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# PMBOK Standards – A Structured Literature Review

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**Abstract**
This article reviews the development, adoption, and scholarly discussions surrounding the Project Management Institute's PMBOK® standards, with particular attention to the Seventh Edition's transition from a process-based model to a principles- and value-focused orientation. The review situates PMBOK – Project Management Body of Knowledge within the broader standards ecosystem (ISO 21502 – International Organization for Standardization and PRINCE2 – PRojects IN Controlled Environments) and considers empirical evidence on adoption, integration with agile and hybrid approaches, and critiques from academic discourse. A synthetic and methodological framework is provided regarding the role of the PMBOK in the current context of project management standards. Changes in PMBOK standards reflect a fundamental shift in both the conceptual understanding and operational practice of project management. Findings highlight both the strengths and limitations of PMBOK as a guiding standard and identify directions for future research.

**Keywords**
PMBOK, project management standards, ISO 21502, PRINCE2, agile and hybrid approaches

## 1. Introduction

Project management standards play a central role in professional practice by providing a shared vocabulary, common reference points, and structured guidance. Among them, the PMBOK® Guide has become one of the most widely recognized and adopted sources of knowledge since the 1990s. The publication of the Seventh Edition in 2021 marks a significant conceptual shift: away from detailed process prescriptions and toward principles and performance domains designed to support diverse delivery approaches. This review analyzes PMBOK's trajectory, its position relative to other standards, adoption evidence, and critiques from the academic literature [1, 2, 3].

Review questions:

(1) How has PMBOK evolved in structure and content?
(2) How does PMBOK compare with peer standards such as PRINCE2 and ISO 21502?
(3) What does empirical research say about adoption and project outcomes?
(4) What debates and research gaps remain open after the release of PMBOK 7?

A structured literature review was conducted, drawing on academic journals, books, and standards published between 2000 and 2025. Selection focused on PMBOK's evolution, comparative standards, adoption studies, and agile/hybrid integration.

## 2. Evolution of PMBOK Standards

### 2.1 From Process Orientation to Principles

The sixth edition of the PMBOK Guide (2017) reflected the culmination of PMI's process-based orientation. It articulated 49 processes distributed across five process groups (initiating, planning, executing, monitoring and controlling, and closing) and ten knowledge areas. This framework created a detailed map of project management practice that was highly influential in professional training, certification, and organizational adoption. The strength of this approach lay in its clarity and prescriptive guidance. Many industries, such as construction, engineering, and pharmaceuticals, found that the process-based structure provided an effective checklist to ensure projects remained within scope, time, and cost constraints. The extensive Input-Tools-Techniques-Outputs (ITTOs) tables reinforced the impression that project management could be standardized and operationalized across contexts [1, 4, 5].

However, critics have long argued that a purely process-driven view risks rigidity and an overemphasis on compliance rather than value creation. Emerging research in software engineering and innovation-intensive industries pointed to the limitations of checklists when dealing with uncertainty, high velocity change, or non-linear workflows. Responding to this critique, PMI released the seventh edition of the PMBOK Guide (2021), which represents a paradigm shift. Instead of prescriptive processes, it introduces 12 principles and 8 performance domains designed to provide a more adaptable, value-driven framework (Figure 1). This reflects an acknowledgment that contemporary project environments require flexibility, tailoring, and integration with agile and hybrid practices. The emphasis on value delivery also aligns with the increasing demand from executives for demonstrable business outcomes rather than compliance with methodology [6, 7].

