-engaged bias, measured by the very low standard deviations in responses (below 0.2) or the low percentage of non-completed questions (below 70 %). To ensure sample representativeness, 227 respondents were compared with the omitted ones. The results show that there are no differences between these two groups. The final sample consisted of 167 males (73.6 %) and 60 females (26.4 %), from 49 different countries worldwide (42.7 % from Europe, 22 % from North America, 16.3 % from Asia, 14.5 % from South America, 3.1% from Australia and 1.3 % from Africa). 148 respondents had 10 or more years of project management working experience, and more than 80 % of respondents have a professional PM certification. The organizations varied in size with 43 (18.9 %) organizations with 1-50 employees, 30 (13.2 %) with 51-200 employees, 21 (9.3 %) with 201-500 employees, 27 (11.9 %) 501-1000 employees, and 106 (46.7 %) with over 1000 employees. Respondents came from organisations from diverse industries: 25 % from IT, 11.5 % finance & financial services, 8.8 % construction, machinery, and homes, 8.4 % telecommunications, 7.5 % utilities, energy, and extraction, 7.5% government, 5.3 % education, 4.8 % manufacturing, 4 % healthcare & pharmaceuticals, 3.1 % business support & logistics, 3.1% insurance, 2.2 % airlines & aerospace (including defence), 1.8 % food & beverages, 1.8 % transportation & delivery, and other industries have less than 1 %.

5. Data analysis, results, and discussion

The research model was evaluated using a two-step approach [11]. The assessment of the measurement model was carried out first. Empirical evaluation of the research model was carried out afterward.

5.1 Measurement model

To test the reflective measurement model of "Project Success," confirmatory factor analysis (CFA) was used. Hence, construct reliability, composite reliability, convergent, and discriminant validity were conducted [11]. A construct reliability test (Cronbach's α) and composite reliability (CR) were carried out following respectful literature recommendations [11,30]. Accordingly, the values of 0.70 and above are acceptable. Further, outer loadings and average variance extracted (AVE) were used to check convergent validity. Consequently, external loadings should be at least 0.7 and statistically significant ($t \geq 1.96$) [11], which was not the case for one item of "Business success" (Q55.3) and "Preparing for the future" (Q56.3). These items were removed from the measurement model [11]. Moreover, AVE values should be at least 0.5 for every measurement model construct [11]. All constructs have met this criterion. To assess discriminant validity, a Fornell-Larcker criterion was used [11]. Accordingly, the measurement model's discriminant validity is met if the reflective constructs have the strongest relationships only with its indicators (e.g., compared with any other construct) [11]. This criterion was also met for all constructs of project success. Finally, collinearity analysis was carried out using VIF (variance inflation factor). Since all of the VIFs were below the value of 3.3, collinearity was not an issue [11]. These values are shown in Table 4.

Table 4 The measurement model statistics

No.	Construct	Items	Outer-Loadings	α	CR	AVE	VIF	1	2	3	4	5
1	Impact on the team	5	0.808-0.869*	0.896	0.922	0.702	2.058-2.783	0.838^{FL}				
2	Project efficiency	4	0.733-0.813*	0.774	0.854	0.594	1.347-1.787	0.586	0.771^{FL}			
3	Impact on the customer/client	4	0.804-0.873*	0.873	0.911	0.719	1.943-2.607	0.537	0.671	0.848^{FL}		
4	Business success	4 (-)	0.759-0.851*	0.830	0.885	0.658	1.828-2.207	0.541	0.574	0.585	0.811^{FL}	
5	Preparing for the future	4 (-)	0.719-0.827*	0.748	0.843	0.573	1.360-1.572	0.455	0.372	0.337	0.464	0.757^{FL}

α – Cronbach's alpha, CR – composite reliability, AVE – Average variance extracted; VIF – Variance inflation factor * – statistically significant, $t \geq 1.96$; – Construct with removed indicators, ^{FL} – Fornell-Larcker criterion

5.2 Structural model results and discussion

A bootstrapping technique with 5000 subsamples was used for structural model testing of path coefficients. The coefficient of determination (R^2 values) was found to be acceptable [11]. Thus, it could be said that the predictive power of the research model is valuable. An empirically validated and tested research model is given in Fig. 2. These results are shown in Table 5. Concerning the bipolar scale used to capture respondents' feedback on the project management approach, path coefficients (β) of statistically significant relationships ($t \geq 1.96$) with project success factors are also given in the same manner. This is shown in Fig. 3. Bearing in mind that the continuum of far-right point of the scale is oriented towards traditional (higher values) and far-left towards the agile approach (lower values), positive, higher values of path coefficients show strong alignment in traditional, and, opposite to aforementioned, negative values are aligned with agile. Results from Table 5 show that, in most cases, organizations from the research population initiate and plan their projects work traditionally. In contrast, within all other managerial aspects of the project management process, they gravitate more towards the agile approach.

