Identification of the Main Traditional Project Management Methods Through a Systematic Literature Review

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Abstract—Traditional project management methods are specific, predictable and seek to keep the planning as detailed as possible and, even over time, companies continue to integrate them into their processes. The present study aims to raise the main traditional methods of Project Management, to present them in more detail, through a Systematic Literature Review. In this review, 37 articles were found and analyzed to answer five research questions. The research questions focused on answering: the main traditional project management methods, the most relevant maturity models, trends in the area, and the challenges and future directions for project management. As the main results, PMBOK was pointed out as the main traditional method, followed by PRINCE2, ISO 21500 standard and CTCR methodology. In addition, highlighting the tools, there are Gantt Chart, Earned Value Management, Critical Chain Project Management, and TOC Method as the most relevant. Therefore, it is possible to obtain a broad and detailed view of the main traditional methods of PM and with this, researchers in the area will be able to make better decisions in choosing the appropriate method for their type of project. As for challenges and future directions, the article pointed out that currently, project processes are complex and therefore do not meet their initial deadlines, cost, quality and business goals. Thus, difficulties in PM also stand out: delays in the schedule, lack of clearly defined objectives and support from leadership/company, scope changes, insufficient resources, poor risk management and measurement of project performance and lack of communication.

Keywords—Traditional methods; project management; framework; PMBOK®

I. INTRODUCTION

No matter how successful the organization is, the dynamism of the market requires reinforcements to maintain its capacity for innovation and ensure its competitiveness. Thus, to effectively meet the demand, in an environment characterized by the speed of change, a management model based on priorities and goals has become essential, and that is why project management has developed so quickly all over the world [1].

Therefore, Project Management (PM) corresponds to the applicability of knowledge, skills, tools, and techniques to project activities to fulfill their requirements, allowing organizations to perform their projects effectively and efficiently [2].

Following this direction, the PM is designed to make the best use of resources so that workflows both horizontally and vertically within a company, without eliminating the vertical and bureaucratic workflow, but insisting that the entire company works with easier through horizontal communication between line organizations [3]. The author also presents some characteristics that an adequate project management method needs to have, such as the use of models, indication of the level of detail, standardization of techniques and report format, flexibility for application, rapid improvements and being easy to understand for the customer and the whole company.

Project Management offers several advantages over other forms of management and is effective in achieving the desired results within the time and budget determined by the organization. In this way, the author highlights that the main advantage of the PM is that it is not limited to large, high complexity and cost projects, that is, it can be applied to projects of any complexity, budget, size, and type of business [1].

Besides that, once adopted by an organization, PM can help to better guide and apply scarce resources, direct the organization's focus to goals and objectives, and generate opportunities for development in relation to the skills of teams, through motivation, innovation, learning and construction of multifunctional and multidisciplinary coexistence. In addition, it provides a better understanding of the internal production networks that permeate the different departments and sectors of the organization [4].

This way, the PM has gained a prominent place in the management of organizations through the development of more structured methods, concepts, and techniques to ensure the success of the project. Following this direction, according to [5], the two main methodologies for project management are the traditional approaches, which follow PMBOK® principles, most of the time, and the agile approaches, which are based on the Agile Manifesto that covers the principles and characteristics thereof.

Both traditional and agile methods are widely used [6] and each one has unique characteristics and, consequently, positive, and negative aspects in relation to Project Management. Therefore, their planning and control actions are similar, however, the form of execution of the techniques and tools

employed refers to the main difference between these methodologies [7].

According to [8], agile methods are iterative and incremental, resulting in products developed based on continuous improvement and guaranteeing customer satisfaction, since the same participates fully throughout the project. According to these authors, even though the use of this methodology affects the paradigm of traditional methods, it should not be used as a replacement for these processes, but as a complement or an alternative.

On the other hand, traditional approaches aim at logical sequencing by determining results in advance and evaluating project development based on various resource analyses, so traditional methods are specifiable and predictable, in addition to being built through thorough and extensive planning [9,10].

