Mix Sustentável

Aspectos ambientais e sociais no gerenciamento de projetos: uma análise exploratória baseada nos guias PMBOK e ICB

Environmental and social aspects in project management: an exploratory analysis based on the PMBOK and ICB guides

Aspectos ambientales y sociales en la gestión de proyectos: un análisis exploratorio basado en las guías PMBOK e ICB

João Alfredo Coelho Unes[1]
Lie Yamanaka [1]
Camila de Araujo[2]

[1] Faculdade de Ciência e Tecnologia, Universidade Federal de Goiás, Aparecida de Goiânia, Goiás, Brasil
[2] Faculdade de Gestão e Negócios, Universidade Federal de Uberlândia, Uberlândia, Minas Gerais, Brasil

Correspondência para: lie@ufg.br

Resumo: A crescente pressão de governos, investidores e consumidores tem levado as empresas a incorporar práticas alinhadas à agenda ESG (Environmental, Social, and Governance). Nesse contexto, a gestão de projetos torna-se essencial, pois muitas iniciativas de sustentabilidade são implementadas por meio deles. Este estudo analisa como os guias PMBOK e ICB abordam a sustentabilidade em suas respectivas estruturas. A metodologia adotada é descritiva, qualitativa e baseada na análise documental dos dois guias. A análise foi estruturada nas

ARTIGO ORIGINAL - SEÇÃO CIENTÍFICA

Editor responsável pelo artigo: Lisiane Ilha Librelotto, Dr. Eng., Paulo Cesar Machado Ferroli, Dr. Eng.

Recebido em
27/07/2025
Aprovado em
23/01/2026
Publicado em
05/02/2026

PID
10.29183/2447-3073.MIX2025.v11.n4.189-207

categorias WHY (por que adotar), WHAT (o que é) e HOW (como implementar). Foram identificados trechos que empregam termos como “sustentabilidade”, “ESG” e “ambiental”. Os resultados mostram que o PMBOK traz fundamentos estratégicos e conceitos claros, como o “Triple Bottom Line”, mas oferece poucas diretrizes práticas. O ICB, por sua vez, prioriza competências e práticas relacionadas à sustentabilidade, como ética, responsabilidade social e gestão de impactos, com menor foco em justificativas estratégicas. Conclui-se que os modelos são complementares: o PMBOK aborda o “o quê” e o “por quê”, enquanto o ICB enfatiza o “como”. Recomenda-se, ainda, a adoção do P5 Standard como ferramenta prática de apoio à gestão sustentável.

Palavras-chave: Gestão de Projetos; Sustentabilidade; PMBOK; ICB.

Abstract: Growing pressure from governments, investors, and consumers has led companies to adopt practices aligned with the ESG (Environmental, Social, and Governance) agenda. In this context, project management is essential because many sustainability initiatives are implemented through projects. This study analyzes how the PMBOK Guide and the ICB framework incorporate sustainability into their structures. The methodology is descriptive and qualitative, based on document analysis of both guides. The analysis is organized into the categories WHY (why adopt), WHAT (what it is), and HOW (how to implement). Relevant excerpts were identified using terms such as “sustainability”, “ESG”, and “environmental”. The results show that the PMBOK provides strategic foundations and clear concepts, such as the Triple Bottom Line, but offers limited practical guidance. The ICB, on the other hand, focuses on competencies and practices related to sustainability, including ethics, social responsibility, and impact management, with less emphasis on strategic justification. It is concluded that the models are complementary: PMBOK addresses the “what” and the “why”, while ICB emphasizes the “how”. The adoption of the P5 Standard is also recommended as a practical tool to support sustainable project management.

Keywords: Project Management; Sustainability; PMBOK; ICB.

Resumen: La creciente presión de gobiernos, inversores y consumidores ha llevado a las empresas a incorporar prácticas alineadas con la agenda ESG (Ambiental, Social y de Gobernanza). En este contexto, la gestión de proyectos se vuelve esencial, ya que muchas iniciativas de sostenibilidad se implementan a través de ellas. Este estudio analiza cómo los guías PMBOK e ICB abordan la sostenibilidad en sus respectivas estructuras. La metodología adoptada es des-

mento do trabalho com reconhecimento da autoria e publicação inicial nesta revista.

Contribuição dos autores segundo a Taxonomia CRediT

JU: Joao Alfredo Coelho Unes

LY: Lie Yamanaka

CA: Camila de Araujo

JU: Conceptualization, Formal analysis, Investigation, Methodology,Validation, Writing - original draft.

LY: Project administration, Conceptualization, Supervision, Visualization, Validation, Writing - review editing.

CA: Conceptualization, Supervision, Visualization, Validation, Writing - review editing.

