Hackathons as a Method for Fostering Corporate Innovation and Competitive Advantage

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Abstract: Hackathons, originally rooted in the software and technology sectors, have evolved into powerful tools for corporate innovation. Today, organizations across diverse industries use them to accelerate idea generation, boost employee engagement, and strengthen competitive positioning. However, despite their growing popularity, the mechanisms by which hackathons drive innovation within firms remain underexplored in academic literature, particularly from the standpoint of innovation theory and strategic management. Much of the existing research is fragmented across disciplines such as healthcare, education, and computer science, lacking a unified framework for understanding hackathons as instruments of organizational innovation. This study addresses that gap by examining hackathons as structured innovation development mechanisms. Drawing on a comprehensive review of scholarly sources, we investigate the definitions, theoretical foundations, and practical implementations of corporate hackathons. The paper develops a conceptual model that delineates the phases, design components, critical success factors, and post-event integration processes necessary to foster sustainable innovation outcomes. Our findings suggest that hackathons support corporate innovation by enabling rapid experimentation, attracting entrepreneurial talent, and cultivating internal knowledge-sharing communities. Moreover, they provide a low-risk environment conducive to intrapreneurship and openness to change. This article contributes to the academic discourse on innovation and organizational learning by situating hackathon practices within strategic innovation frameworks. It also offers actionable insights for practitioners on how to effectively design, implement, and leverage hackathons to drive competitive advantage in dynamic and uncertain business environments.

Keywords: Corporate Hackathon, Hackathon Methodology, Innovation Management, Competitive Advantage.

1. Introduction

In today's rapidly evolving business environment, corporations are under increasing pressure to innovate at speed, adapt to uncertainty, and attract agile talent. Hackathons, time-bounded, challenge-based innovation events, have emerged as a strategic response to these demands. Originally associated with the tech and software sectors, hackathons are now being repurposed within large organizations as tools for stimulating internal innovation, uncovering latent expertise, and building agile organizational capabilities (Granados et al., 2019).

Corporate hackathons differ from traditional innovation initiatives by emphasizing speed, creativity, and cross-functional collaboration under intense time constraints. Their value extends beyond immediate outputs; they contribute to knowledge exchange, employee engagement, and even corporate branding. Recent research highlights individual benefits such as skill development, career progression, and expanded professional networks (Pe-Than et al., 2020; Ulfsnes et al., 2021), alongside organizational gains like faster prototyping, team synergy, and expert community building. Moreover, there is growing evidence that newly formed hackathon teams tend to generate more novel solutions than pre-existing teams, often venturing beyond conventional work boundaries (Pe-Than et al., 2020).

Despite their rising popularity, hackathons remain a relatively under-theorized phenomenon in organizational studies. Questions persist regarding which structural, cultural, and strategic elements make corporate hackathons effective - not just as creative exercises, but as mechanisms for sustainable innovation and long-term competitive advantage. Scholars have noted the lack of systematic frameworks that connect hackathon design with strategic outcomes, including the integration of post-hackathon projects into the organizational product portfolio (Ulfsnes et al., 2021; Briscoe et al., 2014).

This study addresses this research gap by conducting a comprehensive review of the scientific literature on corporate hackathons. The aim is to identify and analyze the critical success factors that enable hackathons to function as high-impact innovation platforms. Special attention is given to the specific elements of hackathons as a structured methodology for driving innovation and creating competitive advantage. The insights derived

from this review serve to construct a structured methodology that organizations can apply to design and implement hackathons aligned with their innovation goals.

The paper is structured into five sections. The first section synthesizes the existing literature, focusing on definitions, typologies, benefits, and core characteristics of hackathons. The second section outlines the research methodology. The third presents the findings of the literature review. The fourth section discusses the key factors contributing to successful hackathon implementation in corporate environments and proposes a conceptual framework. The final section concludes with practical recommendations and directions for future research.

