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Adapting project management life cycles for blockchain implementation: A thematic pilot study

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Blockchain implementation challenges traditional project management practices due to its decentralized, cross-organizational nature. This exploratory study examines how project management life cycle processes must adapt to support successful blockchain adoption. Using open coding and thematic analysis of five expert interviews, key themes were identified and mapped to the five PMBOK process groups. The findings reveal that blockchain projects demand broader stakeholder engagement, iterative planning, human-centered execution, decentralized monitoring, and long-term sustainability planning. By aligning emergent themes with established project management phases, this study highlights the need for a flexible, ecosystem-focused approach to managing blockchain initiatives. The results offer practical insights for project managers and contribute to ongoing efforts to integrate emerging technologies within established project frameworks.

Keywords: blockchain implementation, project management, thematic analysis, agile project management, decentralized systems

Introduction

Blockchain is a decentralized, distributed ledger technology that records transactions across a network of computers in a secure, transparent, and immutable manner. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data, ensuring that once recorded, data cannot be altered retroactively without changing all subsequent blocks (IBM, 2018). These attributes, combined with the ability to automatically execute agreements via smart contracts, reduce the need for intermediaries, minimize the risk of errors and enhance trust among participants. However, successful implementation in the supply chain remains a challenge as reflected by the 2022 dissolution of the blockchain-enabled global trade platform initiated by Maersk and IBM (Maersk, 2022).

The positive impact of blockchain technology in supply chains is demonstrated by numerous industry examples. Walmart and IBM's Food Trust blockchain, for example, enables near-instant tracking of food origins to improve food safety and streamline recalls, while JPMorgan's Liink platform connects over 400 banks to secure and speed up cross-border payments (Insights, 2020). Companies such as Mastercard, Pfizer, and De Beers leverage blockchain to verify product authenticity, reduce counterfeiting, and ensure ethical sourcing. Meanwhile, organizations like Procter & Gamble, Nestlé, Siemens, and Unilever use

blockchain to promote sustainability, facilitate energy trading, and support responsible sourcing—giving consumers and business partners greater visibility across global supply chains.

Implementing blockchain technology in the supply chain represents a pivotal shift towards greater transparency, efficiency, and trust in the management of goods and information flow. (Tsolakis et al., 2023). Yet, the decentralized factors inherent in supply chain processes and Blockchain technology create unique barriers for successful implementation. Successful implementation of blockchain technology requires structured, adaptive project management practices that can navigate complexity and uncertainty. As organizations increasingly explore blockchain for strategic transformation, understanding how established project management frameworks support such initiatives becomes critical.

This research explores how Blockchain can be applied supply chain contexts within the Project Management Body of Knowledge (PMBOK) project life cycle framework. This framework provides a structured, process-driven approach to managing projects from initiation to closure. The five PMBOK process groups—Initiating, Planning, Executing, Monitoring and Controlling, and Closing—can inform and support blockchain project implementation, offering a foundational lens through which to assess project success.

Literature Review

Blockchain technology has emerged as a transformative force across industries, offering decentralized, secure, and transparent data sharing capabilities. However, its implementation is complex, involving not only technological innovation but also organizational change, stakeholder alignment, and process reengineering. As a result, effective project management has become essential to ensure that blockchain projects achieve their intended outcomes and align with strategic goals (Perera et al., 2023).

Barriers to Implementation

Recent academic literature highlights several persistent barriers to the successful implementation of blockchain in supply chain management. These barriers include financial limitations, the challenge of widespread adoption, skill gaps, and technical limitations.

Financial Investment

High upfront and maintenance costs remain a major deterrent, particularly for small and medium enterprises (Sharabati & Jreisat, 2024). Blockchain infrastructure and talent acquisition require significant funding, making it difficult for some organizations to commit without guaranteed ROI (Parangat, 2024).

Adoption Barriers

Effective blockchain solutions require ecosystem-wide participation, which is difficult to achieve. A lack of stakeholder engagement and misaligned incentives further undermine adoption efforts, as seen in the failure of the TradeLens project (Najati, 2025). User Trust and awareness is a contributing factor, as many users remain skeptical or unclear about blockchain's value, which makes change management a challenge (Parangat, 2024). Additionally, concerns over data privacy and regulatory ambiguity contribute to hesitancy in sharing information across networks (Najati, 2025).