Conflito de interesses

Nada a declarar

Fonte de financiamento

Recursos própios

criptiva, cualitativa y basada en el análisis documental de ambos guías. El análisis se estructuró en las categorías POR QUÉ (por qué adoptar), QUÉ (qué es) y CÓMO (cómo implementar). Se identificaron fragmentos que emplean términos como 'sostenibilidad', "ESG" y "ambiental". Los resultados muestran que el PMBOK presenta fundamentos estratégicos y conceptos claros, como el "Triple Bottom Line", pero ofrece pocas directrices prácticas. El ICB, por su parte, prioriza competencias y prácticas relacionadas con la sostenibilidad, como la ética, la responsabilidad social y la gestión de impactos, con menor énfasis en justificaciones estratégicas. Se concluye que ambos modelos son complementarios: el PMBOK aborda el "qué" y el "por qué", mientras que el ICB enfatiza el "cómo". Además, se recomienda la adopción del estándar P5 como herramienta práctica de apoyo a la gestión sostenible.

Palabras clave: Gestión de Proyectos; Sostenibilidad; PMBOK; ICB.

Como citar: UNES, João Alfredo Coelho; YAMANAKA , Lie; ARAUJO, Camila de. Aspectos ambientais e sociais no gerenciamento de projetos: uma análise exploratória baseada nos guias PMBOK e ICB. **Mix Sustentável**, Florianópolis, v. 11, n. 4, p. 189-207, 2025. DOI: https://doi.org/10.29183/2447-3073.MIX2025.v11.n4.189-207.

1 INTRODUCTION

A significant rise in pressure on companies to adopt more committed stances on social and environmental issues has been observed. This pressure comes from various stakeholders, including regulatory agencies, financial institutions, investors, and consumers (Sulemana *et al.*, 2025). In response to this demand, legislation and standards have been developed to promote and reinforce corporate behavior aligned with sustainability principles (Daramola *et al.*, 2024).

Given this definition of project management as the application of knowledge, tools, and techniques to project activities to meet or exceed stakeholders' needs and expectations (Cavalcanti; Silva, 2016; Santos *et al.*, 2023), which underscores the importance of stakeholders, it follows that project management cannot be limited to technical and financial aspects. Instead, it is essential to integrate social and environmental considerations into the decision-making process and project execution.

The development of theory and practice in Project Management has occurred in parallel with the consolidation of institutions and the publication of methodologies and reference models for the field. Among the recognized ones, the following stand out: the Project Management Institute (PMI), developer and maintainer of the Project Management Body of Knowledge (PMBOK); the International Project Management Association (IPMA), developer of the Individual Competence Baseline (ICB); the Information Technology Infrastructure Library (ITIL), initially under the responsibility of British government agencies; and agile methodologies (Ghosh *et al.*, 2015; IBM, 2025; IPMA, 2025; Jovanovic; Beric, 2018; Project Management Institute; Green Project Management, 2025). A large portion of the global economy depends on project delivery, and there is growing demand for qualified professionals in the field (Bredillet; Tywoniak; Dwivedula, 2015). At the same time, sustainability, from the perspective of the Triple Bottom Line (TBL), which encompasses economic, social, and environmental dimensions, has become increasingly essential for mitigating negative impacts and adding value to organizations at their various decision-making levels (strategic, tactical, and operational) (Silvius gilbert, 2022).

The strategic and operational relevance of sustainability is underscored by the growing investment in Environmental, Social, and Governance (ESG) practices that add value (Silva; Carvalho, 2022), demonstrating that social and environmental practices enhance companies' credibility, permanence, and growth (Cavalcanti; Silva, 2016). Thus, good project management is crucial not only to improve efficiency, reduce costs, and increase quality but also to strengthen the organization's commitment to social and environmental responsibility (Silvius; Schipper, 2019).

Although the importance of sustainability in project management is well established, the question remains: "Are the models most commonly used by companies to manage projects adequately incorporating the social and environmental dimensions of sustainability"? Given that project management traditionally focuses on the economic dimension through scope, time, and cost, it is relevant to investigate how the social and environmental dimensions are addressed within project management models (Koke; Moehler, 2019). Some preliminary studies highlight the challenges and the need to further explore and develop these aspects within

companies and project managers' knowledge for integrating sustainability into project management. Even with the publication of sustainable project management reference models, such as GPM P5, they remain little known and adopted (Moutinho; Sousa; Tereso, 2025; Økland, 2015; Shokouhi; Bachari, 2025). To answer the question raised above, this study aimed to analyze which social and environmental sustainability aspects the reference models in project management consider and how they address them.

2 LITERATURE REVIEW

2.1 Reference models and methods in project management

When examining methods and models for project management:

> A project system comprises methods, tool packages, and project models. In this manner, project management can be viewed as the sequential application of structured, repeated, and continuous processes that, when used by an organization gradually and securely for its business, facilitate the institutionalization of standardized practices (Patah; Carvalho, 2012, p. 182).

