

ANÁLISE TEMÁTICA DAS PRÁTICAS DE GERENCIAMENTO DE PROJETOS: EXPLORANDO SUSTENTABILIDADE, GOVERNANÇA E INOVAÇÃO NA CONSTRUÇÃO E ALÉM

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RESUMO

Introdução: O gerenciamento de projetos é um domínio multidisciplinar que busca integrar múltiplas dimensões, mas ainda existe uma lacuna significativa de conhecimento quanto à aplicação prática de diversas práticas, como o trade-off tempo-custo e os princípios da economia circular. Este artigo realiza uma análise temática da pesquisa existente sobre gerenciamento de projetos. A literatura foi codificada e categorizada para revelar temas e padrões subjacentes. Os achados foram analisados para identificar inter-relações entre os diversos temas. As relações entre tecnologia, governança e desempenho de projetos foram destacadas para avançar a teoria, melhorar métodos e fornecer diretrizes para políticas e práticas que promovam um gerenciamento de projetos sustentável e resiliente.

Objetivo: O objetivo deste estudo é investigar práticas de gerenciamento de projetos com o intuito de identificar temas recorrentes e conexões entre sustentabilidade, governança, digitalização e fatores humanos, avançando teoria e prática na disciplina.

Referencial Teórico: A pesquisa é sustentada por conceitos como o “triângulo de ferro” de escopo, tempo e custo, complementados por modelos de satisfação dos stakeholders, aprendizagem organizacional, governança, confiança e inovação sustentável. Esses referenciais fornecem uma base sólida para compreender como o gerenciamento de projetos evoluiu para um campo multidimensional.

Método: A metodologia adotada compreende uma análise temática da literatura, apoiada por mapeamento bibliométrico. A coleta de dados foi realizada por meio de análise textual com Voyant Tools e VOSviewer, seguida de procedimentos de codificação (aberta, axial e seletiva) para identificar e categorizar temas.

Resultados e Discussão: Os resultados revelaram seis grandes temas: sucesso e desempenho de projetos, complexidade e risco, liderança e governança, conhecimento e modelos de maturidade, colaboração e cultura, e transformação digital com inovação sustentável. Na discussão, esses resultados são contextualizados no referencial teórico, destacando a fragmentação da pesquisa atual e a necessidade de abordagens integradas.

Implicações da Pesquisa: As implicações práticas e teóricas incluem orientações para acadêmicos, profissionais e formuladores de políticas, enfatizando governança adaptativa, confiança entre stakeholders e práticas sustentáveis como essenciais para um gerenciamento de projetos resiliente.

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Originalidade/Valor: Este estudo contribui para a literatura ao sintetizar pesquisas fragmentadas em um quadro temático coerente, oferecendo originalidade por meio de uma perspectiva integrada que conecta otimização técnica com sustentabilidade, digitalização e dimensões humanas.

Palavras-chave: gerenciamento de projetos, análise temática, sustentabilidade, governança, inovação.

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THEMATIC ANALYSIS OF PROJECT MANAGEMENT PRACTICES: EXPLORING SUSTAINABILITY, GOVERNANCE, AND INNOVATION IN CONSTRUCTION AND BEYOND

ABSTRACT

Introduction: Project management is a multidisciplinary domain that seeks to integrate multiple dimensions, yet there is still a considerable knowledge gap regarding the practical application of various project management practices, such as the time-cost trade-off and circular economy practices. This paper performs a thematic analysis of the existing research on project management. The literature on this topic has been coded and categorized to reveal underlying themes and patterns. The findings have been analyzed to identify the interrelationships among the various themes. The relationships among technology, governance, and project performance have been highlighted to advance theory, improve methods, and provide guidelines for policy and practice to achieve sustainable and resilient project management.

Objective: The objective of this study is to investigate project management practices with the aim of identifying recurring themes and connections among sustainability, governance, digitalization, and human factors, thereby advancing theory and practice in the discipline.

Theoretical Framework: The research is underpinned by concepts such as the “iron triangle” of scope, time, and cost, complemented by frameworks on stakeholder satisfaction, organizational learning, governance, trust, and sustainable innovation. These models provide a solid basis for understanding how project management has evolved into a multidimensional field.

Method: The methodology adopted comprises a thematic analysis of the literature, supported by bibliometric mapping. Data collection was carried out through textual analysis using Voyant Tools and VOSviewer, followed by coding procedures (open, axial, and selective) to identify and categorize themes.

Results and Discussion: The results revealed six major themes: project success and performance, complexity and risk, leadership and governance, knowledge and maturity models, collaboration and culture, and digital transformation with sustainable innovation. In the discussion, these results are contextualized within the theoretical framework, highlighting the fragmentation of current research and the need for integrated approaches.

Research Implications: The practical and theoretical implications include guidance for scholars, practitioners, and policymakers, emphasizing adaptive governance, stakeholder trust, and sustainable practices as critical to resilient project management.



Originality/Value: This study contributes to the literature by synthesizing fragmented research into a coherent thematic framework, offering originality through its integrated perspective that bridges technical optimization with sustainability, digitalization, and human dimensions.

Keywords: project management, thematic analysis, sustainability, governance.