Skill Gaps

The shortage of professionals with blockchain expertise continues to hinder large-scale implementations (Chen, 2025). Duedder et al. (2021) highlight the critical need to build interdisciplinary blockchain

competencies by integrating expertise from supply chain management, logistics, business, finance, computer science, and IT security.

Technical limitations
Seamless integration with legacy systems and other platforms is often complex, limiting scalability and long-term value. Technical limitations such as scalability issues, limited data storage, and interoperability challenges also inhibit widespread deployment (Wang et al., 2023; Sharabati & Jreisat, 2024).

Collectively, these barriers illustrate why blockchain, despite its promise, has yet to achieve mainstream adoption in supply chain contexts.

Project Management
Effective project management plays a critical role in guiding complex technology implementations such as blockchain. The Project Management Body of Knowledge (PMBOK), published by the Project Management Institute (PMI), provides a widely adopted framework comprising five key process groups—Initiating, Planning, Executing, Monitoring and Controlling, and Closing—designed to promote structure, consistency, and success in project delivery (PMI, 2021). This framework has become foundational for both academic inquiry and practical application across a wide array of industries and project types, including emerging technologies like blockchain.

The Initiating phase is essential for defining a project's purpose, assessing its feasibility, and gaining authorization to proceed. During this phase, organizations articulate the business need for the project, establish project objectives, identify stakeholders, and develop the project charter (PMI, 2021). In the context of blockchain, this phase is particularly important due to the high degree of uncertainty and the evolving nature of technology. Literature emphasizes the need for strong stakeholder alignment, risk assessment, and value justification in early blockchain initiatives. As Perera et al. (2023) argue in their systematic literature review, the integration of blockchain into organizational workflows requires careful coordination across multiple dimensions, including stakeholder engagement, regulatory compliance, and risk management.

The Planning phase is the most detailed in the PMBOK framework and involves defining the project scope, developing schedules, estimating costs, identifying risks, and planning quality, resources, and communications (PMI, 2021). This stage is particularly critical in blockchain projects, where technological complexity and regulatory uncertainty pose unique planning challenges. Traditional planning methods must be adapted to accommodate decentralized architectures and rapid innovation cycles. Blockchain projects often require cross-functional collaboration, incremental development, and continuous feedback—principles at the heart of Agile and hybrid project management methodologies (Sonmez et al., 2021). Without such structured management, blockchain initiatives risk falling short due to poor project scoping, underestimation of resource needs, or lack of user adoption.

The Executing phase involves the coordination of people and resources to carry out the project management plan and deliver project outcomes. In this phase, activities such as team management, stakeholder engagement, and product development are central. For blockchain projects, execution often involves close collaboration among cross-functional teams, integration of distributed ledger platforms, and alignment with cybersecurity and data governance standards. Studies highlight the importance of technical expertise and adaptive leadership during blockchain execution, particularly when managing stakeholder expectations and iterative prototyping (Clohessy, Acton, & Morgan, 2019). Several scholars have explored how blockchain itself can enhance project management processes. Sonmez et al. (2021) conducted a systematic review and proposed a design decision framework that outlines how blockchain can support project tasks such as asset

tracking, contract automation, and supply chain coordination. The authors emphasize that blockchain is especially effective in environments with multiple stakeholders, low trust, and complex contractual relationship conditions common in large-scale or global projects.

The Monitoring and Controlling phase focuses on tracking performance, managing change, and ensuring that project goals are achieved as planned. Key activities include performance measurement, variance analysis, risk reassessment, and change control (PMI, 2021). In blockchain projects, this phase takes on additional complexity due to the decentralized and distributed nature of the technology. Performance tracking must include monitoring smart contract execution, node uptime, and ledger consistency across the network (Perera et al., 2023). Furthermore, because blockchain systems are designed to be immutable, any change control requires careful planning and, in some cases, network-wide consensus before updates can be implemented (Sonmez et al., 2021). This elevates the importance of proactive auditing, automated performance dashboards, and cross-organizational coordination in maintaining blockchain system integrity during project execution.