The implementation of Project Management methods is a strategy increasingly used by companies and the effectiveness, as well as the adequacy, depend on different factors, since organizations differ in organizational structure, size, and sector of activity, among others. Following the idea, the choice of the most suitable method for a company varies according to the purpose it seeks and needs a detailed assessment of all existing approaches [11].

Considering the presented context, the present work has as general objective to identify the main traditional methods of project management and to compare them in a detailed way through a Systematic Literature Review (SLR).

This study is structured in five sections. The first section is the introduction, which contextualizes the entire study and a brief background. Section II introduces the research methodology. Section III refers to the development. Section IV presents the result analysis. Section V presents works related to the topic. Section VI presents the conclusions of the work. Finally, Section VII provides recommendations for future work, followed by the bibliographic references.

II. METHODOLOGY

A. Systematic Literature Review (SLR)

According to Galvão and Ricarte (2019), literature review is a generic expression that includes all published works that provide an analysis of the literature encompassing specific subjects. In this way SLR goes beyond that, as it is a scientific study that consists of its objectives, research questions, methods, results and conclusions. Thus, for this study, the method applied is based on the proposal by [12] which is composed of the following steps to be followed:

- Review planning (preparation phase).
- Conducting the review (operational phase).
- Review documentation (reporting phase).

Fig. 1 visually represents all the steps and sub-steps of the [12] methodology that will be developed in this work.
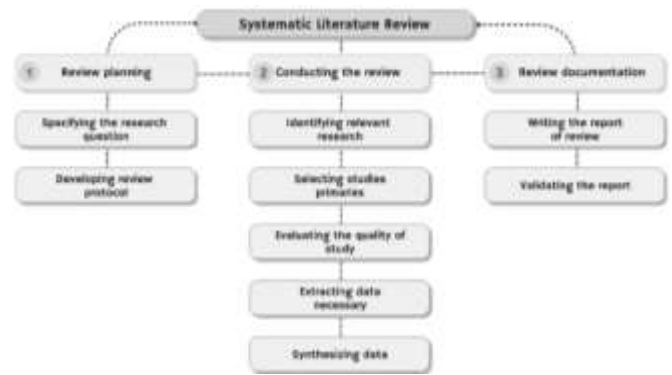

Fig. 1. Structure of the SLR method. 'Source: [12]'

III. DEVELOPMENT

In order to gather similar materials from various authors, perform a critical analysis and contribute to future investigations on the main traditional methods of Project Management, this SLR will follow the same approach applied in the works of [12], which corresponds to three stages, I) "Planning the review" (preparation phase), II) "Conducting the review" (operational phase) and III) "Documenting the review" (reporting phase), which will be covered in the next sections.

A. Planning the Review (Preparation Stage)

According to study [12], the review planning stage consists of addressing two crucial focuses when preparing the review, which are: the specification of the research question and the development of a research protocol.

Specifying the research question is the first step towards a good systematic review since all work will be guided by it. In this sense, the question must be very well formulated and clear [13], as it will serve as a guide to determine the studies that will be included, in addition to defining search strategies to identify the primary studies and which data need to be extracted.

In this sense, the questions that guide this work were based on the work of [14], to facilitate the subsequent analysis of the results. The questions elaborated are presented as follows:

Q1. What are the main traditional methods of MP?

Q2. What are the main traditional MP tools and/or techniques?

Q3. What are the most relevant traditional project management maturity models?

Q4. What are the trends for the traditional MP area?

Q5. What are the challenges and future directions for the traditional MP area?

Regarding the second sub-step addressed by the authors of the method, which is the development of a research protocol, five databases were initially selected (Scopus, Web of Science, Taylor and Francis, Scielo and Esmerald) to be studied. Thus, after preliminary analyses, the Scopus® database was chosen because it is the main database for citations [15, 16]. It covers the production of files, abstracts, in addition to the quality in the variety of search tools to refine the search.

Once the Scopus® database was defined, the first more diversified search for keywords was started. The defined keywords are presented in Table I.