2. The Theoretical Background of Research

Hackathons are commonly defined as time-limited, solution-oriented events that bring individuals together to collaboratively address specific problems or challenges (Saleh et al., 2025; Chowdhury, 2012). Originally conceived as programming events, they typically involve small teams of volunteers working intensively over a short period - often 24, 36, 48, or up to 72 hours - to develop software prototypes or other creative solutions (Kienzler et al., 2017; Li et al., 2015; Richard et al., 2015). In the context of information technology, hackathons are specifically understood as collaborative programming marathons focused on rapid prototyping (Lara et al., 2016). As Briscoe and Mulligan (2014) note, the essence of hackathons lies in their capacity to bring people together around a common challenge, fostering innovation through structured, time-bound collaboration.

Corporate hackathons have emerged as a valuable strategy for software companies to foster innovation, improve products, and build ecosystems. These time-bounded events bring together teams to collaborate intensively on projects, generating new ideas and prototypes (Tran et al., 2025; Valença et al., 2020; Ei Pa Pa Pe-Than et al., 2020). Research has identified various benefits of corporate hackathons, including skill development, career advancement, and networking opportunities for participants (Ei Pa Pa Pe-Than et al., 2020). Successful hackathon projects often focus on developing functional prototypes aligned with existing products and customer needs (Leemet et al., 2021). The sustainability of hackathon outcomes depends on factors such as team composition, project preparation, and organizational support (Leemet et al., 2021). Furthermore, corporate hackathons can contribute to the growth of software ecosystems by facilitating open innovation and platformisation processes (Valença et al., 2019). Overall, hackathons serve as alternative modes of production and innovation, offering social, technical, and business benefits to participating companies (Valença et al., 2019).

3. Research Methodology

This study employs a qualitative, integrative literature review to develop a comprehensive understanding of how hackathons function as methodological instruments for fostering innovation and competitive advantage within corporate environments. An integrative review approach was selected due to its suitability for synthesizing diverse types of scholarly work, including empirical studies, conceptual frameworks, and theoretical analyses, thereby enabling a multidimensional exploration of hackathon practices in organizational contexts.

This study follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparency, reproducibility, and methodological rigor in the literature selection and analysis process (Figure 1) (Posso Pacheco et al., 2025). A systematic search was conducted using two leading academic databases, Scopus and Web of Science, covering publications from 2020 to 2025. The PRISMA approach guided the identification, screening, eligibility assessment, and inclusion of relevant studies. The initial search yielded 504 records, which were screened for relevance following the removal of duplicates. Based on predefined inclusion and exclusion criteria, a total of 17 articles were selected for qualitative synthesis. The search strategy was constructed around the following Boolean query: "Corporate hackathon" AND "Innovation".

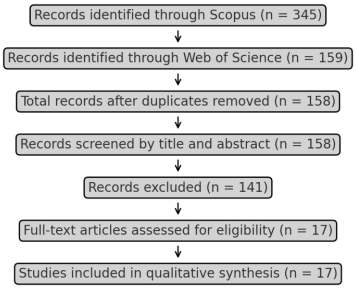

Figure 1: PRISMA Flow Diagram for Hackathon Literature Review

The inclusion criteria for article selection required that sources be published in English, peer-reviewed and open-access, and directly address digital or innovation-driven organizational methodologies, with a particular focus on hackathon-related strategies. Articles were excluded if they focused solely on physical branding without incorporating innovation or digital components, or if they offered only general managerial commentary lacking methodological depth.

Following a systematic screening process - including title and abstract review, full-text screening, and relevance evaluation - a total of 17 high-relevance articles were selected from an initial pool of 158 shortlisted studies. These articles were chosen based on their methodological rigor, theoretical contribution, and relevance to the core themes of innovation processes, intrapreneurship, and agile strategy development through hackathons.

The final synthesis integrates insights from these selected studies to distill the structural elements, critical success factors, and organizational outcomes associated with corporate hackathons. This methodological approach ensures that the findings are grounded in a robust scholarly foundation while offering implications relevant to both academic discourse and managerial practice.