The Closing phase marks the formal completion of the project. It involves finalizing deliverables, releasing resources, documenting lessons learned, and ensuring knowledge transfer for future projects (PMI, 2021). In blockchain projects, however, closing extends beyond conventional project wrap-up activities. It must address ongoing governance of decentralized systems, maintenance of distributed infrastructure, and the management of long-term responsibilities such as smart contract revisions and stakeholder continuity. Given that blockchain implementations often involve multiple autonomous actors, closing also includes creating cross-organizational knowledge repositories and defining support mechanisms for decentralized operations (Perera et al., 2023). Additionally, as noted by Sonmez et al. (2021), structured post-implementation reviews are essential to evaluate technical performance, assess network scalability, and refine smart contract governance frameworks. Without formalizing these closing activities, blockchain projects risk fragmentation, technical stagnation, and a loss of institutional memory—challenges not typically seen in traditional IT implementations.

The PMBOK framework provides a comprehensive structure for managing projects, and its application to blockchain implementation offers a valuable lens for exploring how organizations initiate, plan, execute, monitor & control and close complex technology transitions. While PMBOK offers proven principles, the unique nature of blockchain requires adaptation of traditional project management practices to support agility, stakeholder collaboration, and ongoing innovation. This study contributes to the growing body of research by examining how experienced professionals navigate blockchain implementation through each PMBOK process group.

Research Question

Blockchain adoption presents unique challenges that extend beyond those of traditional IT projects, including decentralized system architecture, integration with legacy systems, and the demand for flexible governance models. While blockchain's technical capabilities have been widely explored, far less attention has been given to how project management practices must evolve to support its successful implementation. Given that most organizations approach blockchain through the lens of conventional project structures, this misalignment can lead to implementation delays, cost overruns, or failure to scale. Existing project management frameworks, such as PMBOK, offer robust life cycle guidance, but they were not designed with blockchain's unique demands in mind. Therefore, the research question— "How should project management life cycle processes be adapted to meet the unique demands of blockchain adoption?"—was chosen to examine this critical gap. Through an exploratory pilot study using the five PMBOK process

groups as a coding framework, this study seeks to uncover how project phases must be reconfigured to support blockchain's decentralized, evolving, and cross-organizational nature.

Methodology

A qualitative research approach was employed in this study to explore how project management process groups support the implementation of blockchain-based projects. Qualitative methods are particularly effective in uncovering the dynamics of complex phenomena, allowing researchers to understand how and why certain processes unfold within real-world contexts (Conboy, Fitzgerald, & Mathiassen, 2012; Kaplan & Duchon, 1988). Given the exploratory nature of this research, qualitative inquiry offers valuable insights into participants' experiences across the stages of blockchain project projects. The study specifically examines how blockchain technologies impact the five primary project management process groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. Exploring these adaptations requires rich, interpretive insights best obtained through qualitative research methods.

Data Collection

This pilot study employed a qualitative, exploratory research design to gain in-depth insights into how project management strategies influence blockchain implementation. Semi-structured interviews were chosen as the primary method of data collection, enabling participants to share detailed experiences while allowing the researcher to probe for clarification and elaboration. Interviews were conducted virtually and recorded with participants' consent. The recordings were transcribed verbatim for analysis. Coding was conducted manually using a thematic framework aligned with the five project management process groups as defined by the PMBOK model.

Sample Size

The sample consisted of five participants with direct experience in blockchain implementation projects across diverse industries, including automotive, retail, waste management, and supply chain. Participants were selected to ensure that those interviewed had both project management exposure and hands-on involvement in blockchain deployment. This sample size is appropriate for a pilot study, as the goal is not to generalize findings but to explore patterns, refine data collection instruments, and assess the feasibility of broader research (Van Teijlingen & Hundley, 2001). The variation in industry sectors and roles helped surface a rich range of perspectives on blockchain-specific project practices.

Validity and Reliability

Although pilot studies are not primarily aimed at generalization, steps were taken to enhance credibility, dependability, and trustworthiness of the findings. Credibility was supported through triangulation of data sources, where participant experiences were compared across different sectors. Checking was used in some cases by sharing preliminary interpretations with participants for validation. Dependability was addressed by maintaining a detailed audit trail of coding decisions and thematic mappings. Transferability was strengthened by providing rich, contextual descriptions of participant roles and organizational settings. While reliability in qualitative research does not imply replication in the traditional sense, the consistency in thematic coding across the five process groups suggests robustness in the analytical framework, supporting the development of propositions for a future, full-scale study.