According to the research results empirically tested and validated research model has confirmed 13 out of 25 hypotheses (see table 5, Fig. 2 and Fig. 3) which were defined to answer the research questions. Question 1: *How agile and traditional project management approach differentiate concerning their impact on project success dimension-Impact on the team?* 4 out of 5 hypotheses confirmed that the project management approach is related to project success dimension impact on the team. Namely, the more traditional approach to project initiation and planning, including higher level and complexity of upfront planning, clarity and stability of project scope and requirements, and linear or incremental development, has a higher positive impact on team satisfaction. It could be assumed that a more anticipatory approach is more desirable for the project team. On the other hand, a more agile approach in team collaboration and organization and a higher level of client involvement and commitment throughout the project life cycle have a higher positive impact on team satisfaction. This is not surprising as agile places a premium on people and their interactions [10]. Question 2: *How agile and traditional project management approach differentiate concerning their impact on project success dimension-Project efficiency?* 1 out of 5 hypotheses confirmed that the project management approach is related to project success dimension project efficiency. Only in project initiation and planning results has shown a strong statistically significant difference between the agile and traditional approaches favoring traditional. A more traditional approach to project initiation and planning, including a higher level and complexity of upfront planning, clarity, and stability of project scope and requirements, has a more substantial positive impact on project efficiency over agile. According to this result, it could be assumed that heavy planning and clarity of scope and requirement are essential for meeting project schedule and budget goals. Question 3: *How agile and traditional project management approach differentiate concerning their impact on project success dimension-Impact on customer/client?* 5 out of 5 hypotheses confirmed that the project management approach is related to project success dimension impact on customer/client. While a more traditional ap-

proach to project initiation and planning has a higher positive impact on client satisfaction, all other managerial aspects favor an agile approach. Namely, client satisfaction has shown to be higher when a team collaborates and is organized in a more agile way, with frequent and close collaboration with the client. Also, even though the team is more satisfied with linear and incremental development, it has been shown here that clients value a more agile approach with higher modularity of work and frequent iterations with changes that could be easily implemented during the project. Question 4: *How agile and traditional project management approach differentiate concerning their impact on project success dimension-Business success?* 1 out of 5 hypotheses confirmed that the project management approach is related to project success dimension business success. Only for troubleshooting, referring to how changes in requirements are managed and implemented, results have shown a strong statistically significant difference between agile and traditional approaches, in favor of agile, when discussing the impact on project benefits in commercial value and market share. Question 5: *How agile and traditional project management approach differentiate concerning their impact on project success dimension-Preparing for the future?* 2 out of 5 hypotheses confirmed that the project management approach is related to project success dimension preparing for the future. Namely, a more traditional approach to project initiation and planning, including higher level and complexity of upfront planning, clarity and stability of projects scope, and a more agile approach in team collaboration and organization, has a higher positive impact on preparing for the future, meaning creating new technological and operational infrastructure and market opportunities.