TABLE I. DEFINED KEYWORDS

	Keyword combinations
1	(TITLE-ABS-KEY (*"traditional methodology"*))
2	(TITLE-ABS-KEY (*"traditional methodology"*) AND TITLE-ABS-KEY (*"project management"*))
3	(TITLE-ABS-KEY (*"traditional methodology"*) AND TITLE-ABS-KEY (*management*))
4	(TITLE-ABS-KEY (*"traditional method"*) AND TITLE-ABS-KEY (*"project management"*))
5	(TITLE-ABS-KEY (*"project management practices"*))
6	(TITLE-ABS-KEY (*"traditional development"*) OR TITLE-ABS-KEY (*"traditional methods"*) OR TITLE-ABS-KEY (*"traditional approach"*) AND TITLE-ABS-KEY (*"project management"*))
7	(TITLE-ABS-KEY (*"project management"*) AND TITLE-ABS-KEY (*waterfall*))
8	(TITLE-ABS-KEY (*"traditional methodology"*) AND TITLE-ABS-KEY (*framework*))

Still with the objective of refining the search results as much as possible and obtaining more assertive results about the work, some filters were applied, which are:

- Open access.

- Article type documents.

- Language in Portuguese and English.

It is worth mentioning that, considering future comparisons, there were no restrictions regarding the year or area of study. Thus, after completing this first phase of initial planning through the definition of research questions and the way of collecting data for the work, the next stage of the SLR method of conducting the research can be continued.

B. Conducting the Review (Operational Stage)

This stage of the method is the operational stage, in which it is proposed to conduct the research through five stages, which are: the identification of relevant research, selection of primary studies, evaluation of the quality of the study, extraction of the necessary data and data synthesis [12].

The first two stages of identifying relevant research and selecting primary studies were presented in the previous step. The result of 4,392 articles was obtained, but to limit the search and focus on the research topic in question, the following filters were applied:

- Documents of the article type.

- Open access only.

- Written in Portuguese or English.

- Studies with the central theme the traditional methods for project management.

- After applying the filters above, it was possible to find 621 articles, of which they were inserted into the Microsoft Excel® software to perform another analysis and remove 97 articles due to duplicity. In addition, it was also possible to discard the keywords "traditional methodology" AND "project management", "traditional methodology" AND management and "traditional methodology" AND "framework", since they only included articles already present in the other groups of keywords.

- Soon after the application of the filters, the evaluation of the quality of the studies began, through the analysis of titles, abstracts, and keywords, to discard articles that do not match the subject of the study search. This way, after the reading, 466 articles were excluded. From this total, it is worth mentioning that 370 (79.4%) are part of the group corresponding to the keyword "traditional methodology", this is because it is a general term and not only directed to project management, as well as articles by several areas of study such as social sciences, agricultural sciences, biochemistry, genetics, molecular biology, medicine, among others. Furthermore, 95 (20.4%) articles were distributed among the other groups of keywords, in which the titles and abstracts were also about other areas or did not address any traditional method of project management, and 1 (0.2 %) article was not found.

- Continuing in one more step, the quality assessment of the study began, 58 articles were downloaded to carry out the analysis through the complete reading and extraction of information relevant to the topic. Therefore, after reading, another 21 articles were discarded for reasons of 14 (66.7%) it is about project management in general, did not mention or focus on traditional methods, 6 articles (28.6%) focused on in agile methodologies and 1 article (4.7%) addressed the traditional methodology, but presented a lot of numerical data instead of theory. Therefore, with the objective of answering the research questions elaborated, this SLR focused on studying 37 articles.

C. Documenting the Review (Information Stage)

The review documentation consists of using the results obtained in the previous stages to answer the questions defined in the first stage and conclude the SLR. To facilitate and speed up the absorption and knowledge of the data by the reader, the results were summarized in graphs and tables with the most relevant perceptions of this SLR. In addition, all this analysis promotes perceptions and gaps for the development of the scientific community around the topic in question. The results will be presented in section four.

IV. ANALYSIS OF RESULTS

The purpose of this section is to portray the observations and studies on the nature of the research. At first, the main traditional methods (Q1) will be presented through the survey of the studies. A total of four traditional methods were identified. The Project Management Body of Knowledge (PMBOK®) was identified as the main traditional method,

since it was reported in 18 studies, followed by the Project IN Controlled Environment (PRINCE2) method, which appears in nine studies. The ISO 21500 standard was reported in two studies and the methodology that combines and simultaneously considers the costs, deadlines, criticality, and risks (CTCR) of project activities, in just one. Both provide guidelines for Project Management.