Data Analysis

To analyze the data, this study employed thematic analysis, a flexible and widely adopted method for identifying and interpreting patterns or themes within qualitative data (Clarke & Braun, 2017; Scharp & Sanders, 2019). Thematic analysis is especially well-suited to exploring individual perceptions and

experiences, making it ideal for understanding how project managers and stakeholders navigate blockchain initiatives (Jowsey, Deng, & Weller, 2021). One of the strengths of thematic analysis lies in its adaptability. It accommodates various data types, sample sizes, and theoretical orientations, which is particularly useful in emerging fields like blockchain where practices and understandings may still be evolving. Thematic analysis also enables researchers to work either inductively, by allowing themes to emerge directly from the data**,** or deductively, by applying an existing framework to guide the analysis (Jowsey et al., 2021).

In this study, a hybrid approach was taken. An inductive lens was used to allow new insights to surface from participant narratives, while a deductive framework—based on the established project management process groups—was applied to structure and interpret findings in relation to the project life cycle.
This approach ensures that the analysis remains grounded in participants' experiences while also aligning with the theoretical foundation of project management and the emerging considerations unique to blockchain technology.

Results

The initial analysis followed an open coding process, where we reviewed five interview transcripts to identify recurring patterns, expressions, and key ideas related to project management practices in blockchain implementation. Codes were developed directly from the data without pre-defined categories, ensuring that the participants' language and lived experiences shaped the themes. After completing independent coding, a merged dataset was created to include different perspectives. This combined dataset was then sorted into initial codes (themes) and aligned with the five PMBOK project management process groups.

Each theme was analyzed based on its frequency of occurrence and the number of unique excerpts in which it appeared. Table 1 below presents the summary of coding results, including the number of times each theme was referenced (Code Frequency) and its relative emphasis within the full dataset (Percent of Total). This structured overview served as the foundation for subsequent analysis organized by PM process group.

Table 1. Theme Frequency by PM Process Group

Initial Code (Themes)	Initiating	Planning	Executing	Monitoring & controlling	Closing	Code Frequency	Percent of Total
Stakeholder Buy-in	66	0	0	0	0	66	26.19%
Leadership Support	34	0	0	0	0	34	13.49%
Change Management	7	3	16	0	0	26	10.32%
Technical Deployment	1	2	22	0	0	25	9.92%
Interoperability Strategy	0	22	0	0	0	22	8.73%
Training and Support	6	0	13	2	0	21	8.33%
Regulatory Readiness	1	11	0	0	0	12	4.76%
Strategic Vision	12	0	0	0	0	12	4.76%
Security Assurance	0	0	0	10	0	10	3.97%
Resource Allocation	1	8	0	0	0	9	3.57%
Performance Monitoring	0	0	0	4	0	4	1.59%
Pilot Testing	0	4	0	0	0	4	1.59%
Sustainability Planning	0	0	0	0	4	4	1.59%
Feedback and Optimization	0	0	0	2	0	2	0.79%
Technical Expertise	0	0	1	0	0	1	0.40%
	128	**50**	**52**	**18**	**4**	**252**	**100.00%**

To complement the open coding process and gain a preliminary understanding of recurring concepts in the

qualitative data, Figure 1 presents a word cloud generated from all coded excerpts across the five pilot interviews. This visual illustrates the most frequently occurring terms, with font size indicating the relative frequency of each word. Key terms such as organization, implementation, user, data, and stakeholder suggest central concerns shared by participants during discussions of blockchain project implementation.

The word cloud provides a foundational lens for identifying potential thematic directions, such as leadership, scalability, and user acceptance, which were later systematically refined during axial and selective coding. This visual snapshot serves not only to emphasize commonly cited ideas but also to foreground the participants' vocabulary and framing of challenges and enablers in blockchain initiatives.