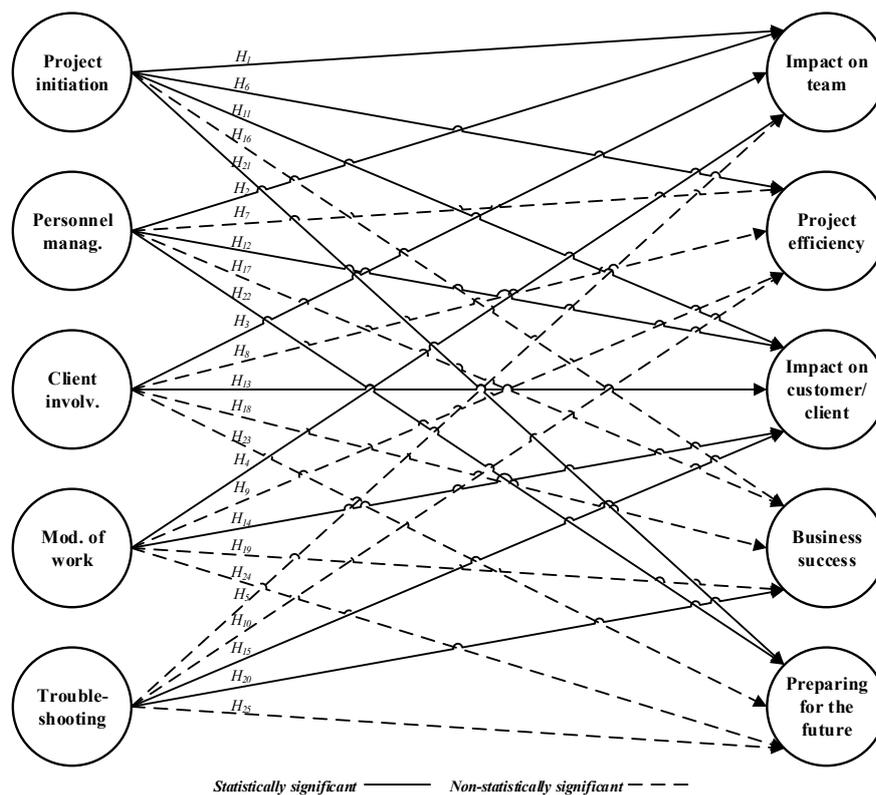


Fig. 2 Empirically validated and tested research model

Table 5 The structural model statistics

Exogenous variable →	Endogenous variable	R^2	β	$O.$	μ	δ	t	p	Hypothesis	Sig.
Project initiation	Impact on team	0.261	0.302	0.302	0.304	0.069	4.372	0.000*	H_1	Yes
Personnel management			-0.247	0.487	0.492	0.058	8.365	0.000*	H_2	Yes
Client involvement			-0.239	0.417	0.422	0.059	7.042	0.000*	H_3	Yes
Modularity of work			0.050	0.263	0.266	0.063	4.197	0.000*	H_4	Yes
Troubleshooting			-0.159	0.074	0.077	0.067	1.101	0.271	H_5	No
Project initiation	Project efficiency	0.346	0.487	-0.247	-0.252	0.063	3.923	0.000*	H_6	Yes
Personnel management			-0.073	-0.073	-0.076	0.064	1.145	0.252	H_7	No
Client involvement			-0.191	-0.105	-0.108	0.071	1.483	0.138	H_8	No
Modularity of work			0.002	-0.137	-0.138	0.072	1.890	0.059	H_9	No
Troubleshooting			-0.276	-0.034	-0.034	0.071	0.478	0.633	H_{10}	No
Project initiation	Impact on customer/client	0.221	0.417	-0.239	-0.237	0.065	3.645	0.000*	H_{11}	Yes
Personnel management			-0.105	-0.191	-0.189	0.065	2.956	0.003*	H_{12}	Yes
Client involvement			-0.135	-0.135	-0.135	0.067	2.019	0.044**	H_{13}	Yes
Modularity of work			-0.021	-0.159	-0.161	0.070	2.253	0.024**	H_{14}	Yes
Troubleshooting			-0.138	-0.266	-0.268	0.063	4.200	0.000*	H_{15}	Yes
Project initiation	Business success	0.312	0.263	0.050	0.050	0.079	0.628	0.530	H_{16}	No
Personnel management			-0.137	0.002	-0.000	0.073	0.032	0.974	H_{17}	No
Client involvement			-0.159	-0.021	-0.018	0.082	0.251	0.802	H_{18}	No
Modularity of work			0.014	0.014	0.016	0.092	0.156	0.876	H_{19}	No
Troubleshooting			-0.103	-0.245	-0.247	0.086	2.833	0.005*	H_{20}	Yes
Project initiation	Preparing for the future	0.202	0.074	-0.159	-0.156	0.081	1.971	0.049**	H_{21}	Yes
Personnel management			-0.034	-0.276	-0.274	0.072	3.819	0.000*	H_{22}	Yes
Client involvement			-0.266	-0.138	-0.140	0.085	1.628	0.104	H_{23}	No
Modularity of work			-0.245	-0.103	-0.102	0.095	1.081	0.280	H_{24}	No
Troubleshooting			-0.022	-0.022	-0.024	0.079	0.284	0.776	H_{25}	No

* statistically significant at $\alpha \leq 0.005$; ** statistically significant at $\alpha \leq 0.05$; β – path coefficient; $O.$ – original sample; μ – sample mean; δ – standard deviation; t – t statistics (statistically significant at $t \geq 1.96$)