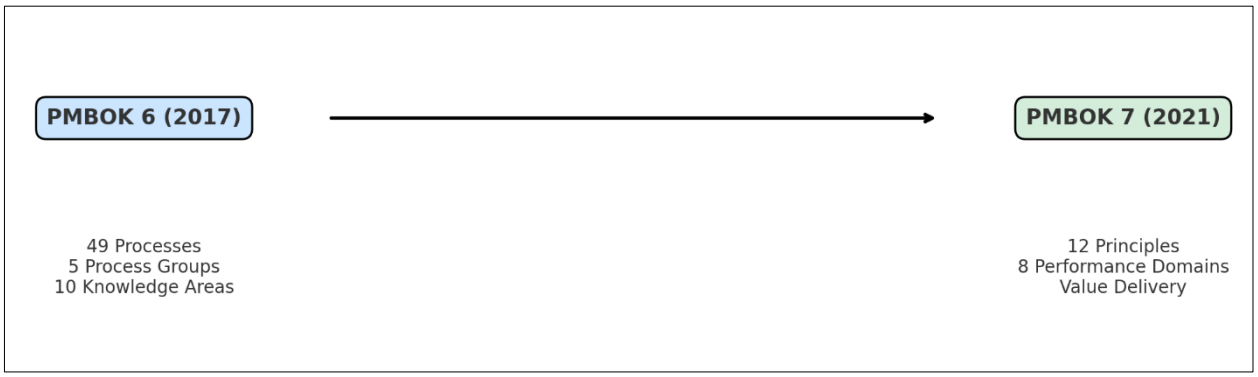


Fig 1. Evolution from PMBOK 6 (process-based) to PMBOK 7 (principles- and value-based)

### 2.2 Integration of Agile and Hybrid Practices

The shift toward principles in PMBOK 7 is strongly influenced by the rise of agile methods and the need for hybrid approaches. The Agile Practice Guide [4], published jointly by PMI and the Agile Alliance in 2017, marked the recognition that agile was no longer a niche practice restricted to software development. It provided detailed guidance on applying adaptive life cycles, scaling agile frameworks, and integrating agility with traditional predictive approaches. This was particularly significant for organizations operating in regulated environments, such as healthcare or aerospace, where compliance cannot be ignored but flexibility remains essential [4, 8, 9].

Hybrid practices emerged as a practical necessity rather than an academic concept. For example, in pharmaceutical development, predictive approaches are indispensable for regulatory submissions, while agile sprints are increasingly used in IT systems integration and digital health innovation. PMBOK 7 reflects this reality by explicitly recognizing that predictive, agile, and hybrid approaches are all valid and should be tailored to context. Scholars such as Conforto et al. [10] and Serrador & Pinto [11] have emphasized that agility is not an alternative to structure but a complement, enabling responsiveness without losing oversight. The integration of agile practices into PMBOK is thus more than a nod to contemporary trends; it signals an effort to ensure that the PMI framework remains relevant in an environment where agility has become mainstream [9, 12].

Yet, the challenge lies in ensuring that practitioners understand how to operationalize these principles in diverse contexts. While the Agile Practice Guide provides illustrations, empirical studies have shown varying degrees of adoption, with some organizations struggling to balance agile values with existing bureaucratic structures. The literature suggests that hybrid approaches require cultural change, not just procedural adaptation. This tension highlights a fertile ground for research on how PMBOK's principles can be applied in practice to resolve conflicts between flexibility and control [13].

### 2.3 Toward Value Delivery and Systems Thinking

One of the most notable transformations in PMBOK 7 is the move toward value delivery and systems thinking. Instead of focusing narrowly on project outputs, the framework now positions projects within the broader system of programs, portfolios, and organizational strategy. The principle of value delivery emphasizes that success is not measured merely by delivering on time and within budget but by

achieving outcomes that contribute to strategic objectives. This resonates strongly with the literature on benefits realization management, which has gained traction as organizations demand evidence of return on investment from projects [5, 14].

Systems thinking also marks an important evolution. Projects are increasingly embedded in complex environments with interdependencies, stakeholders, and feedback loops. Recognizing these dynamics, PMBOK 7 promotes performance domains such as stakeholder engagement, governance, and team performance, each of which must be tailored to specific contexts. Scholars such as Geraldi et al. [15] have argued that complexity in projects is not just about size but also about interdependencies and uncertainty. PMBOK 7's shift acknowledges these realities, moving project management closer to complexity theory and adaptive management [15, 16].

Critically, this orientation aligns PMI with broader trends in management thinking, including sustainability, digital transformation, and strategic alignment. For example, organizations in the energy sector are increasingly using systems thinking to manage transitions toward renewable energy, where projects cannot be understood in isolation but as part of interconnected portfolios. Similarly, in IT, digital transformation initiatives often require simultaneous delivery of infrastructure, cultural change, and customer-facing products. By placing value and systems at the center, PMBOK 7 positions itself as a framework that encourages project managers to think holistically rather than procedurally. The challenge, however, is ensuring that such broad principles translate into actionable practices – a task that remains open for both researchers and practitioners [17].