ANÁLISIS TEMÁTICO DE LAS PRÁCTICAS DE GESTIÓN DE PROYECTOS: EXPLORANDO SOSTENIBILIDAD, GOBERNANZA E INNOVACIÓN EN LA CONSTRUCCIÓN Y MÁS ALLÁ

RESUMEN

Introducción: La gestión de proyectos es un dominio multidisciplinario que busca integrar múltiples dimensiones, pero aún existe una brecha considerable de conocimiento respecto a la aplicación práctica de diversas prácticas, como el equilibrio tiempo-costo y los principios de la economía circular. Este artículo realiza un análisis temático de la investigación existente sobre gestión de proyectos. La literatura fue codificada y categorizada para revelar temas y patrones subyacentes. Los hallazgos fueron analizados para identificar las interrelaciones entre los diversos temas. Las relaciones entre tecnología, gobernanza y desempeño de proyectos fueron destacadas para avanzar la teoría, mejorar métodos y proporcionar directrices para políticas y prácticas que promuevan una gestión de proyectos sostenible y resiliente.

Objetivo: El objetivo de este estudio es investigar prácticas de gestión de proyectos con el fin de identificar temas recurrentes y conexiones entre sostenibilidad, gobernanza, digitalización y factores humanos, avanzando la teoría y la práctica en la disciplina.

Marco Teórico: La investigación se sustenta en conceptos como el “triángulo de hierro” de alcance, tiempo y costo, complementados por modelos de satisfacción de los stakeholders, aprendizaje organizacional, gobernanza, confianza e innovación sostenible. Estos marcos proporcionan una base sólida para comprender cómo la gestión de proyectos ha evolucionado hacia un campo multidimensional.

Método: La metodología adoptada comprende un análisis temático de la literatura, apoyado por mapeo bibliométrico. La recolección de datos se realizó mediante análisis textual con Voyant Tools y VOSviewer, seguida de procedimientos de codificación (abierta, axial y selectiva) para identificar y categorizar temas.

Resultados y Discusión: Los resultados revelaron seis grandes temas: éxito y desempeño de proyectos, complejidad y riesgo, liderazgo y gobernanza, conocimiento y modelos de madurez, colaboración y cultura, y transformación digital con innovación sostenible. En la discusión, estos resultados se contextualizan dentro del marco teórico, destacando la fragmentación de la investigación actual y la necesidad de enfoques integrados.

Implicaciones de la investigación: Las implicaciones prácticas y teóricas incluyen orientaciones para académicos, profesionales y responsables de políticas, enfatizando la gobernanza adaptativa, la confianza entre stakeholders y las prácticas sostenibles como esenciales para una gestión de proyectos resiliente.

Originalidad/Valor: Este estudio contribuye a la literatura al sintetizar investigaciones fragmentadas en un marco temático coherente, ofreciendo originalidad mediante una perspectiva integrada que conecta la optimización técnica con la sostenibilidad, la digitalización y las dimensiones humanas.

Palabras clave: gestión de proyectos, análisis temático, sostenibilidad, gobernanza, innovación.



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1 INTRODUCTION

Project management has evolved into a discipline widespread across industries and sectors. While at the beginning it was mainly a technical discipline used for planning, it is now a multifaceted field that includes sustainability, governance, digitalization, and human factors. For a long time, scholars have emphasized that project management is not only a set of tools and techniques for managing a project, but also a practice influenced by institutional, organizational, and environmental factors. This is particularly so in the construction and infrastructure sectors, as well as in high-tech sectors where projects are becoming increasingly complex and requiring more sophisticated management techniques and tools to deliver them on time, within budget, and to the required quality (Aghajani *et al.*, 2026; Besner & Hobbs, 2006; 2008a; 2008b; 2012; 2013; Chapman, 2006). The global environment in which project management is practiced is marked by megaprojects, sustainability, and digitalization. In the context of investments totaling billions of dollars and carrying significant risk, which are often downplayed by optimism bias, there are many examples of cost overruns and delayed completion. This phenomenon raises many questions about risk management in such projects, as well as about governance and stakeholder trust (Flyvbjerg, 2014; Love *et al.*, 2012; Brookes *et al.*, 2017). On the other hand, sustainability has become a major theme in project management. Many studies investigate how the circular economy, sustainability, and the efficient use of resources can be implemented in project delivery (Ahmed *et al.*, 2026; Alazmi *et al.*, 2025; Bellini *et al.*, 2024; da Silva & Rosamilha, 2024). For this reason, this article aims to conduct a thematic analysis of the literature on the topic to identify patterns and links among the main themes studied by scholars of project management. In addition to sustainability, a variety of digital technologies have been integrated into project management frameworks. These include, for example, blockchain, artificial intelligence, and sensing technologies, which are used above all to reduce information asymmetry between stakeholders, to build up trust, and to manage resources optimally (Ceric, 2021; Cheng *et al.*, 2021; Marović *et al.*, 2026; Yu *et al.*, 2026). While there are



many optimistic expectations regarding potential efficiency gains, there are also risks that can negatively affect a project, particularly in governance, ethics, and stakeholder acceptance.