Among the most widely adopted reference models for project management, the Project Management Body of Knowledge (PMBOK) by the Project Management Institute (PMI) is the most widely recognized and applied globally, particularly in general business contexts. However, other frameworks – such as ITIL, PRINCE2, and the Individual Competence Baseline (ICB) – are also prominent, with adoption varying by industry and region. For instance, ITIL and PRINCE2 are prevalent in information technology and computing firms, whereas European organizations often favor methodologies developed by the International Project Management Association (IPMA) (Ahmad; Shamsudin, 2013; Ghosh *et al.*, 2015; Jovanovic; Beric, 2018; Rovai, 2013).

The PMI, which publishes the PMBOK, is widely known and applied in companies across the Americas, including Brazil, and provides a basic framework for project management. There is little focus on sustainability, so this initiative will come from the manager who oversees the project (Jovanovic; Beric, 2018; Project Management Institute, 2017).

Ahmad e Shamsudin (2013) defines the ITIL (Information Technology Infrastructure Library) methodology as a framework of practices derived from organizations to deliver high-quality IT services. Anunciação e Geada (2021) lists the benefits of ITIL as improved IT services and risk management aligned with business needs; increased flexibility and consistency of processes; greater efficiency in service delivery; standardization of service and process measurement; optimization of the customer experience; and adoption of a standard, universal language. For these benefits to be achieved, IT and organizational managers must align IT services and organizational operations with ITIL practices. Unfortunately, one of the problems with ITIL, as pointed out by Ahmad e Shamsudin (2013), is its lack of detail and documentation, as it provides only general guidance on which processes to implement.

PRINCE2 is a methodology originally developed for IT projects that has since expanded to general projects. According to Jovanovic e Beric (2018), it emphasizes clear communication, client involvement in the management process, the division of projects into phases, and a focus on expected results. It is considered a highly complex methodology that requires comprehensive project management knowledge to ensure all basic elements and sub-processes are included.

Jovanovic and Beric (Jovanovic; Beric, 2018) clarify that IPMA (International Project Management Association) does not have a process methodology but focuses on developing the knowledge, skills, and competencies of project managers, enabling them to manage projects effectively. This manager development occurs through the Individual Competence Baseline (ICB) for Project Management.

Table 1 – Main characteristics of project management reference models

Model	Main characteristics
PMBOK (PMI)	Organized into 10 knowledge areas: • Project integration management; • Project scope management; • Time management; • Cost management; • Quality management; • Human resources management; • Communication management; • Procurement management and negotiation; • Risk management; • Project stakeholders management. And five categories of process groups: • Initiation Process Group; • Planning Process Group; • Execution Process Group; • Monitoring and Control Process Group; • Closing Process Group.

Continues on the next page

Model	Main characteristics
ITIL	Divided into five main phases: • Service Strategy: Defines business requirements and needs • Service Design: Defines the solution to be adopted; • Service Transition: Manages changes carried out; • Service Operation: Ensures that services are managed based on Service Level Agreements; • Continual Service Improvement: Maintains constant improvement of services based on the PDCA cycle.
PRINCE2	The methodology consists of eight basic elements: • Organisation; • Planning; • Control; • Phases; • Risk Management; • Quality in the project environment; • Configuration Management; • Change Control. The project management process is generally divided into eight basic sub-processes: • Project Start; • Project Initiation; • Phase Control; • Results-based Management; • Phase Constraint Management; • Planning; • Project Direction; • Project Closure.

ICB (IPMA)	The ICB focuses on project manager competencies and defines 3 main areas: • Personal competencies: personal and interpersonal competencies necessary to lead or participate in a project; • Practice competencies: specific methods, tools, and techniques used in projects to ensure their success; • Perspective competencies: consist of methods, tools, and techniques with which the individual interacts with the environment, and also the type of thinking that leads people and organisations to start and maintain projects.

Source: the author based on the manuals and standards above.

2.2 Sustainability in project management

Sustainability has been recognized as one of the most significant contemporary challenges, and projects are seen as key instruments for enabling more sustainable business practices. From this perspective, the emerging field of Sustainable Project Management seeks to integrate sustainability principles into project management processes and practices (Barneveld; Silvius, 2022)

Sustainable project management is a necessary response to the environmental, social, and economic challenges faced by contemporary society. Integrating sustainable practices not only meets society's demands but also drives innovation, improves efficiency, and enhances long-term business value (Silvius; Schipper; Huemann, 2024). This approach signifies a new paradigm in the field, emphasizing a societal perspective on projects, Triple Bottom Line criteria, a value-driven methodology, and stakeholder-focused management (Stanitsas; Kirytopoulos; Leopoulos, 2021). Integrating sustainability into project management is essential for aligning with development principles and adding economic, social, and environmental value to products and processes (Cavalcanti; Silva, 2016)

The definition of sustainability in the field of administration and management varies widely; however, most definitions share similar elements, such as a focus on environmental problems, intergenerational equity, resource minimization, project externalities, and the protection of human and natural resources (Sabini; Muzio; Alderman, 2019). Two key concepts are frequently associated with sustainability in the management and organizational literature. The first is the Triple Bottom Line (TBL), introduced by Elkington (1997), which holds that organizational performance should be assessed not only in economic terms but also in terms of its social and environmental impacts, thereby establishing a multidimensional framework for sustainable value creation. The TBL perspective has since been widely adopted as a theoretical foundation for integrating sustainability principles into managerial and project-oriented decision-making.