## 3. PMBOK in the Standards Ecosystem

### 3.1. ISO 21502 Standards

ISO 21502 (2020) provides guidance on project management applicable to most organizations and sectors. Unlike PMBOK, which has historically focused on detailed processes, ISO 21502 emphasizes principles, roles, and responsibilities. It provides a governance-oriented perspective, linking project work to organizational objectives and clarifying the importance of tailoring practices to context. This makes it particularly relevant for organizations seeking alignment with international quality and management system standards, such as ISO 9001 [14, 18].

Scholars note that ISO 21502 complements PMBOK by offering a higher-level, principle-driven framework that integrates well into organizational governance structures. However, the ISO standard has been critiqued for being less detailed, offering less prescriptive guidance for practitioners who require step-by-step support. The contrast highlights a fundamental trade-off in standards development: precision versus flexibility. Where PMBOK historically leaned toward prescriptive detail, ISO emphasizes adaptability. Together, the two can be seen as providing complementary perspectives, and their combined use has been observed in multinational corporations that operate in regulated and quality-sensitive industries [19].

### 3.2. PRINCE2 Standards

PRINCE2, initially developed by the UK government, offers a structured methodology based on seven principles, seven themes, and seven processes. Its most recent update, PRINCE2 7 (2023), further emphasizes tailoring, sustainability, and people management. Compared to PMBOK, PRINCE2 is more prescriptive in defining processes and roles, making it particularly popular in government and public sector projects. Its methodology-driven approach provides clarity and consistency, which is advantageous for large bureaucratic environments where accountability and repeatability are critical [8, 20].

At the same time, PRINCE2 has faced criticism for being overly rigid and difficult to integrate with agile practices. The recent emphasis on sustainability and adaptability represents an effort to modernize the method and respond to critiques. Scholars have noted that organizations often combine PRINCE2 with PMBOK or agile frameworks to create a hybrid system that balances structure and flexibility. This underscores the broader trend toward methodological pluralism in project management, where no single standard or methodology is sufficient in isolation. The literature increasingly suggests that the real challenge lies in developing the competence to tailor and combine frameworks rather than in choosing one over another [12, 21].

### 3.3. Agile Practice Guide

The **Agile Practice Guide** (2017), co-published by PMI and the Agile Alliance [4], serves as a bridge between predictive and adaptive approaches. It outlines how agile, hybrid, and predictive methods can coexist within the same portfolio or even within the same project. The guide emphasizes principles such as customer collaboration, iterative development, and responding to change, which are at times in tension with traditional predictive practices.

For PMBOK, the Agile Practice Guide represents both an acknowledgment of agile's widespread adoption and a practical attempt to integrate adaptive practices into the PMI framework. Scholars have highlighted that this represents a pragmatic response to market demand, particularly from IT and software-intensive industries. At the same time, there are questions about whether PMI's incorporation of agile is sufficiently deep or whether it risks being a superficial accommodation. Empirical studies suggest that while many organizations appreciate the guidance, actual adoption of agile principles varies widely, often depending on organizational culture, leadership support, and industry context [22].

In this sense, the Agile Practice Guide [4] is best understood as a transitional document, preparing the ground for the broader shift represented by PMBOK 7. It demonstrates PMI's recognition of the need for agility while retaining its traditional constituency in more predictive environments. Its role in the standards ecosystem is therefore as a bridge — not a final destination.

| Concept | PMBOK 6 (2017) | PMBOK 7 (2021) | ISO 21502 (2020) | PRINCE2 7 (2023) |
|---|---|---|---|---|
| Structure | 49 processes, 5 groups | 12 principles, 8 domains | Governance and tailoring guidance | Prescriptive method with 7 principles |
| Delivery approaches | Primarily predictive | Predictive, agile, hybrid | Predictive, agile, hybrid | Method-agnostic, tailored |
| Tailoring | Limited | Explicit | Explicit | Explicit, with people focus |
| Value focus | Cost, time, scope | Value and outcomes | Outcomes and benefits | Business case, benefits |

Fig. 2. Comparative figure mapping PMBOK 7, ISO 21502, and PRINCE2 7 across key aspects

## 4. Discussion and Implications

The evolution of PMBOK standards reflects broader dynamics in the field of project management. The move from process orientation to principles mirrors a shift in management thinking from control to adaptability, from compliance to value creation. This aligns with broader organizational trends, including digital transformation, sustainability, and agile adoption. At the same time, it introduces new challenges, such as the difficulty of translating abstract principles into actionable practices and the risk of losing the clarity that process-based structures provided [6, 23].