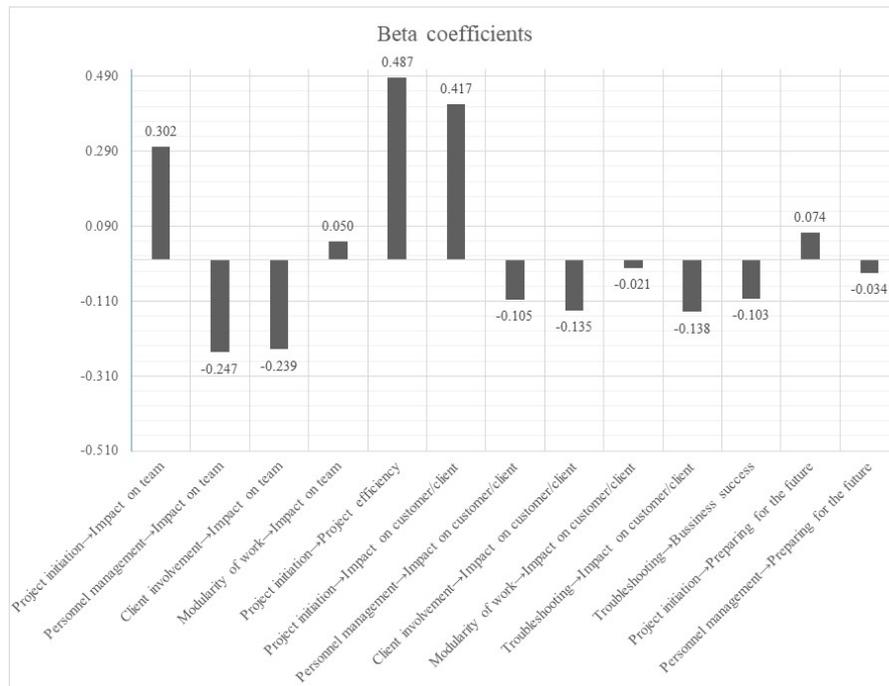


Fig. 3 Path coefficients of the empirically validated and tested research model

6. Conclusion

Taking a different perspective on the project management approach may provide additional insight into why and how a particular approach, in some managerial aspects, has a higher impact on different project success dimensions. Perceiving this as exploratory research, the authors intended merely to explore the latest research ground. This research considered five questions and 25 hypotheses for testing whether agile and traditional approaches differentiate concerning their impact on different project success dimensions and reveal these differences' nature. Research results denounced that, in most cases, the traditional approach is applied in project initiation and planning. It has proven to provide higher-level of project success, while, within all other managerial aspects considered in this research, they gravitate more towards the agile approach. Based on these results, we can conclude that when we talk about the project management approach, namely, agile and traditional, we should consider combining them, where each makes the most sense. By combining agile and traditional approaches, organizations can take advantage of some benefits of agile development without abandoning the stability provided by a traditional approach. Traditional project management is very comprehensive, and it has been proven to work in diverse project situations. At the same time, agile adds new ideas for addressing the unique project situations focusing on people and collaboration combined with the need to embrace change. This requires having the right agile culture and the proper alignment at the management and team level [30]. The most effective and most natural is to implement agile is under conditions commonly found in the software industry, but it is crucial to determine how much agility is enough. In today's changing environment, organizations are forced to improve risk management to be successful and achieve goals [31]. For each project decision, it is essential to consider the risks of too much versus too little agility and the counterpart risks of doing too much planning [32]. The project management approach should fit the requirements and circumstances of each project but also the project team. A multidisciplinary approach, intense communication, lateral connections between functional units are just some of the prerequisites for more efficient project management [33]. By combining different facets of knowledge about the development activities, project managers can tailor team members' workloads and modify team composition to improve collaboration, coordination, and information exchange [34]. The project management approach's choice, which determines how a project is planned and executed, is of strategic importance to any organization. The chosen project management approach is often

cited among the top reasons projects fail [35]. Each organization must decide the best way to select the most suitable project management approach and whether to have one or more variations.

This work contributes to the existing literature by expanding the research related to project management contingency theory's evolving field. The research results gave more extensive evidence and findings that demonstrate that a more project-specific approach should be adopted by project managers, taking into account the desired impact on different project success dimensions.

This research is limited to the contrasting agile and traditional project management approach and project success using the model by Shenhar & Dvir [21]. Other dimensions of project success could be explored to deepen understanding. In the context of methodological approaches, the limitation is the use of bipolar, Likert-type scale. Thus, it was impossible to grasp a "true" negative relationship between endogenous and exogenous variables. Also, the use of the PMI network for distribution purposes might have, to a certain extent, some influence on responders' opinion, as well on the nature of obtained responses. The distribution process through the PMI network could have some influence on the responses obtained.

Future research should consider project characteristics as moderating variables. In-depth case studies should be conducted by comparing the traditional and agile approaches to see which project scenarios signal a better fit.

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