Another term that has gained significant prominence in corporate, institutional, and financial discourse is Environmental, Social, and Governance (ESG). The ESG framework was initially articulated and dissemi-

nated through initiatives led by international organizations, particularly the United Nations and the World Bank, within the context of the UN Global Compact, which formalized the integration of environmental, social, and governance considerations into corporate and investment decision-making processes. ESG refers to a set of criteria used to evaluate organizational practices and performance with respect to environmental stewardship, social responsibility, and governance structures, especially in relation to risk management, transparency, and long-term value creation for stakeholders (UN Global Compact, 2004). While TBL is primarily grounded in a conceptual and normative perspective, ESG has evolved into a more operational and performance-oriented framework, frequently employed by investors, regulators, and organizations to monitor, report, and benchmark sustainability-related practices.

Integrating sustainability into project management is crucial for modern organizations because of a combination of moral, economic, and strategic imperatives. First, it responds to a moral imperative, emphasizing companies' ethical responsibility to society and the environment. Economically, integrating sustainable practices has been shown to contribute to organizational prosperity and resilience, improving economic performance and enabling companies to adapt more efficiently to adversity. Additionally, it can enhance corporate reputation by meeting the expectations of clients and stakeholders who value sustainability (Sabini; Muzio; Alderman, 2019).

In project management, adopting sustainable practices means considering social, ecological, and economic objectives throughout the entire project lifecycle. However, despite growing interest in sustainability-oriented performance indicators, there are still gaps in knowledge about how to manage projects sustainably effectively (Toledo *et al.*, 2023). Marques, Sousa e Tereso (2023) also discuss the lack of studies on the topic and note that project management methodologies do not adequately address sustainability.

Despite the theme's importance, Martens, Brones e Carvalho (2013) reveal that, although the sustainability theme in project management has grown slowly, particularly after 2009, there is growing awareness of its importance, and some authors assert that sustainability studies in project management began only in 2010. Even with this increase in studies in the field, the main project management guides do not satisfactorily address sustainability (Marques; Sousa; Tereso, 2023).

Regarding specific standards focused on environmental and social aspects of project management, some efforts have been made (Silva; Magano, 2024). The Green Project Management Global (GPM) offers two models for integrating sustainability into project management: the P5 Standard and the PRiSM Methodology.

The P5 Standard is informative. Its primary objective is to assist managers in adopting best practices by offering a comprehensive set of recommendations and actionable topics for effective sustainability integration (Silva; Magano, 2024), and it provides an ontological foundation for evaluating the effects of projects across five interrelated dimensions: people, planet, prosperity, product, and process (Moutinho; Sousa; Tereso, 2025). These dimensions, known as the "5 Ps", structure the P5 Standard, also called the i5 Standard, and enable evaluation of a project's performance against the UN Sustainable Development Goals (SDGs). This integrated vision allows sustainability to be systematically incorporated into project management (Silva; Rosamilha, 2024).

However, there is no data to confirm that either of these two models has yet gained widespread recognition among organizations for implementing sustainability practices in project management. Additionally, as of

7 April 2025, the GPM P5 Standard for Sustainability in Project Management was jointly recognized by GPM and PMI as the official standard for sustainable project management (Green Project Management, 2025).

3 METHODOLOGY

This study analyzes how sustainability perspectives are incorporated into recognized project management models, with a specific focus on social and environmental dimensions. The research was predominantly descriptive and exploratory, adopting a qualitative analytical approach.

The datacolection was based on a bibliographic review and documentary analysis of widely recognized project management reference models were conducted. From the set of models identified in the literature review, the Project Management Standard, A Guide to the Project Management Body of Knowledge (PMBOK Guide), 7th edition, and the Individual Competence Baseline for Project Management (ICB), version 4.0, were selected for analysis based on three complementary criteria: (i) institutional and academic recognition within the field of Production Engineering, as reflected in their status as the official standards of the Project Management Institute (PMI) and the International Project Management Association (IPMA), both of which maintain formal national chapters in Brazil (PMI Brasil and IPMA Brasil), thereby contributing to professional, educational, and organizational embeddedness; (ii) conceptual breadth, which allows for the examination of both system- and process-oriented dimensions of project management (PMBOK) and individual competence and behavioral dimensions (ICB); and (iii) analytical suitability for supporting a comparative framework aligned with the objective of evaluating the integration of environmental and social sustainability dimensions across project management standards. To complement these references with an explicitly sustainability-oriented perspective, the P5 Standard for Sustainability in Project Management was included as an analytical benchmark, enabling a structured comparison with a framework specifically designed to operationalize environmental, social, and economic sustainability dimensions at the project level.