4. Results

The structured framework derived from the integrative review reveals not merely a checklist of hackathon components, but a window into how organizations increasingly seek to engineer creativity, engagement, and strategic agility through codified innovation processes. This evolution - from spontaneous tech sprints to strategically curated corporate interventions - marks a paradigmatic shift in how firms pursue innovation capability development. However, several deeper insights and tensions emerge upon close inspection of the framework.

Table 1: Key Methodological Elements of Corporate Hackathons Across Lifecycle Stages

Hackathon Lifecycle stage	Element	Definition	Authors
Before hackathon	Identification of objectives	Innovation creation	Heller et al., 2023; Nolte et al., 2020
		Connect to early adopters	Di Fiore, 2013
		Learning organization	Schulten et al., 2024; Hogan, M. 2022
		Corporate branding	Uffreduzzi, 2017
		Talent engagement & recruitment	Trainer et al., 2016
		Team building and collaboration	
	Identification of challenges and problem statement	Technology focus challenge	Heller et al., 2023; Angarita et al., 2020; Briscoe 2014
		Nontechnology focus challenge	
	Type of Hackathon	Virtual	Bertello et al., 2022; Paganini et al., 2020
		Physical	
		Hybrid	
	Background of participants	Tech background teams only	Beck et al., (2020), Pe-Than et al., 2020; Banal-Estañol et al., 2019
		Mixed teams with various backgrounds	
	Team formation	Formation before hackathon	Nolte et al., 2018
		Formation on hackathon day	Porras et al., 2021
	Selection of jury and mentors	Experts from industry	Chala et al., 2024; Nolte et al., 2020
		Academicians	
	Secure funding	internal budget allocation	Folk et al., 2024; Granados et al., 2018
		sponsorship models	
		stakeholders buy-in	
	Prizes	Financial	

Hackathon Lifecycle stage	Element	Definition	Authors
		Nonfinancial	Folk et al., 2024; Granados et al., 2018
Execution	Opening ceremony, Rules and kick off	Event kickoff and expectations setting	Aryana et al., 2019; Panchapakesan et al., 2019; Karlsen et al., 2017
	Mentorship	Guidance from internal/external experts during event	Chala et al., 2024; Nolte et al., 2020
	Jury assessment and voting	Evaluation by panel or public; selection of winners	Milićević et al., 2024
	Networking	Informal/team collaboration sessions	Folk et al., 2024; Feder, 2021
Post Hackathon	Follow up and support programs	Project incubation, internal scaling, continued support	Kamariotou et al., 2022; Chan et al., 2020

Source: authors' creation

What is striking in the aggregated elements is the lack of theoretical cohesion. While individual studies articulate operational components (e.g., team composition, mentor engagement), they rarely trace a mechanistic logic connecting design elements to measurable innovation or competitive outcomes. For example, is the presence of cross-disciplinary teams a proxy for absorptive capacity? (Zahra et al., 2002). Do different jury structures (expert vs. popular vote) affect legitimacy and knowledge diffusion? The field currently lacks robust explanatory models that bridge design choices with outcomes via established innovation theory.

This gap underscores a need for mid-range theories tailored to the hackathon context—ones that can link event design to strategic innovation outcomes through mediators such as organizational learning, psychological safety, or knowledge recombination.

Another under-theorized yet promising perspective is to conceptualize hackathons not just as innovation events, but as dynamic capability-building mechanisms. Seen this way, they do not simply produce ideas—they cultivate an organization's ability to sense opportunities, mobilize knowledge, and reconfigure internal resources (Teece, 2007). However, this view requires reorienting hackathon success metrics away from winning ideas and toward indicators of organizational learning, cross-functional collaboration, and post-event project adoption.

Surprisingly, the reviewed literature devotes little attention to how organizations absorb, scale, or institutionalize hackathon outputs, reinforcing a fragmentation between micro-level activities and meso/macro-level strategic capabilities.