A further important aspect to be taken into account in project management practice is human and organizational factors. In project management, trust, collaboration, and leadership are crucial to achieving project success. For example, in uncertain environments and on projects involving multiple organizations, the management approach and managers' behavior are crucial to the project's success (Kadefors, 2004; Galvin *et al.*, 2021; Walker & Lloyd-Walker, 2016). For this reason, studies on project maturity, project competence, and project management behavior emphasize the importance of organizational conditions for project outcomes. In project management, therefore, technical solutions are not sufficient; it is necessary to integrate social, cultural, and institutional factors into project management theory and practice (Hartman & Skulmoski, 1998; Hyväri, 2006; Kapogiannis *et al.*, 2021). The main problem this study seeks to address is the fragmentation of research in project management. A vast number of studies have focused on time–cost optimization, sustainability, digitalization, and other themes in project management. However, very few studies attempt to synthesize these themes to develop a comprehensive framework or structure for project management. By systematically coding and categorizing the literature on project management through thematic analysis, this study aims to fill several gaps in current knowledge and, in the process, contribute to a more integrated understanding of contemporary project management.

The objectives of the article are to describe the main current themes found in the majority of current research articles on Project Management. These themes are currently described in the literature as sustainability, the special problems encountered by the so-called megaprojects, current digitalization, and the so far largely unaddressed human factors. The connections among the many themes of sustainability, digitalization, the problems encountered by megaprojects, and the human factors currently addressed in the large majority of research on Project Management need to be described within a framework of these themes. The article's findings are expected to be of value to future research on Project Management, to practitioners of project management, and to policymakers. In summary, this article on the current themes addressed in research on Project Management, as well as the connections found between the many themes



currently under investigation, within a large framework of themes, is expected to contribute to both the body of knowledge of the field of project management, as well as to the methodology used to study the field.

This introduction is followed by the main body of the article, in which the background to the article is presented, the methodology is explained, the results of the thematic analysis are outlined and discussed, the findings are related to previous research, the implications of the findings are explored, the limitations of the article are acknowledged, and finally, some suggestions are made for future research. The article's contributions to project management practice and to the field's body of knowledge are outlined.

2 THEORETICAL BACKGROUND

The use of theme analysis as a methodological strategy for thematic synthesis is growing. In this study, we explore the use of thematic analysis to identify and characterize the recurrence of a set of important conceptual themes across a range of sources, including technical documentation and published empirical research. Thematic analysis provides an organized framework for understanding the rapidly evolving field of big language models and for identifying potential directions for future study (Carvalho *et al.*, 2026; Dias *et al.*, 2026a, 2026b; Lopes & Dias, 2026a, 2026b; Quintão *et al.*, 2026). Early studies in project management emphasized scheduling and cost control, with some models even employing techniques such as neural dynamics and genetic algorithms to improve resource optimization. However, although creating a science of planning and control for projects, the simple application of technical optimization techniques to project management soon proved to be inadequate to cope with the growing complexity of individual projects and the increasing number of projects of all types.

The literature has often pointed to the inherent problems of the so-called megaprojects, characterized by their scale, uncertainty, and political sensitivity. While some studies claim that a large proportion of these projects suffer from what is termed optimism bias or strategic misrepresentation by clients, others have described complex governance dilemmas (Bresner & Hobbes, 2006; Flyvbjerg, 2014; Love *et al.*, 2012; Brookes *et al.*, 2017). The literature thus points to the necessity of trust, collaboration, and cultural alignment. This is particularly true for projects managed under what are



known as alliance contracts or interorganizational partnerships. Project management, thus, is part of the broader field of research on governance and institutional design, with the crucial distinction that, for projects, technical optimization tools must be supplemented by adequate relational and organizational mechanisms.

Sustainability in project management, including the implementation of circular-economy principles, environmental awareness, and efficient resource use, has become a central theme in the discipline. This shift towards sustainable project management aims to create long-term value. Thus, sustainable project management can be seen as a tool for creating value on a broader scale, in line with the United Nations' Sustainable Development Goals (Van Tam, 2026; Wang *et al.*, 2026; Zerjav *et al.*, 2026). Current research indicates the various barriers to the successful implementation of sustainable practices in project management. These barriers can manifest at the organizational level as well as in a country's institutional and cultural environment, such as Saudi Arabia (Alhamad *et al.*, 2025; Alotaibi *et al.*, 2024; Alghuried, 2026). In order to increase the potential for successful implementation of sustainable practices in project management, research has focused on various aspects, including the development of procurement strategies, the management of stakeholders, and the management of knowledge in sustainable projects (Ahmed *et al.*, 2024, 2026; Alazmi *et al.*, 2025; Bellini *et al.*, 2024; da Silva & Rosamilha, 2024).