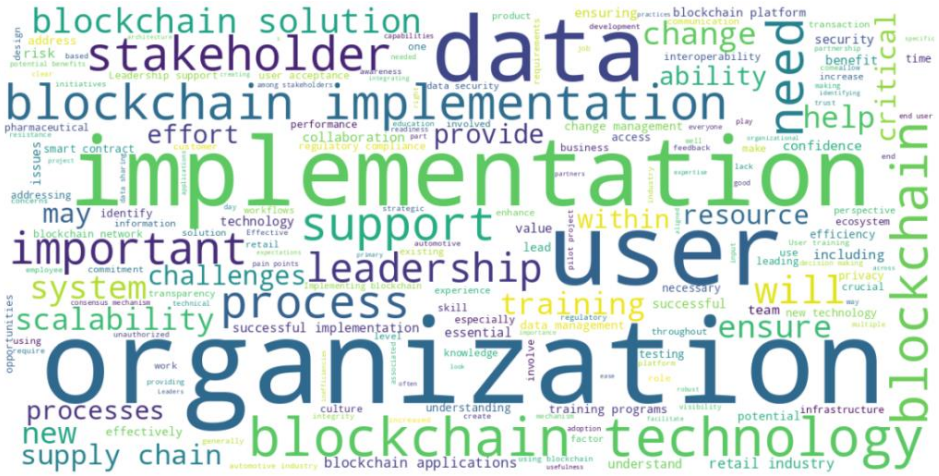

Figure 1. Word Cloud of Frequently Mentioned Terms in Interview Excerpts

The findings from the thematic analysis of five pilot interviews, structured around the five project management process groups, reveal how traditional project management processes are being challenged and, in some cases, informally adapted in response to the unique demands of blockchain implementation. While the PMBOK framework provided a solid structural lens for analysis, the themes emerging under each phase suggest that the realities of blockchain projects push beyond conventional boundaries and necessitate new approaches in practice. The following sections summarize the key findings by process group.

Initiating

The Initiating phase yielded the highest overall code frequency, led by the dominant theme Stakeholder Buy-in, which accounted for 66 total references across 38 excerpts. Participants emphasized the challenge of gaining alignment not just within internal teams but across entire ecosystems of vendors, regulators, and strategic partners. Several participants noted the importance of having a clear strategic vision and leadership sponsorship to ensure that blockchain projects are not viewed in isolation but as part of broader innovation efforts. These themes underscore the shift from traditional, inward-facing stakeholder analysis to broader, decentralized stakeholder engagement.

One participant remarked, *"Leadership support and strategic alignment is everything from an implementation perspective. Leadership provides a vision and most importantly direction."* Another emphasized the need to socialize the initiative across multiple groups to build early momentum. This broader, more inclusive approach to stakeholder engagement reflects the complexity of blockchain's decentralized architecture, which affects multiple parts of the organization and beyond.

Planning
In the Planning phase, the most frequent themes were Pilot Testing, Resource Allocation, and Interoperability Strategy. Planning efforts were often described as iterative rather than static, relying on controlled trials and experimentation to determine feasibility and scale. Several participants described planning in terms of "building confidence" among technical and business teams before fully committing to enterprise-wide deployments. Interoperability, particularly with legacy systems and partner platforms, emerged as a consistent planning concern, highlighting the challenge of aligning blockchain with existing IT infrastructures. The data suggest that planning for blockchain must be fluid, risk-aware, and adaptive to fast-changing regulatory and integration constraints.

Pilot testing was frequently mentioned as a necessary strategy to navigate uncertainty. Planning was seen less as a static documentation process and more as a space for iterative design. As one participant put it, *"We had to break the project down into multiple phases and build learnings into each step."* These findings suggest that planning for blockchain projects is more fluid and feedback-driven than linear.

Executing
The Executing group produced a wide range of themes related to technical rollout and organizational transformation. Common codes included Change Management, Training and Support, and Technical Deployment. Respondents described blockchain implementation as deeply disruptive, not just technologically but behaviorally. Training efforts were necessary to demystify blockchain concepts, address user fears, and explain shifts in data visibility and process ownership. Change management was referenced both formally and informally, with several participants emphasizing the need to "bring people along" rather than push systems into production without adequate preparation. These findings reinforce the view that blockchain execution is less about deploying code and more about reshaping trust, accountability, and user behavior.

One interviewee shared, *"We made sure that exhaustive training was provided... so as to make the end user get comfortable with this complex technology."* Another highlighted how change management was not just about process change but also about instilling confidence in a technology that redefines roles and data access. These responses reveal that execution in blockchain projects often includes invisible work—emotional reassurance, technical fluency-building, and socialization of new norms.