A critical weakness in the current literature - and mirrored in the framework - is a bias toward event-time thinking. Much of the academic and practical focus is preoccupied with designing the "perfect" hackathon. Yet, innovation is not bounded by 48 hours. Without clear mechanisms for post-event integration, incubation, or portfolio alignment, hackathons risk becoming an innovation theatre: performative but strategically hollow (Blank, 2019).

The post-hackathon phase, as lightly treated in the literature, needs significantly more attention. Follow-up programs, internal champions, and governance structures are likely far more predictive of long-term innovation impact than ideation methods alone. The absence of robust studies here is both a research opportunity and a warning flag for practitioners seduced by short-term outputs.

While the framework identifies strategic intent (e.g., branding, recruitment, innovation creation), it stops short of grappling with the tensions inherent in corporate hackathons. For instance:

- What happens when employee-driven ideas conflict with existing product roadmaps?
- How are intellectual property and authorship handled in multi-stakeholder teams?
- Can a grassroots ethos be preserved under top-down, metrics-driven oversight?

These tensions highlight the need for political and cultural analysis of hackathons as embedded organizational processes. Hackathons, in this light, are sites of negotiation—between autonomy and control, creativity and execution, novelty and feasibility. Ignoring these dynamics renders an overly sanitized view of innovation.

Finally, the framework prompts reconsideration of how we evaluate hackathon success. Current metrics—number of ideas generated, participants engaged, or prototypes developed—are necessary but insufficient. High-impact scholarship should push toward multi-dimensional evaluation models that capture:

- Innovation absorption (Are ideas piloted or scaled?)
- Talent development (Do participants grow in entrepreneurial self-efficacy?)
- Cultural change (Does the event shift norms toward experimentation?)

Such models would allow us to link hackathon practice to enterprise transformation, moving from anecdotal enthusiasm to evidence-based strategy.

5. Discussions

This framework (see figure 2) not only fills the theoretical gap in understanding hackathons as innovation infrastructure but also provides a strategic toolkit for organizations seeking repeatable, scalable, and outcome-driven innovation practices.

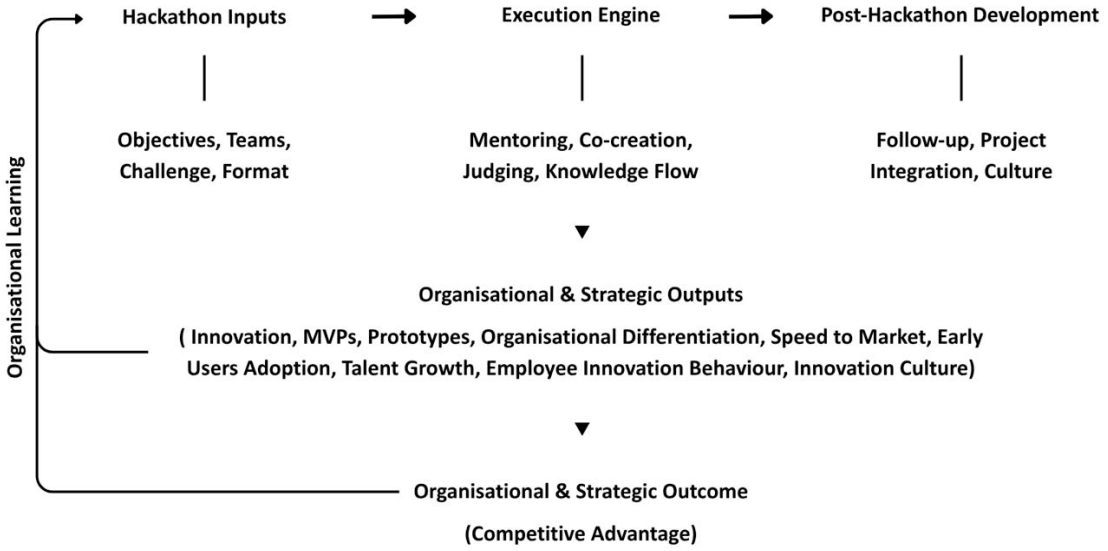

Figure 2: Hackathon Lifecycle Framework for Corporate Innovation and Competitive Advantage
Source: authors' creation