Although widely adopted in corporate practice, ITIL and PRINCE2 are characterized as more strongly oriented toward domain-specific, operationally prescriptive applications, particularly in information technology and procedural governance contexts. By contrast, PMBOK and ICB are widely recognized across organizations in Brazil, the United States, and Europe as normative, competency-based reference standards, articulated through officially maintained guide publications and supported by established institutional infrastructures. Accordingly, PRINCE2 was not included in the analytical corpus, as its methodological orientation, the absence of an officially maintained standard comparable to PMBOK and ICB, and the lack of a formal national professional association in Brazil may limit its institutional embeddedness and alignment with the study's emphasis on standards-based comparison, cross-sectoral applicability, and academic and professional recognition.

To structure the content analysis of the selected documents, the three thematic narratives proposed by Sabini, Muzio e Alderman (2019) were adopted as an analytical framework. These narratives organize the literature on sustainable project management along three complementary axes: "why" sustainability is incorporated into projects, "what" sustainability represents in project management, and "how" it is implemented in

practice.

To categorize the excerpts, a set of keywords related to the core concepts of environmental and social sustainability was defined based on the most frequently recurring terms identified in the reviewed literature on sustainable project management. This procedure aimed to ensure both conceptual relevance and analytical consistency in the selection of textual segments. The keywords identified and used were: ESG, climate, inclusion, sustainability, sustainable, social, equity, and green.

These themes guided the categorization of excerpts from the analyzed guides, enabling identification of whether each model primarily treats sustainability as a strategic motivation, a normative concept, or a set of practices applicable throughout the project lifecycle. This structure enabled a critical assessment not only of the formal presence of Triple Bottom Line (TBL) dimensions in the models but also of the depth and practical applicability of sustainability-related propositions. The qualitative categorization procedure is summarized in Table 2.

Table 2 – Thematic categorization codes

Code	Description	Inclusion Criteria
WHY	Justifications for sustainability.	Excerpts that make explicit the reasons, strategic benefits, or rationales for incorporating sustainability in projects.
WHAT	Definitions and concepts.	Excerpts that provide definitions, principles, or the scope of what is understood by sustainability in projects.
HOW	Practices and tools.	Excerpts that describe methods, techniques, procedures, or tools for implementing sustainability.

Source: The authors, based on Sabini, Muzio e Alderman (2019).

Subsequently, the content of the selected project management guides was systematically organized in a spreadsheet, with each entry classified by the identified keyword, the extracted excerpt, the assigned thematic code (“why”, “what”, or “how”), and a brief analytical rationale.

4 DESCRIPTION OF RESULTS AND ANALYSIS

4.1 Thematic analysis of content

The keyword-based content analysis of the PMBOK and ICB reference guides revealed an uneven and asymmetrical incorporation of sustainability-related terminology. The term sustainability exhibited the highest relative frequency in both documents, followed by sustainable and social. In the PMBOK Guide, the terms green and equity were also identified, whereas in the ICB, only the three most general terms appeared in Figure 1. Notably, the keywords climate, inclusion, and ESG were absent from both guides.

Figure 1 – Word cloud of terms related to Sustainability

Source: prepared by the authors based on Infogram.

This absence can be attributed to two related reasons. First, sustainability is not depicted as a core structural theme in either framework but is instead treated as a cross-sectoral or contextual element. Second, the delay between the publication of the guides and the recent formalization and intensification of ESG-related discussions in corporate, regulatory, and institutional contexts may explain why newer sustainability terminology is incorporated only to a limited extent. Although sustainability has gained increasing attention in professional and academic discussions—through the adoption of the sustainability in Project Management approach and the P5 Standard—these developments are relatively recent efforts to explicitly address urgent challenges such as climate change and social inequality. Terms like environment, natural resources, and impact do appear in the guides, but they are not consistently part of a clearly defined sustainability framework. This suggests that sustainability remains more implicitly embedded than explicitly operationalized.

After searching for keywords, the excerpts from the reference guides were divided into the three categories: WHY, WHAT, and HOW, providing us with an overview of the sustainable approaches of each model, summarized in Table 3.

Table 3 – Count of categories by guide/reference models

Source	Why	What	How	Total
PMBOK (PMI)	3	13	4	20
ICB (IPMA)	0	4	7	11

Source: prepared by the authors.