However, they also give rise to a number of new risks, primarily in governance and ethics, as well as stakeholder acceptance (Forsythe *et al.*, 2015; Lu & Antwi-Afari, 2024; Mortlock *et al.*, 2026). Such changes have the potential to deliver major benefits by improving decision-making, but the effectiveness of these solutions will also depend on several organizational factors. Therefore, digitalization is not merely a technical issue, but also a change in culture and in several project management processes. In this concern, the majority of current research in project management is fragmented. To further develop the discipline, it is necessary to integrate current research on technical optimization, sustainability, digitalization, and the human dimension. The use of thematic analysis as a method for analyzing literature appears to be an appropriate way to develop an integrated view of current research in project management. By applying thematic analysis to a large body of references, this study aims to provide an integrated overview of current research in project management and to bridge existing knowledge gaps. Project management is at a crossroads. On the one hand, it needs to build on the discipline's technical heritage. On



the other hand, however, there is an increasing pressure on the discipline to become more sustainable, more digitalized, and more human. To support future research, it is necessary to move beyond single case studies and technical models and adopt more holistic frameworks for representing project environments (Delisle & Olson, 2004; Payne & Turner, 1999; White & Fortune, 2002). This thematic analysis of a large number of references aims to support this endeavor by synthesizing the various perspectives and highlighting the conceptual connections between them.

3 METHODOLOGY

The study uses thematic analysis to synthesize the information from various Project Management (PM) studies. There are many methodologies for conducting a thematic analysis. Strauss and Corbin (1998) were among the first to use thematic analysis in qualitative research and to provide a solid framework for conducting it. In addition, thematic analysis can be combined with quantitative research methods to gain more insights into a subject, for example, by using bibliometric methods (Saunders *et al.*, 2009). Using Voyant Tools for the initial textual analysis of the reference list (Sinclair & Rockwell, 2026), the software identified the most frequently occurring terms and highlighted co-occurrence patterns. This preliminary textual analysis was crucial in the initial stages of coding, as it ensured that subsequent analysis remained grounded in the primary sources and was therefore less susceptible to the researcher's bias. Coding for themes and patterns began with open coding to identify key concepts within individual papers (Strauss & Corbin, 1998). Using the collected references, the team developed a series of codes that ranged from describing the various costs incurred by a project to addressing problems such as a lack of trust between stakeholders. Axial coding was then used to group together related individual codes and to establish relationships between them and between categories of codes. Selective coding was then used to focus on categories of codes most relevant to capturing the essence of current issues in Project Management, effectively developing themes from the analysis (Strauss & Corbin, 1998).

To obtain additional information on the literature in project management, a bibliometric mapping was conducted using VOSviewer, version 1.6.11 (Van Eck & Waltman, 2010). This software application can display co-authorship networks, keyword co-occurrence, and citation clusters for a set of references. In the present study, the



mapping identified influential authors and journals, as well as several theme clusters, including sustainability, megaproject governance, and the digital transformation of project management. The results of the bibliometric mapping were integrated with those of the thematic analysis to strengthen the validity of the findings. The analytical framework developed for this study aims to balance depth and breadth. On the one hand, the thematic analysis provides an in-depth exploration of the current literature on project management. On the other hand, the bibliometric mapping of this literature provides an overview of the field's current state. The study identifies the dominant themes in current project management literature, as well as emerging fields of study, such as the application of artificial intelligence and the integration of circular economy principles.

The analysis, using both thematic analysis and bibliometric mapping, has its own limitations. The references selected for the thematic analysis and bibliometric mapping span a broad spectrum of contributions to project management. However, there will certainly be other contributions that have not been selected for the analysis. The thematic analysis, as well as the mapping through bibliometric analysis, is a subjective process, as already mentioned above, with the inherent restrictions of thematic analysis. In addition, the results of the bibliometric mapping can be affected by the fact that citation counts are not equally distributed among authors and journals. In this way, established authors and journals are favored over less-known but innovative contributions. Despite these restrictions, the combination of thematic and bibliometric analysis is a suitable method for generating meaningful results in analyzing the current state of the art in project management. Summing up, the methodology in this study of project management research is qualitative and consists of a thematic analysis of the literature using text analysis software, as well as the creation of a bibliometric map. The coding process, the grouping of codes into categories, the findings from the thematic analysis, the graphical representation of the bibliometric map, and the conclusions from it are of great value for theory, practical application, and policy.

4 FINDINGS AND ANALYSIS

In this article, we started analyzing major themes through textual analysis, network map, and coauthor analysis using VOSviewer, version 1.6.11 (Van Eck & Waltman, 2010), and analyzing frequency distribution and word cloud through Voyant

Tools (Sinclair & Rockwell, 2026), introducing word cloud in Figure 1:

Figure 1

Conceptual Word Cloud of Project Management

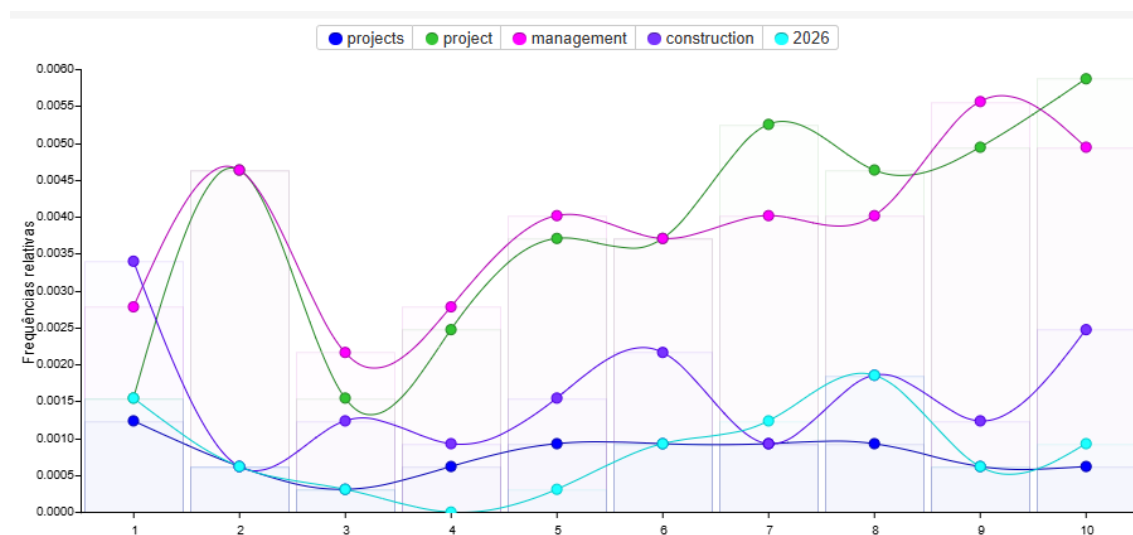


Source: Voyant 2.0. (Sinclair & Rockwell, 2016)

The conceptual word cloud of project management (Figure 1) was generated by Voyant Tools to visualize the most frequently used terms and concepts in the references of the papers. Word clouds are particularly suited for thematic analysis, because they allow researchers to quickly get an impression of the most important terms by the size of the letters. The resulting word cloud of project management consists of terms such as sustainability, cost, risk, trust, and digitalization. The terms sustainability and circular economy are particularly prominent because environmental considerations are becoming increasingly important in project management. The terms cost and time remain dominant to ensure a project's efficiency. The terms trust and collaboration are also important, as project management is not only about technical issues but also about human and organizational ones. The conceptual word cloud thus provides a first overview of the themes relevant to project management and addressed in the literature on the subject (Ahmed *et al.*, 2024; Flyvbjerg, 2014; Galvin *et al.*, 2021).

Figure 2

Frequency Distribution of Project Management



Source: Voyant 2.0. (Sinclair & Rockwell, 2016)

The frequency distribution of terms in the reference corpus (Figure 2) provides more quantitative insights into the ranking of term occurrences within the corpus. The distribution of term frequencies provides a much more precise insight than a word cloud and thus allows for a more informed analysis, whereas a word cloud only provides a relative impression of term frequency. Thus, a frequency distribution of terms reveals that the core terms of project management are ‘project’, ‘management’, ‘construction’, and various terms associated with the management of construction and infrastructure projects. In addition to these primary terms with relatively high frequency, various terms associated with risk, cost, and sustainability in projects also have significant frequency. Furthermore, although less frequent, some terms associated with recent technological developments, including ‘blockchain’, ‘AI’, ‘digital twin’, etc., are also presented in the distribution and thus reflect recent developments in project management research (Ceric, 2021; Lu & Antwi-Afari, 2024; Marović *et al.*, 2026).

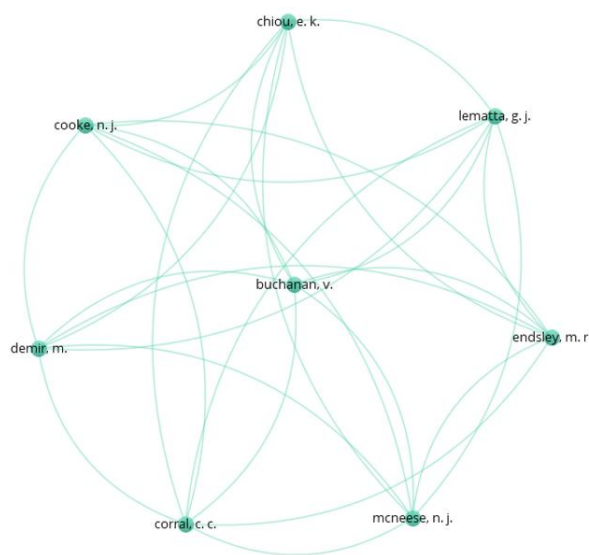
The combination of the conceptual word cloud and the frequency distribution provides a strong basis for the thematic analysis of the Project Management references. The word cloud, at first glance, gives an impression of the wide range of topics covered in Project Management. The frequency distribution lists all terms in the corpus in order of frequency, providing a stronger basis for the thematic analysis. It can be seen that there are several strands of research in Project Management, namely technical optimization, sustainability, digitalization, and trust in organizations and inter-organizational networks.

The dual visualization of the results of the reference analysis also highlights points of convergence among the various strands of research. By combining qualitative results from the analysis with quantitative results from corpus visualization, the themes are conceptually grounded and empirically validated (Sinclair & Rockwell, 2026; Strauss & Corbin, 1998; Van Eck & Waltman, 2010).