It is worth mentioning that, from the total of 37 selected articles, 21 reported the four main traditional methods of Project Management presented, and the other articles contemplated answers to the other research questions without reporting any specific traditional method.

According to [17], PMBOK and PRINCE2 are among the several standard PM methodologies that are employed in different areas. Furthermore, the studies by [18] confirm the high percentage of professionals who employ these two Project Management methods, tools, techniques, or standards as a relevant part of project success.

As stated by study [19], initiatives to regularize indispensable knowledge for PM through concepts, information, activities, and documentation, are most often based on the assumption that there are standards from which rules, control, and guidelines for "good practices" can be determined "practices" that are replicable for the PM. Thus, PRINCE2, PMBOK and ISO 21500 were presented by [20] as traditional methodological frameworks of reference because they are effective and necessary in many projects.

Considering question two (Q2) "What are the main traditional MP tools and/or techniques?" it was possible to identify 18 studies that include traditional PM tools and/or techniques. Following the idea, through them, 33 tools and 29 techniques were raised, as shown in Table II. Furthermore, it is observed that in relation to the total number of tools, it is possible to highlight the studies by [21, 22] in which they presented, respectively, eight and seven tools and, in terms of techniques, the article by [7] explained 23 techniques out of the total.

TABLE II.   TRADITIONAL PROJECT MANAGEMENT TOOLS AND / OR TECHNIQUES

	Tools/Techniques	Authors
Tools	Cost-benefit analysis (C.B.A.)	[21]
	SWOT analysis or matrix	[21]
	Tree of goals	[23]
	Database	[7]
	Brainstorming	[24]
	CCPM - Critical Chain Project Management	[18, 20, 25, 26]
	Checklist	[7]
	Budget control and monitoring and reporting systems	[18]
	Statement of Work (S.O.W.)	[21]
	Earned Value Management (EVM)	
	Structure called 4PTRB	[27]
	Work division structure (W.B.S.)	[21]
	Risk assessment tool based on survival analysis	[28]

	Tools/Techniques	Authors
	Gantt Chart	[7, 18, 19, 21, 23, 25, 26]
	Activities list	[19]
	Logical framework matrix	[18]
	RACI matrix	[21]
	TOC method	[29, 30]
	SMART methodology	[21]
	Situation Wall Board	[7]
	Software ProjectWise (Electronic document management systems)	[22]
	Software of GP JIRA	[7]
	Software Doc Express	[22]
	Software e-Builder	[22]
	Software Microsoft Project	[7]
	Software PlanGrid	[22]
	Software Primavera P6	[22]
	Software Procore	[22]
	Software AASHTOWare Project	[22]
	Story Boarding	[24]
	Resource Dependency Theory (RDT)	[29, 30]
	Triangular Iron Performance Test	[31]
	Resource-based view (RBV)	[29, 30]
Techniques	Adjusting anticipations and waits	[7]
	Analysis of alternatives	[7]
	Function Point Analysis (FPA)	[24]
	Product analysis	[7]
	Reservation analysis	[7]
	Performance analysis	[7]
	Tree of decision	[7]
	Balanced scorecard	[7]
	Business problem definition	[7]
	Chartering	[7]
	Schedule compression	[7]
	Critical Path Method	[7]
	Delphi Technique	[7]
	Duration and total work effort	[7]
	Earned Value Analysis	[7]
	Similar estimate	[7]
	Estimate based on analogy	[24]
	Parametric estimation	[7]
	Estmation of COst MOdel (COCOMO / COCOMO-II)	[24]
	Point of Use Estimates	[24]
	Event on node diagram	[7]
	Critical current method	[7, 18]
	Expert opinion method	[24]
	Resource leveling	[7]
	Program Evaluation and Review Technique	[7]
	Stoplight reports	[7]
	Meta-network analysis technique (MNA)	[28]
	Three-point estimation technique	[7]
	WBS/ Decomposition	[7]

The most relevant tools raised in this SLR were the Gantt Chart, Earned Value Management (EVM), Critical Chain Project Management (CCPM) and TOC Method, cited seven, five, four and three times respectively in the studies. Thus, the others appeared only once. Regarding the techniques, of the 29 surveyed, only the Critical Current Method was mentioned in two articles. It is worth mentioning that the classification of tools and/or techniques was according to the nomenclature used by the authors.