On the WHY axis, the PMBOK Guide provides three excerpts that explicitly justify the inclusion of sustainability. These highlight the importance of a business vision that simultaneously considers financial performance, social responsibility, and environmental stewardship. They also stress the significance of stable project teams and extended product life cycles in maintaining long-term value creation. This perspective reflects a normative, value-based view of sustainability, closely linked to the Triple Bottom Line approach, where project outcomes are seen as contributing to organizational and societal value beyond short-term economic

gains.

Conversely, the ICB does not include excerpts that directly discuss sustainability as an organizational or strategic reason. This gap is related to the model's core focus: rather than emphasizing institutional motivations or governance justifications, the ICB aims to influence the skills, attitudes, and behaviors of individual project managers.

Along the WHAT axis, the two frameworks diverge in conceptual emphasis. The ICB defines sustainability-related content primarily through the domains of People, Practice, and Perspective, addressing concepts such as corporate social responsibility, ethics, green project management, social equity, and environmental awareness. These references frame sustainability as a component of professional knowledge and behavioral expectations, emphasizing what a competent project manager is expected to understand and embody.

The PMBOK Guide, in contrast, places sustainability within a broader system- and value-based framework. It describes management duties as extending beyond immediate tasks to include the long-term effects on natural resources, as well as social and economic conditions. The guide explicitly connects sustainability to quality and value, implying that project outcomes should deliver financial, social, and environmental benefits simultaneously. Additionally, it operationalizes the "Sustainability Tripod"—profit, people, and planet—as a guiding conceptual model for project decision-making (PMI, 2021), emphasizing a TBL (Triple Bottom Line) perspective of sustainability as an integrated, multidimensional concept.

Along the HOW axis, the difference between the two models becomes more apparent. The PMBOK Guide offers procedural initial points for incorporating sustainability into project execution, such as the consideration of social and environmental factors during early planning stages, the application of life cycle assessments for products and systems, and the recognition of sustainability as a constraint alongside time, cost, and regulatory considerations. Although these references position sustainability within established project management processes, they are relatively broad and do not develop into a comprehensive operational framework.

The ICB, in turn, provides a broader array of practice-oriented and behavioral guidelines. It emphasizes adherence to health, safety, security, and environmental regulations; promotes ethical conduct and social responsibility; and advocates for the long-term sustainability of project outcomes, even within short-duration projects. Procurement, negotiation, and stakeholder management are presented as domains where sustainable considerations should influence decision-making, thereby reinforcing the concept that sustainability is implemented through professional judgment, interpersonal conduct, and organizational alignment.

In summary, these findings reveal a structural difference between the two models. The PMBOK Guide primarily addresses sustainability at the strategic intent and process-logic levels, whereas the ICB emphasizes its operationalization through individual competence and ethical conduct. This divergence reflects their respective design objectives: one focused on standardized project frameworks and value delivery systems, and the other on professional development and behavioral competencies. Consequently, sustainability is treated as a complementary aspect rather than fully integrated across institutional, procedural, and individual levels of project management.

4.2 Complementary perspectives

When comparing the two documents, it is important to note that they were developed using distinct approaches. While PMBOK presents a model based on structured processes and flows applicable to project management, ICB centers on developing the competencies of the professional who possesses essential functions. This difference directly influences how sustainability is addressed in each guide.

PMBOK prioritizes organizing the project into phases and activities with specific deliverables. In this context, sustainability appears occasionally as a principle or consideration to be integrated into planning, execution, and monitoring processes. These mentions indicate that sustainability should be considered, but without detailed practical or methodological development. The focus is more on what should be done and when, from a project life-cycle perspective.

ICB brings a perspective focused on the project manager's behavior. It holds that addressing issues such as environmental impact, social responsibility, safety, and ethics is among the competencies a professional must develop to conduct projects effectively and responsibly. In this case, sustainability relates to how the professional acts and the values that guide their decisions throughout the project.

Recent empirical and applied research, however, suggests that the effectiveness of sustainability integration depends not only on where it is positioned within processes (as in PMBOK) or how it is embodied in professional behavior (as in ICB), but also on the existence of a mediating framework capable of translating strategic sustainability goals into concrete project-level practices. (Moutinho; Sousa; Tereso, 2025), in their analysis of the PRiSM™ methodology, demonstrate that sustainability-oriented standards such as P5 play a critical role in raising organizational awareness, fostering cultural change, and enabling managers to operationalize sustainability through structured tools, impact assessments, and governance mechanisms. Their findings indicate that, in many organizations, sustainability remains aspirational, unless supported by formal methods that link strategic intent, managerial competencies, and day-to-day project decisions.

Because they are designed for different purposes—one process-oriented and the other competency-oriented—the two guides are complementary. Together, they offer a more comprehensive view of sustainability in project management: PMBOK indicates where this theme can be integrated into project logic, and ICB describes the posture and mindset the manager should adopt to ensure that sustainable practices are applied. The integration of these two approaches, when supported by sustainability-specific methodologies such as PRiSM™ and the P5 Standard, can yield a more complete and coherent treatment of the theme by bridging the gap between organizational strategy, professional behavior, and practical implementation.