Figure 3 shows the network diagram of Project Management. Every node corresponds to a single researcher, and every edge corresponds to a collaboration (i.e., co-authorship). Such graphs are often used to show the ‘social network’ of writers. They give a nice impression of how most writing is a collaborative activity, with the position of individual authors in the graph indicating how often they collaborate and thus the extent of their influence within a particular field of study.

Figure 3

Co-authorship network map



Source: VOSviewer (version 1.6.20). Adapted from van Eck and Waltman (2010)

Figure 4 represents a concept map for project management. This type of diagram uses nodes to symbolize ideas, and the connections between them to denote relationships, whether thematic or semantic. There are larger nodes for success and the project manager, which indicate their central position within the concept map for project management. The visualization attempts to outline the intellectual structure of the research area in project management and indicates the relationships among key concepts and the degree to which the former have been prioritized in the vast body of literature on the subject.



Figure 4

Network map. Source: VOSviewer (version 1.6.20).



Source: Adapted from van Eck and Waltman (2010)

Figures 3 and 4 provide a complete understanding of knowledge creation - they show who is creating knowledge and what knowledge is being created. The first figure examines the human aspect of knowledge creation, while the second examines the intellectual structure of the knowledge being created and presented.

Finally, the next subsections introduce the main emerging themes after careful content and text analysis.

4.1 THEME ONE: PROJECT SUCCESS AND PERFORMANCE

The first theme examined the meaning of project success and measures of project performance. In the Project Management Research literature, project success goes beyond the so-called 'iron triangle' of scope, time, and cost. Rather, it also incorporates stakeholder satisfaction, project strategy, and long-term benefits to organizations and other stakeholders. The references included in this theme provided a basis for understanding how project success has been categorized by leading authors, including Shenhar & Dvir (2001), Jugdev & Müller (2005), and Zwikael (2009). The findings led to the insight that project success, and project performance more generally, can be viewed from a number of different perspectives, each of which requires a different set of measures to judge project progress and success. Organizations, therefore, need to adopt a range of measures of success to assess projects within their portfolios. These measures should be used to provide an overall evaluation of project success over time, taking into account both the project's immediate efficiency and its longer-term strategic benefits.



4.2 THEME TWO: PROJECT COMPLEXITY AND RISK

The Project Complexity and Risk Theme examine how complexity affects project outcomes and risk management. It contains references to papers that present frameworks for identifying and managing complexity across technical, organizational, and social domains. The focus of this Theme is on the need for adaptive governance and risk management in complex projects.

4.3 THEME THREE: PROJECT LEADERSHIP AND GOVERNANCE

This theme examines the project manager, the sponsor, the various governance structures, leadership styles, the degree to which the sponsor is engaged in the project, and how governance structures balance control and trust in order to hold the project team accountable while allowing them the flexibility required to complete the project on time. Effective project managers use a variety of leadership styles, and the key is to match the style(s) used to the type of project being managed. Also, the form of governance required to support a project is critical to ensuring it is managed effectively and completed on time.

4.4 THEME FOUR: PROJECT KNOWLEDGE, LEARNING, AND MATURITY MODELS

This theme explores the focus on organizational learning and the use of maturity models to assess and improve project management in organizations. It deals with project management as a strategic function within organizations and as a knowledge system. Using a variety of perspectives, such as those found in the work of Jugdev & Mathur (2006–2009), PMI's Organization Project Management Maturity Model (OPM3), and Söderlund (2004, 2011), provides insight into how organizations can improve their project management to achieve greater success. In summary, it examines how organizations can treat project management as a strategic function, thereby gaining a competitive advantage by embedding learning within their project management practices.



4.5 THEME FIVE: PROJECT COLLABORATION, CULTURE, AND COMMUNICATION

This theme explores the key cross-cultural issues that are becoming increasingly important for projects and examines how project teams work together as collaborative entities. This theme draws on a range of research studies, including network studies of projects and their stakeholders (e.g. Cooke *et al.*), cross-cultural studies of communication and collaboration (e.g. Ochieng & Price 2010–2016), and studies of collaboration on specific types of projects (e.g. Love, Edwards & Irani 2008–2016). The key lesson from this theme is that, in globalized, complex projects, managing diversity and fostering collaboration are essential to achieving project objectives and developing team members' skills and capabilities.

4.6 THEME SIX: PROJECT DIGITAL TRANSFORMATION AND SUSTAINABLE INNOVATION

The sixth examines emerging perspectives on the future of project management, including digital transformation and sustainability, and their impact on the organization through greater resilience and innovative delivery. This theme draws on research by Love, Edwards, and Irani (2016–2025), PMI's Pulse surveys and reports, and Turner (2014–2016). The key insight is that projects are no longer just a series of operations delivered by a team within a defined budget. Projects are organizational change vehicles that can bring about organizational and societal change through the utilization of digital transformation and sustainable innovation embedded within the organization's governance, collaboration practices, and knowledge systems, and measured in terms of a range of different strategic outcomes.