In this way, it is also observed that studies, mainly related to tools, have been published in recent years, showing that companies are increasingly looking for a more efficient PM using tools and/or techniques. So, to ensure the continuous improvement of processes, facilitating and optimizing planning, in addition to predicting possible difficulties, calculating risks, and identifying which choices are more assertive.

In relation to traditional project management maturity models, next research question (Q3), five studies were analyzed, in which it was possible to raise a total of 15 maturity models. Thus, as shown in Table III below, it is observed that the articles by the authors [32, 33] each presented 8 maturity models, followed by the study of the authors [34] with 6 models portrayed, in addition, these three studies present three similar models.

TABLE III.   RELATIONSHIP OF TRADITIONAL PROJECT MANAGEMENT MATURITY MODELS WITH ARTICLES

	Maturity Models	Authors
1	Capability Maturity Model Integration (CMMI®)	[20, 27, 32, 33, 34]
2	Maturity Model	[33]
3	Organizational Project Management Maturity Model (OPM3)	[32, 33, 34]
4	People Capability Maturity Model (P-CMM)	[34]
5	PM Solutions Project Management Maturity Model (PMMM) from the United States Center for Business Practices (CRAWFORD, 2002)	[32]
6	Project FRAMEWORK created by ESI International	[33]
7	Project Management Maturity Model - P3M3	[32]
8	Project Management Maturity Model (PMMM) developed by Kerzner (2001)	[32, 33, 34]
9	Project Management Maturity Model de Knapp & Moore Pty Ltda. (KNAPP & MOORE, 200-)	[33]
10	Project Management Process Maturity Model (PM)2 introduced by Ibbs & Kwak (2000)	[32]
11	Software Process Improvement and Capability determination (SPICE, 2000)	[33]
12	The Berkeley Project management process maturity model	[34]
13	US Federal Aviation Administration Integrated Capability Maturity Model according to Ibrahim, La Bruyere and Wells (2001)	[33]

According to [34], maturity models have been applied and proposed as strategic tools to identify and propose paths for improvement in PM areas. Thus, it is observed that capability Maturity Model Integration (CMMI®), Organizational Project Management Maturity Model (OPM3) and Project Management Maturity Model (PMMM) developed by [3], were

the three most relevant maturity models (Q3) in this SLR, reported respectively in 5, 3 and 3 studies.

The Capability Maturity Model Integration (CMMI®) model, which was pointed out as the most relevant for appearing in all studies, is aimed at organizations that develop software and hardware, in addition, it is an evolution of the Capability Maturity Model (CMM), which is used as a basis for several other maturity models and has currently progressed to the model called CMMI for Development, specifically for product, hardware, or software development [33]. This way, it is worth mentioning that, to analyze and respond to Q3, both evolutions were accounted for as Capability Maturity Model Integration (CMMI®).

Regarding the Organizational Project Management Maturity Model (OPM3), it is a project started in 1998 and led by the Project Management Institute (PMI), in which, to examine the organization's competency phase, it proposes a checklist with the relevant steps and in potential capable of leading it to a higher level of maturity, using the best practices in the sector and its internal positive aspects [33].

About the third maturity model, the Project Management Maturity Model (PMMM) developed by [3], according to Viana and Mota (2016), refers to a simple and low-cost application model, since it corresponds in using an evaluation form. In addition, it was developed in line with the PMBOK® principles and has five maturity levels, each with their respective characteristics and recommendations.

Therefore, the three main maturity models raised in this SLR are in line with the study by the authors [33], since they presented several proposals for a maturity model, but highlighted some as the main ones as a result of being the most talked about, discussed and studied in the maturity theory by professionals who manage projects, which are: CMMI, OPM3, PMMM developed by [3], Project Framework and the Maturity Model.