5 CONCLUSIONS

This work aimed to analyze how the social and environmental aspects of sustainability are addressed in the PMBOK Guide and the IPMA ICB, highlighting points of convergence, gaps, and complementarities

between the two frameworks. The focus on social and environmental dimensions is justified by the fact that the economic dimension is already traditionally considered in project management. The qualitative analysis (WHY/WHAT/HOW) identified that:

- PMBOK offers explicit strategic justifications for incorporating sustainability, defining it as a dimension of project quality and value, but it lacks detailed guidance on how to operationalize these practices.
- ICB presents a broad set of competencies and values related to sustainability, emphasizing social responsibility, economic balance, and ethical integrity. However, it does not explain the organizational reasons that underpin prioritizing these themes, focusing mainly on how the professional should act.

Additionally, it is worth highlighting alternative patterns of sustainability in project management. According to the study "Insights on Sustainable Project Management" by Global Project Management, 100% of executives recognize that projects are vital to sustainable development, and 95% of managers who apply the P5 Standard report significant gains in ESG practices (Moutinho; Sousa; Tereso, 2025); however, only 12% of organizations adopt it in a structured way, pointing to training barriers and cultural resistance.

The comparison of PMBOK, ICB, and P5 Standard shows that the latter consolidates the three dimensions of qualitative analysis into a single framework:

- WHY: justifies sustainability as long-term value creation;
- WHAT: clearly defines the five domains (product, process, people, planet, and prosperity);
- HOW: provides practical tools, such as P5 Impact Analysis and the Sustainability Management Plan.

In practical terms, it is recommended that organizations interested in effectively incorporating sustainability adopt an integrated strategy: use PMBOK to structure processes that are sensitive to ESG criteria, employ ICB to foster competencies and a sustainable culture among team members, and then implement the P5 Standard as a unified framework, supported by specialized training programs and cultural change management initiatives.

It should be noted that the P5 Standard and PRiSM™ were not included as central analytical objects in this study, given their limited market penetration and the specific objective of evaluating the most established frameworks (PMBOK and ICB). However, the results and the literature reviewed demonstrate their relevance as practical and cultural complements for advancing sustainability from a conceptual commitment to an operational reality.

Regarding limitations, this study focused exclusively on analyzing official guides in their digital versions, without conducting empirical fieldwork. To advance understanding and validation of recommended practices, future research should include case studies in Brazilian organizations to evaluate the real impact of proposed approaches; investigate factors that will influence P5 Standard adoption in the Brazilian and global markets, including cultural, economic, and training barriers; and develop a hybrid model that systematically articulates processes and competencies in sustainability.

Thus, this work contributes to a critical and applied view of how the main standards address sustainability, identifying pathways for project management aligned with contemporary socio-environmental challenges.

REFERENCES

Ahmad, N.; Shamsudin, Z. M. Systematic approach to successful implementation of itil. **Procedia Computer Science**, v. 17, p. 237–244, 2013.

Anunciação, P. F.; Geada, N. S. Change management perceptions in portuguese hospital institutions through itil. **International Journal of Healthcare Information Systems and Informatics**, v. 16, n. 4, p. 1–18, 2021.

Barneveld, M.; Silvius, G. Exploring variety in factors that stimulate project owners to address sustainability. **International Journal of Information Technology Project Management**, v. 13, 2022.

Bredillet, C.; Tywoniak, S.; Dwivedula, R. What is a good project manager? an aristotelian perspective. **International Journal of Project Management**, v. 33, n. 2, p. 254–266, 2015.

Cavalcanti, C. T. A.; Silva, I. R. M. Contribuições e desafios da sustentabilidade na gestão de projetos. **Revista de Gestão e Projetos**, v. 7, n. 3, p. 20–28, 2016.

Daramola, O. M. *et al.* Environmental law and corporate social responsibility: Assessing the impact of legal frameworks on circular economy practices. **International Journal of Social Science Exceptional Research**, v. 3, n. 1, p. 63–79, 2024.

Elkington, J. **Cannibals with Forks: The Triple Bottom Line of 21st Century Business**. Makato, MI: Capstone Press, 1997. 1–402 p.

Ghosh, S. *et al.* Enhance pmbok® by comparing it with p2m, icb, prince2, apm, and scrum project management standards. **PM World Journal**, v. 4, n. 9, p. 1–75, 2015. Disponível em: <https://pmworldlibrary.net/>.

Green Project Management. **The GPM P5 Standard for Sustainability in Project Management**. 3.1. ed. Novi, MI: GPM Global, 2025. Disponível em: <https://www.gpm.org/standards-and-publications/the-p5-standard>.