Finally, Table 1 summarizes the six emerging themes in our study, as follows:



Table 1

Summary of Themes

Theme	Focus	Representative References	Key Insights
Project Success and Performance	How project success is defined and measured beyond cost, time, and scope.	Shenhar & Dvir (2001); Jugdev & Müller (2005); Zwikael (2009); Pinto & Slevin (1988); Ika (2009); Turner & Zolin (2012); Cooke-Davies (2002); Morris (2013); Mir & Pinnington (2014)	Success is multidimensional, evolving from operational efficiency to strategic impact, including stakeholder satisfaction, strategic alignment, and long-term value creation.
Project Complexity and Risk	Influence of complexity on project outcomes and risk management.	Baccarini (1996); Remington & Crawford (2004); Williams (1999, 2002); Geraldi et al. (2011); Bosch-Rekvelde et al. (2011); Vidal & Marle (2008); Chapman & Ward (2003); Flyvbjerg (2014); Pich, Loch & De Meyer (2002)	Complexity is technical, organizational, and social; adaptive governance and risk strategies are essential to navigate uncertainty and ensure resilience.
Project Leadership and Governance	Role of project managers, sponsors, and governance structures.	Müller & Turner (2007–2016); Kloppenborg et al. (2007, 2011); PMI Standards; Turner & Müller (2005); Too & Weaver (2014); Aubry et al. (2007); Crawford et al. (2008); Joslin & Müller (2016); Andersen (2010)	Leadership must be matched to project type; governance should balance control with trust, enabling accountability, flexibility, and sponsor engagement.
Project Knowledge, Learning, and Maturity Models	Organizational learning and maturity in project management.	Jugdev & Mathur (2006–2009); PMI OPM3; Söderlund (2004, 2011); Kerzner (2001); Andersen & Jessen (2003); Grant (1996); Nonaka & Takeuchi (1995); Gareis & Huemann (2007); Cooke-Davies & Arzymanow (2003)	Project management capabilities are strategic assets; maturity models and knowledge systems enable continuous improvement and competitive advantage.
Project Collaboration, Culture, and Communication	Cross-cultural dynamics and team collaboration.	Ochieng & Price (2010–2016); Love et al. (2008–2016); Cooke et al. (network studies); Hofstede (1991); Thomas & Inkson (2004); Maznevski & Chudoba (2000); Anbari et al. (2010); Cramton (2001); Henderson & Louhkiarung (2010)	Managing diversity and fostering collaboration are critical in global projects, directly influencing outcomes, communication effectiveness, and team cohesion.
Project Digital Transformation and Sustainable Innovation	Emerging perspectives such as digital transformation, sustainability, resilience, and innovation.	Love, Edwards & Irani (2016–2025); PMI Pulse Reports; Turner (2014–2016); Gareis et al. (2020); Carvalho & Rabechini (2017); Silvius & Schipper (2014); Hanelt et al. (2021); Dufresne & Martin (2020); Shenhar (2015)	Projects are evolving into vehicles for organizational and societal change, embedding digital transformation and sustainable innovation into governance, collaboration, and knowledge systems.

Source: elaborated by the authors

5 DISCUSSION

The research on project management has moved from focusing on the “iron triangle” of scope, time, and cost (Cooke Davies, 2002; Pinto & Slevin, 1988; Shenhar & Dvir, 2001) to include other measures of success for projects, such as stakeholder satisfaction, learning by the organization, and long-term value (Jugdev & Müller, 2005; Mir & Pinnington, 2014; Turner & Zolin, 2012). The project management discipline has evolved over the last couple of decades from being a very technical subject, focusing on



delivering the project on time, within budget, and to the specified quality; to a more holistic subject, where the focus is on delivering successful projects, where success is measured not only by the project's own metrics but also by the degree to which the project has satisfied the needs of its stakeholders. Measuring the degree to which a project has been successful is not an easy task and is becoming increasingly more complex. The various metrics used to measure project success are not always easy to combine, and the more that are used, the more complex the task becomes. The literature on project management has increasingly highlighted the complexity and risk of projects, particularly of large-scale megaprojects. Such projects are often characterized by high levels of uncertainty and thus face a range of governance challenges. The complexity of projects extends beyond the technical to include the organizational and social entities involved. Therefore, projects require an adaptive and resilient management approach (Flyvbjerg, 2014; Geraldi *et al.*, 2011; Pich *et al.*, 2002). To manage projects successfully, project managers must move beyond the determinism of traditional project management approaches and apply systems thinking to their projects (Baccarini, 1996; Bosch Rekveldt *et al.*, 2011; Williams, 2007). They require flexible governance structures that can mitigate optimism bias and strategic misrepresentation.

Leadership and project governance research finds that project management leadership styles and governance mechanisms need to be aligned with project types. Studies on project management leadership find that project managers' adaptive behavior is important for project success. Effective project managers employ a variety of leadership styles to address different situations throughout a project. To achieve project success, the project manager's leadership style must align with the project type. Several governance mechanisms also need to be aligned with the project type. On the one hand, governance mechanisms need to provide sufficient control to ensure that a project is managed in accordance with the organization's risk policy. On the other hand, project governance mechanisms also need to foster trust to ensure that employees within the organization can work effectively together as a team during a project. To balance control and trust, leadership during a project should be delivered in a manner consistent with the leadership style required for the specific project type (Andersen, 2010; Aubry *et al.*, 2007; Too & Weaver, 2014). In summary, the findings above imply that leadership development and the design of project governance mechanisms are crucial to project success.