The "Hackathon Inputs" phase reflects the strategic codification of conditions under which innovation can emerge. Drawing on Granados and Pareja-Eastaway (2019), this stage is not merely logistical but intentionally structured to enable ideation aligned with corporate goals. Elements such as the definition of objectives (Heller et al., 2023; Nolte et al., 2020), team diversity (Beck et al., 2020), and the learning culture (Schulten et al., 2024; Hogan, 2022) serve as innovation enablers. These inputs establish the cognitive, social, and technical infrastructure necessary for agile innovation behavior (Pe-Than et al., 2020). Moreover, the identification of strategic problem statements—whether technological or not (Angarita et al., 2020; Briscoe, 2014)—influences the quality of idea generation. From the lens of innovation theory, this phase maps onto Teece's (2007) "sensing" capability, where opportunity recognition is informed by internal and external cues. Thus, this stage serves as a foundation for innovation readiness, influencing all downstream outputs and outcomes.

The execution engine functions as the intensive zone of action, where cross-functional collaboration, mentoring, and real-time knowledge exchange are activated under constraints (Trainer et al., 2016; Karlsen et al., 2017). This stage mirrors what Kolb (1984) describes as experiential learning - learning through doing, observing, and iterating in rapid cycles. Literature supports that hackathon mentoring (Chala et al., 2024; Nolte et al., 2020) and peer learning (Feder, 2021) are central to enabling co-creation. Aryana et al. (2019) also highlights the symbolic function of opening ceremonies and rituals, which signal the event's significance and activate motivation. Moreover, this is the phase where the knowledge flow becomes kinetic, facilitating recombination, experimentation, and feedback loops—core tenets of agile and lean innovation. Execution reflects the "seizing" phase in Teece's framework, where sensing is converted into tangible opportunity pursuit. However, the literature also cautions about trade-offs: Pe-Than et al. (2020) and Ulfsnes et al. (2021) note stress, misaligned

incentives, and coordination barriers, especially in virtual formats, suggesting that the execution phase must be carefully moderated to avoid burnout or disillusionment.

This stage is critically underdeveloped in both practice and literature but is arguably the most strategic. Chan et al. (2020) and Folk et al. (2024) stress that without follow-up mechanisms, promising ideas rarely translate into organizational change. This stage includes incubation, stakeholder buy-in, and alignment with formal innovation portfolios—activities essential for institutionalizing innovation. The lack of systematic structures for idea continuity, as noted by Ulfsnes et al. (2021), exposes hackathons to the risk of becoming an innovation theater. From an organizational learning perspective (Argyris & Schön, 1978), this phase should facilitate double-loop learning, where not only actions but underlying assumptions are revised. Learning theories provide valuable insights into entrepreneurship education, particularly regarding learning styles and opportunity perception (Kakouris & Morselli, 2020; Kakouris et al., 2025). Moreover, the integration of hackathon outputs into existing workflows and governance structures is what allows firms to reconfigure capabilities - mapping onto Teece's "reconfiguring" function. The post-event phase, then, is not the end but the moment of strategic translation, where tactical energy is embedded in long-term strategic assets.

Outputs are the first-order indicators of success and innovation activation. The literature reviewed (Pe-Than et al., 2020; Nolte et al., 2018) consistently emphasizes deliverables such as prototypes, skill development, and increased innovation engagement. These outputs contribute to a firm's innovation capability infrastructure, not just through artifacts but via new behavioral norms and enhanced collaboration fluency. Chala et al. (2024) also document that structured evaluation and academic mentorship contribute to improved entrepreneurial competency among participants. Outputs serve both symbolic and functional roles: they are visible wins that justify investment while also laying down the scaffolding for future knowledge reuse and cultural shifts. As such, outputs can be understood as the micro foundations of dynamic capability, signaling an organization's ability to adapt, learn, and innovate in complex environments.