Monitoring & Controlling
Themes in the Monitoring & Controlling phase were less frequent but highly distinctive. Participants discussed Smart Contract Audits, Performance Monitoring, Security Assurance, and Feedback Loops. These themes highlight how blockchain introduces new layers of complexity into oversight—moving beyond traditional cost and schedule tracking to include technical verification, decentralized coordination, and compliance with automated logic. Respondents emphasized the importance of auditing smart contract behaviors and continuously validating system security in live, distributed environments. This phase often lacked formal tools or predefined metrics, leading to improvised solutions that point to a need for more structured post-deployment governance.

Participants also highlighted that monitoring blockchain systems requires coordination across multiple teams, especially when external platforms or vendors are involved. As one noted, *"Even during deployment, you need to track not just what's happening on your system but across the partner chain."* This points to the growing complexity of control in multi-party blockchain environments.

Closing

The Closing process group had the fewest codes but raised significant considerations about Sustainability Planning and Post-Implementation Support. Several participants acknowledged that blockchain projects often lack formal closure steps, particularly due to their ongoing nature and decentralized design. Nonetheless, there was recognition of the need for documentation, role handoff, and ongoing support infrastructure. In some cases, organizations formed long-term support teams to ensure user adoption and resolve unforeseen technical issues. The low representation of this phase in the data may reflect a broader industry pattern in which blockchain implementations lack formal project termination protocols, raising questions about how continuity and institutional knowledge are managed post-deployment.

A participant from a logistics organization mentioned, *"We created a dedicated support team to handle user issues and questions post go-live."* Another reflected on the lack of structured handoff processes following pilot phases. These accounts suggest that while closing activities are being carried out informally, they are often overshadowed by technical deployment efforts.Table 2 highlights the most common themes within each process group.

Table 2: Process Groups and Themes

Process Group	Most Frequent Themes
Initiating	Emphasis on ecosystem-wide stakeholder engagement and leadership alignment
Planning	Iterative planning, pilot testing, and emphasis on interoperability risks
Executing	Strong need for change management, technical training, and cultural adaptation
Monitoring and controlling	Emergent use of smart contract audits, partner-based monitoring
Closing	Informal support mechanisms, limited focus on sustainability, and transition

This results section provides a foundation for answering the central research question by surfacing how each project management process group is being stretched, informally redefined, or inconsistently applied in blockchain project contexts. These findings set the stage for a broader discussion of how traditional project management life cycle processes must evolve to meet the novel demands of blockchain implementation.

References

The findings of this pilot study reveal that while the five PMBOK process groups remain a useful structure for organizing blockchain implementation efforts, the nature of blockchain technology challenges the assumptions, scope, and focus of traditional project management practices. Across all phases of the project life cycle, participants described experiences that reflect a need for expanded stakeholder engagement, flexible planning, human-centered execution, decentralized control structures, and sustainable closing practices. These shifts suggest that the unique characteristics of blockchain—decentralization, immutability, multi-party integration, and evolving regulations—require a fundamental recalibration of the project management life cycle.

Initiating

The interviews revealed that blockchain projects are often initiated with a broader, more complex network of stakeholders than traditional IT projects. Participants emphasized the necessity of early engagement not only with internal teams but also with regulators, external partners, and technology vendors. This extends the PMBOK's concept of stakeholder identification into a multi-organizational, ecosystem-driven approach. As such, project initiation in blockchain must begin with ecosystem-wide alignment, not just

internal strategy. Leadership must advocate for shared value creation across parties to ensure long-term viability.

Planning
Traditional project planning assumes a defined scope, stable technical architecture, and predictable timelines. In contrast, participants in this study described blockchain planning as iterative, exploratory, and constrained by interoperability and regulatory uncertainties. As the participants noted, pilot testing becomes a central planning mechanism, enabling teams to learn, test assumptions, and adjust without jeopardizing full-scale efforts. Thus, planning for blockchain must emphasize phased prototyping, cross-functional coordination, and early technical architecture validation, challenging the linearity often seen in traditional plans.