Project management is also conceived as an organizational capability that can be



developed and improved in the same manner as other organizational functions. Organizational maturity in project management, as well as learning systems and methodologies for achieving improvements, are discussed in the literature. Organizations that integrate project management into their knowledge architecture are well-positioned to leverage their projects for strategic learning and to build organizational capabilities. When viewed through the lens of collaboration and culture, research projects are essential in global projects, and the intercultural competence of project managers and their team members plays a decisive role in achieving project success. Diversity among team members can be a major source of innovation and a basis for building a resilient team (Anbari *et al.* 2010, Hofstede 1991, Maznevski & Chudoba 2000, Ochieng & Price 2010–2016). However, if diversity is not managed appropriately, it can lead to communication problems and conflicts. Therefore, the project manager must put great effort into developing collaborative practices that leverage cultural differences productively, transforming them into a strategic asset. Recent studies emphasize how projects are being used as organizational instruments for change and as means of achieving sustainable development goals worldwide. Furthermore, there is an increased use of new technologies (BIM, AI, blockchain, etc.) and project management tools as part of project governance.

6 CONCLUSION

Project management has evolved from a discipline that views project success through traditional success measures of cost, time, and scope (Cooke-Davies, 2002; Pinto & Slevin, 1988; Shenhar & Dvir, 2001) to a more multidimensional, strategic discipline. Current conceptions of project success focus not only on the aforementioned dimensions but also on a range of other factors that determine a project's success. For example, a range of studies have explored the issues that determine stakeholder satisfaction with projects (Jugdev & Müller, 2005; Mir & Pinnington, 2014; Turner & Zolin, 2012). Furthermore, others have highlighted the extent to which projects can provide organizations with opportunities for organizational learning (Mayer & Gregory, 2004) and even long-term value (Gareis, 2014). Consequently, organizations are now in need of a range of evaluation models that not only enable them to measure and thus assess the success of their projects from an efficiency perspective, but also take into account a range of strategic issues that need to be taken into consideration in order to ensure that



maximum value is derived from a project. Also, an increasing recognition of the complexity and risks in projects (Baccarini, 1996; Bosch-Rekveldt *et al.*, 2011; Williams, 2007) has led to research on the application of adaptive governance and on resilience in projects (Flyvbjerg, 2014; Geraldi *et al.*, 2011; Pich *et al.*, 2002). To address project challenges, leaders and governance mechanisms must be tailored to the type of project. Research on leadership and governance in projects therefore focuses on the different styles of leadership and governance and on the different ways in which they can be combined in order to achieve accountability and innovation in projects (Andersen, 2010; Aubry *et al.*, 2007; Kloppenborg *et al.*, 2007, 2011; Müller & Turner, 2007–2016; Too & Weaver, 2014; Turner & Müller, 2005).

Knowledge and maturity models of project management have characterized the discipline as a dynamic capability that is in constant evolution. A number of studies have analyzed the success factors of project management and its degree of maturity across organizations worldwide. Collaboration and culture studies have highlighted the importance of intercultural management and communication in global projects. Diversity in projects can become a source of innovation for organizations. In recent years, the field of digital transformation has increasingly merged with sustainability. In the context of project management, this means new types of projects are emerging that pursue more than a single objective. Rather, the objective of such projects is to affect organizational and, by extension, societal change through innovation, enhanced resilience, and sustainability. This is reflected in the manner in which such projects are governed and delivered.

In summary, project management as a discipline has matured and cannot be reduced to a set of simple rules for success. Instead, it has become a holistic discipline that needs to be managed in an integrated fashion, with the goal of successful projects that also create long-term value. Measuring success, handling complexity, leading and organizing projects, leveraging knowledge, and collaborating on projects are all key elements of the new perspective on project management and need to be managed and integrated systematically.

FUTURE RESEARCH

Future research in project management should build on the current state of the discipline by integrating the different strands of research. There are many open questions that need



to be addressed in practice and in theory. For instance, there is a need for longitudinal research on the development of success criteria for projects over time and in different industries (Cooke-Davies 2002; Mir and Pinnington 2014; Shenhar and Dvir 2001). Research on complexity and risk management would benefit from a more in-depth analysis of strategies for enhancing the resilience of projects in uncertain environments, especially in large construction and digital transformation projects (Baccarini 1996). Collaboration and communication research could be deepened by an increased focus on intercultural competence in globally distributed projects and on virtual teams (Anbari *et al.* 2010; Hofstede 1991; Ochieng and Price 2010–2016). Sustainability and digital transformation demand an integrative research approach that links innovation, resilience, and the creation of societal value through projects. Such research can position projects as a means for systemic change (Gareis *et al.* 2020; Silvius and Schipper 2014).

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We declare that we have no competing interests.

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During the preparation of this work the authors used Grammarly, in order to improve grammar accuracy, ensure clarity of expression, and refine sentence flow and enhance readability. Microsoft Copilot was used to support idea organization, provide suggestions for strengthening academic style, and to compose the cover letter. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.



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