As for the trends for the traditional project management area (Q4), four studies were analyzed that include directions related to adaptive and hybrid methodologies, the exploration of Artificial Intelligence (AI) and sustainability in Project Management.

According to study [23], the adaptive approach aims to solve the difficulties of traditional and agile methodologies, thus, it will use and eliminate the disadvantages of these methods. In addition to maximizing customer satisfaction, different from the traditional PM, in which customer satisfaction is not considered. Still based on these authors, the adaptive approach is based on the planning and budget of the traditional project and implemented according to the market situation.

In this way, the adaptive approach in PM has several benefits for different project members and for this reason, its use is recommended according to [23], as well as generating positive impacts for a more quality and efficient work organization, the professional development of employees and several positive results regarding the possibility of developing future products.

According to the authors [28], the hybrid methodology is usually a combination of agile and traditional, and allows both a flexible structure and different techniques, attributing an excellent project management approach. Although the methodological structure of traditional project planning is very broad, management through the hybrid approach presents a greater possibility of resisting the effects of risk [28].

Therefore, the hybrid methodology provides better and more viable schedules, and from the risk analysis, a more resistant project structure, thus, will take advantage of both flexibility and the selection of completion methods [28]. It is worth mentioning, according to these authors, the appropriate choice of PM methodology is subject to the type of project.

On the other hand, through the results of this SLR, the area of Artificial Intelligence (AI) was also raised as a trend for traditional Project Management, since it will be able to elevate this approach in each of the ten areas of knowledge of according to the definition of the PMBOK®, then AI will be an integral element of the future practice of traditional PM [35].

From this point of view, through the study of the authors [35], a survey was carried out with a group of PM experts regarding the likely effects of AI in the next 10 years. The results showed that of the ten areas of the PMBOK®, the management of project costs, schedule and risks possibly present more benefits from AI. Furthermore, according to these authors, the management of project stakeholders will be less affected by AI, as well as the two processes in relation to the development and management of a team.

In this way, AI will be useful for processes that use data for estimating and planning, as well as controlling schedules, adjusting forecasts, and maintaining baselines, however, the processes and areas that will be less affected need leadership skills human [35]. Thus, these results, according to these authors, will be very useful to help project managers prepare for the future in relation to variations in the traditional PM work environment, skills requirements, and expected competencies.

The latest trend raised in this SLR is the growing study of the link between sustainability and traditional project management. According to [36], the consideration of sustainability in the realization of projects results in better economic performance and greater potential for significant advantages in the short and long term.

Sustainable metrics can be employed in the PM phases or procedures regardless of their goal, thus having a micro-level impact, considering project manager assessments contributions in relation to the decision-making process, individual knowledge, and specific motivation of the project [36].

In addition, sustainability objectives are applied or considered most of the time, when required by law or in line with business purposes, so to overcome this limitation it is necessary to determine critical success conditions, design indicators from diagnostics of problems arising or form guiding methods or structures to include sustainability thoughts in practice [36].

Finally, after surveying the trends for the area of traditional PM mentioned above, it is evident that, although the literature on these subjects is still in the process of evolution, all of them will have a high influence on traditional PM tools, techniques, and methodologies.

Regarding the last question of this RSL (Q5), this is about two aspects, the challenges, and future directions for the PM area. Thus, in relation to the challenges, 17 studies were raised that contemplated results for this question. It was found that traditional PM methods present problems when finding factors of deviations in carrying out the project, and for this reason, they present difficulties in the actual planning of the project [23, 37].

In the traditional approach, according to [24], the accurate estimation of time, effort and budget is the biggest challenge for project managers. In addition, both managers and staff also have difficulties in the lack of knowledge and skills regarding how to use PM methodology tools and the fall in work standards due to the weak project culture [17, 38, 39, 40].

Currently, project processes are complex and for this reason they do not meet their initial deadlines, cost, quality, and business goals [41, 42]. Thus, it also stands out as difficulties in the PM: schedule delays, lack of clearly defined objectives and leadership/company support, scope changes, insufficient resources, poor risk management and project performance measurement and lack of communication [17, 29, 39, 43, 44].