Executing
While technical deployment was central to the Execution phase, participants consistently described user resistance, fear, and confusion as key obstacles. Unlike typical system rollouts, blockchain introduces decentralized authority, new data visibility rules, and automated logic via smart contracts—all of which shift how people interact with their work. The findings in this study reinforce that project managers must treat change management, education, and user experience as core to execution. Execution strategies, therefore, must shift from "system deployment" to organizational transition, with robust onboarding, stakeholder feedback loops, and contextualized training efforts.

Monitoring and Controlling
Blockchain implementation introduces new technical dimensions that require monitoring, including smart contract behaviors, node reliability, and cross-platform data verification. Traditional project management metrics such as schedule and cost tracking are insufficient in decentralized environments where governance and control are distributed. The pilot study found that many of these monitoring mechanisms were improvised or reactive, underscoring a gap in formalized practices. As blockchain matures, project managers will need to adopt real-time dashboards, automated performance alerts, and cross-stakeholder governance protocols as standard elements of project control.

Closing
Closing activities were the least discussed among participants, yet those who reflected on post-implementation experiences highlighted the importance of support teams, documentation, and sustainability planning. Blockchain, once implemented, becomes part of a dynamic infrastructure—with updates, smart contract changes, and evolving compliance needs. This pilot study suggests that Closing in blockchain should move beyond lessons learned and final reports toward institutionalized governance, change handovers, and long-term support models. Table 3 summarizes the differences in management priorities between traditional project implementations and those involving blockchain technology.

Table 3. Traditional vs. Blockchain Project Management Focus by Process Group

PMBOK	Traditional Focus	Blockchain Focus
Initiating	Internal stakeholder alignment	Ecosystem stakeholder engagement and strategic consensus
Planning	Static scope, upfront planning	Pilot loops, interoperability, and iterative design
Executing	System deployment	Human-centered change and skills development
Monitoring and controlling	Scope/schedule/cost control	Real-time audits, decentralized performance tracking
Closing	Final reports, handoffs	Long-term governance, sustainability, and decentralized transition

Conclusion

Through a thematic analysis of five semi-structured interviews, structured around the five process groups of the PMBOK framework, the study uncovered meaningful insights into how blockchain's decentralized, evolving nature challenges the assumptions of traditional project management practices. While the PMBOK life cycle remains a valuable organizing framework, the findings suggest that blockchain implementation stretches and, in some cases, redefines the activities and focus areas within each phase.

In the Initiating phase, the scope of stakeholder engagement must extend beyond internal actors to include an ecosystem of partners, regulators, and vendors. Planning requires flexibility and readiness for technical uncertainty, with pilot testing and interoperability taking center stage. The Executing phase demands not only technical rollout but also a strong emphasis on change management, training, and user empowerment. In Monitoring & Controlling, traditional performance metrics are insufficient; blockchain projects require decentralized tracking tools and smart contract auditability. Finally, the Closing phase—often under-addressed—must institutionalize support and governance mechanisms for long-term sustainability in distributed environments.

These findings contribute to both academic and practical discussions on project management in emerging technologies. They suggest that blockchain initiatives benefit from project management approaches that are ecosystem-aware, agile in planning, human-centered in execution, decentralized in oversight, and continuous in closure. This study offers a foundation for future work to build a more tailored project management model that responds to the distinctive dynamics of blockchain technologies.

As a pilot, this research is exploratory in nature and not intended to be generalizable. However, it offers valuable insights for practitioners navigating blockchain projects and for researchers developing frameworks to guide project management adaptation. Further studies with larger samples across industries will be critical in validating and expanding these early findings.

Future work

Future research should aim to validate and expand upon the findings of this pilot study by engaging a larger and more diverse sample of organizations across multiple industries and geographies. Such efforts would enhance the generalizability of insights regarding how project management life cycle processes must evolve to accommodate the unique demands of blockchain implementation. Broader studies could uncover industry-specific adaptations and contextual factors that influence implementation success. Additionally, comparative investigations examining the suitability and effectiveness of different project management methodologies, such as Agile, Waterfall, or hybrid approaches, within blockchain contexts could provide valuable practical guidance. These studies would help identify not only which methodologies align best with blockchain's decentralized and iterative nature but also how organizations can tailor their project governance models to improve adaptability, scalability, and long-term system sustainability.

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