IBM. **What is the IT Infrastructure Library (ITIL)?** 2025. Disponível em: <https://www.ibm.com/think/topics/itinfrastructure-library>.

IPMA. **History of IPMA**. 2025. Disponível em: <https://ipma.world/ipmagovernance/history-of-ipma/>.

Jovanovic, P.; Beric, I. Analysis of the available project management methodologies. **Management: Journal of Sustainable Business and Management Solutions in Emerging Economies**, v. 23, n. 3, p. 1–12, 2018.

Koke, B.; Moehler, R. C. Earned green value management for project management: a systematic review. **Journal of Cleaner Production**, v. 230, p. 180–197, 2019.

Marques, P.; Sousa, P.; Tereso, A. Sustainability in project management: Pm2 versus prism™ . **Sustainability**, v. 15, n. 22, 2023.

Martens, M. L.; Brones, F.; Carvalho, M. M. Lacunas e tendências na literatura sobre sustentabilidade no gerenciamento de projetos. **Revista de Gestão e Projetos**, v. 4, n. 1, p. 165–195, 2013.

Moutinho, A.; Sousa, P.; Tereso, A. Applying the prism™ methodology to raise awareness of sustainable project management practices. **Systems**, v. 13, n. 2, 2025.

Patah, L. A.; Carvalho, M. M. Métodos de gestão de projetos e sucesso de projetos. **Revista de Gestão e Projetos**, v. 3, n. 2, p. 178–206, 2012.

Project Management Institute. **Um Guia do Conhecimento em Gerenciamento de Projetos – PMBOK**. 6. ed. Newtown Square, PA: PMI, 2017. 1–616 p.

Project Management Institute; Green Project Management. **Project Management Institute and Green Project Management join forces in a strategic joint venture to advance sustainability and regeneration in project management worldwide**. Filadélfia: [s.n.], 2025. Accessed: 2025-06-05. Disponível em: <https://gpm.org/pmigpm>.

Rovai, R. L. Metodologias inovadoras para gestão de projetos. **Revista de Gestão e Projetos**, v. 4, n. 2, p. 252–270, 2013.

Sabini, L.; Muzio, D.; Alderman, N. 25 years of 'sustainable projects'. **International Journal of Project Management**, v. 37, n. 6, p. 820–838, 2019.

Santos, M. P. D. *et al.* Bridging external stakeholders and sustainability literature: A review looking at a project management context. **Brazilian Journal of Operations and Production Management**, Associacao Brasileira de Engenharia de Producao, v. 20, 8 2023. ISSN 22378960.

Shokouhi, M.; Bachari, M. S. An overview of the aspects of sustainability in project management. **Progress in Engineering Science**, v. 2, n. 1, p. e100048, 2025.

Silva, C. A. G.; Carvalho, M. M. Práticas de esg no contexto da gestão de projetos: evolução da pesquisa e perspectivas futuras. In: **Anais do Encontro Nacional de Engenharia de Produção (ENEGEP)**. Foz do Iguaçu: ABEPRO, 2022.

Silva, C. S.; Magano, J. Sustainable project management. In: **Circular Economy and Manufacturing**. Amsterdam: Elsevier, 2024. p. 159–196.

Silva, L. F. Ferreira da; Rosamilha, N. J. Sustentabilidade, economia circular e projetos: oportunidades de pesquisa. **Revista de Gestão e Projetos**, v. 15, n. 3, p. 463–476, 2024.

Silvius, G.; Schipper, R. Planning project stakeholder engagement from a sustainable development perspective. **Administrative Sciences**, v. 9, n. 2, p. e46, 2019.

Silvius, G.; Schipper, R.; Huemann, M. Sustainable project management. In: ____. **The Handbook of Project Management**. [S.l.]: Routledge, 2024. p. 239–254.

Silvius gilbert, M. C. Interlinking sustainability in organizational strategy, project portfolio management and project management a conceptual framework. **Procedia Computer Science**, Elsevier, v. 196, p. 938–947, 1 2022. ISSN 1877-0509.

Stanitsas, M.; Kirytopoulos, K.; Leopoulos, V. Integrating sustainability indicators into project management: The case of construction industry. **Journal of Cleaner Production**, Elsevier Ltd, v. 279, 1 2021. ISSN 09596526.

Sulemana, I. *et al.* Stakeholders and sustainability disclosure: Evidence from an emerging market. **Sustainable Futures**, v. 9, p. 100445, 2025. ISSN 2666-1888.

Toledo, R. *et al.* Review of literature models that address sustainability in project management. **International Journal for Quality Research**, v. 17, n. 2, p. 617–634, 2023.

UN Global Compact. **Who Cares Wins: Connecting Financial Markets to a Changing World**. New York: United Nations Department of Public Information, 2004. 1–58 p.

Økland, A. Gap analysis for incorporating sustainability in project management. **Procedia Computer Science**, v. 64, p. 103–109, 2015.