In this way, it is evident that the most frequently reported challenges are related to project delivery on time, uncertain estimates, and scarce resources and, although there is a lot of research related to the PM, poor results in these areas are still frequent, resulting in the need to attention to them [30, 33, 45].

Finally, there is the second part of Question 5 that will bring some future directions within the area of traditional methods that were highlighted by the authors of this SLR. Some of the recommendations for future studies identified in the articles are highlighted, which are:

- Conduct research for future work in relation to the analysis of new possibilities of techniques of various criteria related to the segment of methodologies for the control and monitoring of complex projects. In addition, application of these methodologies that consider and combines costs, deadlines, practicality, and risks of projects in other sectors and areas [37].

- Ponder project characteristics and confront traditional and agile methodologies to identify which project scenarios indicate better adjustments [46].

- Consider renewable, semi-renewable and non-renewable resources as parameters in the PM, in addition to determining a more suitable model based on principles related to the ability to minimize the risks of traditional PM methodologies [28].

- Achieve a greater understanding of how, and to what extent, the technical and social domains of PM knowledge areas will be affected by AI. In addition, continue analyzing the areas of cost, schedule, and risk

management of the projects, raised by the authors as the most impacted by AI, with the objective of signaling more relevant branches in relation to how the PM will ensure itself with automation and increase of machine learners [35].

- Enlarge the sample to deepen other characteristics and differences of small and medium-sized companies in relation to the PM [39].

- Analyze how project managers understand sustainability in traditional PM and how they deal with uncertainty and the discrepancy of sustainability demands in relation to the most common purposes and measures of the project. In addition, deepening the focus on how the individual level of the project manager will help to reduce managers' anxieties when assuming sustainability in traditional PM [36].

- Present PM assessments throughout the life cycle of projects, with the aim of comparing results at different stages, including other managers in the survey, such as product, marketing, and engineering managers, in addition to also considering the point of view of the client. Furthermore, develop a tool capable of analyzing and measuring PM practices in different industry sectors [45].

These were some highlighted future directions cited by the authors of the SLR. In addition, from the synthesis of the studies, there is a diversification of categories related to future studies proposed in the literature, but most of them present the search for possible solutions to the problems raised.

V. RELATED WORK

Project management methods are crucial in ensuring the successful execution of tasks within organizations. These methods provide structured frameworks that help teams plan, execute, and monitor projects effectively, thereby increasing efficiency and minimizing risks. Moreover, the significance of project management extends beyond mere task completion; it encompasses strategic alignment with organizational goals, resource optimization, and stakeholder satisfaction. Numerous studies and literature reviews have explored various aspects of project management, highlighting its multifaceted impact on organizational success and emphasizing continuous improvement in methodologies and practices. As such, understanding and implementing effective project management strategies remain pivotal in achieving sustainable business outcomes.

In order to illustrate some papers related to this article, [47] focused on hybrid project management methods considering the period 2000 to 2020 [47]. The research in [48] proposed a study which seeks to evaluate, synthesize, and present aspects of research on agile methods tailoring including the method tailoring approaches adopted and the criteria used for agile practice selection. The method adopted was a Systematic Literature Review (SLR) of studies published from 2002 to 2014. [49, 50] provided academics and practitioners with a coherent overview of the strategies to introduce agile in

traditional project management environment, recommended in literature.

In academic literature, there exists a substantial body of research concerning project management methodologies; however, many of these studies are dated and necessitate contemporary updates. A predominant focus has been on comparisons between agile and traditional project management approaches, or exclusively on agile methodologies, or even hybrid models. Consequently, traditional project management frameworks often receive less attention in current scholarly discourse. There is a growing need for new research that not only updates existing knowledge but also explores the evolving dynamics and integration of both traditional and agile project management practices in contemporary organizational contexts. Such updated insights would provide a more comprehensive understanding and application of project management principles across diverse industries and sectors.

VI. CONCLUSION

The paper aimed to identify the main traditional methods of Project Management through SLR. In addition, it was intended to discover more relevant evidence in the literature on this topic, such as the main tools and/or techniques, maturity models most relevant and trends and challenges for the area.