In the standards ecosystem, PMBOK 7 aligns more closely with ISO 21502 in its emphasis on principles and governance while retaining distinctive features such as its performance domains and strong orientation toward professional practice. Compared with PRINCE2, PMBOK offers less prescriptive guidance but greater adaptability, making it attractive in dynamic environments. The Agile Practice Guide further illustrates PMI's attempt to remain relevant in a changing landscape, though questions remain about the depth of its integration of agile philosophy [4, 9, 24-26].

For practitioners, the implication is that mastery of project management now requires competence not only in applying a single standard but in tailoring and integrating multiple frameworks. The literature highlights that successful organizations are those that foster flexibility, support methodological pluralism, and focus on outcomes rather than strict adherence to one method.

For scholars, the implication is that research needs to move beyond comparing standards toward investigating how organizations actually combine, adapt, and operationalize them in practice. Case studies, longitudinal research, and comparative analyses can shed light on how principles translate into project success [27].

## 5. Conclusion

The evolution of PMBOK standards reflects a broader transformation in how project management is conceptualized and practiced. The shift from prescriptive processes in PMBOK 6 to the principle- and value-driven approach in PMBOK 7 demonstrates PMI's recognition that projects now operate in complex, adaptive, and uncertain environments. When considered in relation to ISO 21502 and PRINCE2 7, it becomes clear that the field is converging on shared themes such as agility, tailoring, governance, and value delivery. Yet important differences remain in organizing logic, terminology, and application, which create both opportunities and tensions for practitioners and scholars alike [28, 29].

For practitioners, the implication is that no single framework is sufficient on its own. PMBOK's principles offer a high-level compass for judgment, ISO 21502 emphasizes governance and accountability, while PRINCE2 provides prescriptive templates and decision-making checkpoints. The real challenge is integration: organizations must determine how to combine these elements into a coherent approach that supports both compliance and adaptability. This need for integration underscores a growing demand for maturity models, cross-framework mapping, and empirical case studies of hybrid implementations [14, 27, 30, 31].

For researchers, the literature points to several gaps. First, there is limited empirical evidence on how PMBOK 7's principles are being operationalized across industries; early adoption studies are needed to understand patterns of use, barriers, and outcomes. Second, the relationship between PMBOK and adjacent standards remains under-theorized, especially with regard to governance mechanisms and cross-standard interoperability. Third, the growing prominence of agility raises questions about cultural and organizational change: what capabilities and leadership styles are necessary to translate principles into practice? Finally, there is a pressing need for longitudinal studies that examine whether the value-driven orientation of PMBOK 7 actually translates into improved organizational performance over time [23, 28, 32].

In sum, PMBOK has evolved from a prescriptive manual into a flexible, principle-based framework that encourages critical thinking, systems awareness, and alignment with strategy. This evolution not only reflects the dynamic nature of projects but also points toward an emerging research agenda at the intersection of standards, agility, and value delivery. By bridging theory and practice, future research can help clarify how standards can best support project success in increasingly complex and uncertain environments.

*Implications for Practice.* Organizations can apply PMBOK 7 most effectively by: using it as a principles-based framework rather than a rigid method; developing clear tailoring policies that integrate agile, ISO, or PRINCE2 elements; establishing balanced measurement systems (outcomes, benefits, and flow metrics); embedding learning loops (retrospectives, lessons learned) in governance; building competence frameworks around leadership, systems thinking, and value delivery.

*Implications for Research.* Gaps identified include: longitudinal studies of tailoring practices and their outcomes; operationalization of value delivery and benefits realization; exploration of project temporality and its impact on delivery; interaction of digital tools and AI with standards adoption; comparative effectiveness of PMBOK, ISO 21502, and PRINCE2 in complex contexts.

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