The final outcome, competitive advantage, is not automatic. It results from the cumulative and integrated effects of the previous stages, particularly when organizational systems capture, scale, and strategically align hackathon outputs. According to Barney's (1991) resource-based view, competitive advantage arises when outputs are valuable, rare, inimitable, and embedded in the firm's systems. Granados & Pareja-Eastaway (2019) show that hackathons can increase organizational responsiveness and brand equity, while Ulfsnes et al. (2021) suggest that consistent hackathon cycles reinforce a culture of innovation. However, outcome realization depends on governance - how leadership, resource allocation, and evaluation are integrated. Without that, competitive advantage remains a theoretical possibility rather than a realized outcome. In this sense, hackathons are not just innovative events - they are strategic instruments that, when holistically managed, can reinforce a firm's position in dynamic markets.

Crucially, the relationship between hackathon outputs, outcomes, and inputs is not linear but cyclical. As organizations begin to internalize the insights, behaviors, and innovations generated during hackathons, these experiences inform and enhance the design of future events. For instance, if post-hackathon evaluations reveal that diverse teams yielded higher-quality, cross-functional solutions (Beck et al., 2020), future hackathons may deliberately engineer heterogeneous team formation as a strategic input. Similarly, the identification of bottlenecks in project follow-through (Ulfsnes et al., 2021) may prompt the inclusion of post-event incubation frameworks or stakeholder buy-in mechanisms as core components in hackathon planning. This recursive feedback mechanism echoes Argyris & Schön's (1978) model of organizational learning, where lessons learned from action inform revised action strategies. It also reflects Teece's (2007) emphasis on reconfiguration as a dynamic capability—firms continuously reshaping their innovation processes based on real-time learning. Thus, hackathons function not as isolated interventions, but as iterative innovation learning systems—where the accumulation of outputs and outcomes leads to the intentional redesign of inputs, driving ever more effective innovation cycles and organizational evolution.

6. Conclusions

6.1 Theoretical Contribution

This study advances the theoretical understanding of hackathons by positioning them not merely as isolated creative events, but as structured, iterative mechanisms for building dynamic innovation capabilities. By integrating insights from innovation theory, organizational learning, and the resource-based view, the proposed conceptual framework illuminates the role of hackathon elements - inputs, execution, and post-event integration

- in fostering corporate innovation and strategic agility. It bridges a critical gap in literature by mapping hackathon design to strategic outcomes, thereby contributing a mid-range theory that links micro-level practices with macro-level competitive positioning.

6.2 Practical Implications

For practitioners, this research offers a blueprint for designing and managing hackathons as high-impact, repeatable innovation interventions. The framework identifies critical success factors such as team diversity, challenge framing, mentorship, and follow-up structures, providing actionable guidance on how to align hackathon practices with organizational strategy. By emphasizing post-hackathon development, the study also alerts managers to the risk of innovation theater and underscores the need for mechanisms that sustain project momentum, integrate ideas into R&D pipelines, and reinforce innovation culture.

6.3 Future Research Developments

While this study provides a robust conceptual model, further empirical validation is required across different organizational and industry contexts. Future research should explore longitudinal impacts of hackathons on organizational learning, employee behavior, and product innovation cycles. Quantitative studies could measure the effects of specific design variables (e.g., mentor density, jury structure) on innovative outcomes. Moreover, deeper investigation into equity, inclusion, and team dynamics within hackathons would enrich our understanding of how to design more inclusive and resilient innovative environments.

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Ethics Declaration

This study did not involve any experiments with human participants, animals, or sensitive personal data requiring ethical approval. Therefore, ethical clearance was not required. All secondary data and literature used in this paper were obtained from publicly accessible and properly cited sources.

AI Declaration

This paper involved the use of an AI language model (ChatGPT by OpenAI) to support language refinement and formatting clarity during manuscript preparation. The tool was used to improve the articulation of ideas originally developed by the authors. All AI-assisted texts were reviewed and edited to ensure academic integrity and accuracy. The authors bear full responsibility for the content, analysis, and conclusions presented in this manuscript.

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