In this way, this study was prepared following the SLR structure in which it establishes the realization of the same in three phases: planning the review, conducting the review, and documenting the review.

The first phase consists of two focuses: first is the specification of the research question and the second is the development of the protocol, in which a structure was created to identify the relevant documents to answer the questions elaborated previously.

In the second stage, conducting the review, the determined structure was applied and based on that, the first articles to be studied were obtained. We reached the number of 37 articles for the SLR, in which important information was collected. Then, Excel® was used to facilitate the reading and extraction of the contents that answered the research questions.

Finally, the third step is the documentation of the review and the relevant information extracted in the previous steps was used to obtain answers to the stipulated questions and complete the SLR. Furthermore, attention was paid to synthesizing the results in tables, to facilitate understanding and obtain a more in-depth discussion on the subject. This way, through this analysis, it is possible to identify and ponder knowledge and perceptions in the evolution of the scientific community related to the topic.

Through the results of SLR, the Project Management Body of Knowledge (PMBOK®) was identified as the main traditional method, followed by the Project IN Controlled Environment method (PRINCE2), the ISO 21500 standard and the CTCR methodology.

As for the tools and techniques, a total of 33 tools and 29 Project Management techniques are presented, highlighting the tools: Gantt Chart, Earned Value Management (EVM), Critical

Chain Project Management (CCPM) and TOC Method and technique called Critical Current Method as the most relevant. Still, it was possible to observe that in recent years organizations have increasingly sought a more effective PM using tools and/or techniques to ensure the continuous improvement of processes, facilitate and optimize planning, in addition to predicting potential difficulties, calculate risks, and determine which choices are most reliable.

It was found that the most relevant traditional management maturity models were the Capability Maturity Model Integration (CMMI®), Organizational Project Management Maturity Model (OPM3), and Project Management Maturity Model (PMMM), as they are more discussed and studied by professionals who manage projects in the maturity theory.

By carrying out this work, it can be identified that trends in traditional PM are related to adaptive and hybrid methodologies, in which both aim to combine agile and traditional methods, to resolve their flaws and ensure the success of the project. In addition, another trend observed is how Artificial Intelligence will affect and provide benefits for the areas of cost, schedule, and risk in traditional PM. Finally, the link between sustainability and the PM is presented, as it allows for better performance and potential for the success of the project.

It was also found that the main challenges in the PM area are related to delays, high costs, poor management, uncertain estimates, and scarce resources. And in relation to the future directions of the PM, they lead to studies aimed at searching for other characteristics and differences, possible solutions to problems and analyzes in relation to project management.

In short, it was possible to complete the present work with SLR through a database, to answer the topics defined at the beginning of this present work. Furthermore, the most relevant studies present in the literature on traditional PM methods and their concepts were selected and presented, with the aim of providing contributions on the subject and future research. And therefore, fulfill the last objective of this SLR to provide researchers and professionals with a direct and simple way to obtain knowledge about traditional methods.

In conclusion, this systematic literature review has provided a comprehensive overview of the primary traditional methods of Project Management. It was concluded that this SLR made it possible to obtain a broad and detailed view of the main traditional methods of PM and with this, researchers in the area will be able to make better decisions in choosing the appropriate method for their type of project.

In summary, this SLR has fulfilled its objective of synthesizing current knowledge on traditional PM methods, offering valuable insights for researchers and practitioners alike. By providing a structured framework and detailed analysis, this study equips stakeholders with informed decision-making tools to navigate the complexities of project management effectively. Ultimately, this work contributes to the ongoing discourse on PM methodologies, facilitating informed choices and fostering continuous improvement in project management practices.

VII. FUTURE WORK

As a recommendation for future work, it is suggested that studies involving general concepts, structures, advantages and disadvantages, similarities and differences, the contexts used and challenges of implementation of traditional methods of Project Management can be developed.

Another recommendation would be to carry out an SLR of comparison and analysis of traditional and agile methods, to bring the reader the focus of the approach of each of these methodologies. Finally, another recommendation could be a practical study with project management specialists to assess which method is more adherent to the application context.

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