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Platform Thinking in Action: A design science research to bring the platform revolution in legacy firms

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ABSTRACT

Digital platforms have become a dominant logic for value creation and innovation, yet legacy firms still struggle to translate platform principles into actionable organizational transformation. A central reason is cognitive: managers often mis-frame platforms as digital services rather than as ecosystem-based value architectures.

This paper adopts a Design Science approach to develop and refine the Platform Thinking Journey, a composite managerial artifact that supports platform transformation in incumbent firms. Developed through a three-year, multi-firm collaboration within the Platform Thinking HUB, the artifact evolved across three iterative waves from exploratory tools into a validated journey structured around four phases: Framing, Design, Ignition, and Growth.

The resulting Platform Thinking Journey combines a process model, bounded decision cycles, and an integrated physical and digital, or "phygital", support architecture, including cards, canvases, workshops, digital templates, and a GenAI co-thinker. Its core mechanism is to make platform theory actionable by presenting structured alternatives grounded in the literature, focusing managerial attention, reducing ambiguity, and aligning interpretation before teams consolidate choices through design tools and milestones.

The study contributes to platform and innovation management research by showing how platform transformation can be actively supported through design, and by identifying five design principles for incumbent firms: reframing from products to interactions before solutioning, structuring the process as bounded decision cycles, materializing reasoning through boundary objects, balancing conceptual depth with cognitive manageability, and sustaining reflection through phygital continuity. Methodologically, the paper offers a rigorous application of Design Science to a non-technical managerial artifact in a multi-wave, multi-firm collaborative setting.

For managers, the Platform Thinking Journey provides a structured way to reframe platform opportunities, make key design choices explicit, and sustain reflection across the transformation process.

1. Introduction

Digital platforms have progressively become one of the dominant architectures for value creation and innovation across industries (Kenney et al., 2021). Over the past decade, the platform logic, based on multi-sided interactions and network effects (Gawer and Cusumano, 2014; Parker et al., 2016; Cusumano et al., 2019), has reshaped not only the digital economy but also manufacturing, energy, healthcare, and mobility sectors (Kenney et al., 2021; Trabucchi and Buganza, 2025). Platforms act as socio-technical systems that enable distributed innovation and collaboration, coordinating actors through shared interfaces and data infrastructures (Rochet and Tirole, 2003; Hagiu and Wright, 2015). As a result, they have become central to the discussion on how firms can leverage openness and connectivity to accelerate innovation performance.

While the first wave of 'platformization' was led by digital natives such as Amazon or Airbnb, in recent years, established corporations have increasingly embraced platform-based logics to renew their competitive advantage (Iansiti and Lakhani, 2017; Teece et al., 2022; Jovanovic et al., 2022; Thomas et al., 2022). Firms such as Siemens, Axa, and Eni have started to build or join digital ecosystems that connect customers, suppliers, and complementors, aiming to transform traditional product-based relationships into scalable value networks, for example (Trabucchi and Buganza, 2025). This growing tendency

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towards platform models of incumbents signals an important shift: from closed innovation processes to orchestrated ecosystems, following the open innovation (Chesbrough, 2003) trajectory after the platform revolution (Parker et al., 2016).

However, despite their resources and technological capabilities, most incumbents still struggle to translate this ambition into tangible and sustainable outcomes (van Dyck et al., 2024). Recent analyses of platform initiatives among large firms show that while hundreds of projects are launched every year, only a minority demonstrate the defining features of true multi-sided platforms (Trabucchi and Buganza, 2025). The majority remain extensions of existing products or data-driven services, without achieving the self-reinforcing dynamics typical of successful platforms. This *execution gap* reveals how difficult it is for traditional organizations to master the organizational, strategic, and cultural transformation required by platform thinking (Schreieck et al., 2024).

Three main challenges emerge from prior literature and empirical evidence.

First, conceptual ambiguity: many organizations still conflate digital services with platforms, adopting the terminology without embracing the underlying logics of network orchestration (Haenlein et al., 2020; Trabucchi and Buganza, 2025).

Second, organizational and identity barriers: established firms often face tensions between existing structures and the collaborative, boundary-spanning nature of platforms (Altman and Tripsas, 2015; Stonig et al., 2022).

Third, governance and measurement issues: orchestrating ecosystems requires new decision processes and metrics that are rarely codified within traditional management systems (Schreieck et al., 2024). Altogether, these barriers explain why many incumbent initiatives remain difficult rather than transformative, symptoms of organizations that "speak the language" of platforms without truly redesigning their innovation approach. Indeed, legacy firms do not primarily fail at platform innovation because they lack technical resources, but because they mis-frame what a platform is and what it requires (Trabucchi and Buganza, 2023). Indeed, among these challenges, the most upstream one is cognitive: incumbent managers often fail to recognize the platform as a business model and value architecture rather than as a digital tool or service (Amit and Han, 2017). This initial mis-framing leads organizations to apply platform language to the wrong problems, to design weak platform initiatives, or to underestimate the organizational shift from value creation to ecosystem orchestration (Haenlein et al., 2020; Altman and Tripsas, 2015; van Dyck et al., 2024).

This situation highlights a critical need: the absence of an actionable and project-based artifact to guide the design and evolution of platform strategies within established organizations. The literature offers robust conceptual frameworks but limited operational guidance for managers who must make sequential design decisions (like defining roles, governance, access rules, and data strategies) while learning from feedback and iteration in business model architecture that naturally differs from what they are used to, like linear value chains (Amit and Han, 2017). Traditional strategy or innovation frameworks tend to be descriptive (Gregor and Hevner, 2013), leaving a methodological gap between *understanding platforms* and *building them*. What is missing is an artifact that helps managers correctly frame when platform thinking is relevant, what kind of problem it can address, and how platform logic differs from linear value-chain reasoning.

Design-oriented approaches can contribute to filling this gap. Design Thinking, for instance, has demonstrated its potential in framing complex innovation challenges and fostering iterative learning (Magistretti et al., 2021). Design Science (DS) offers complementary rigor by developing and evaluating artifacts that address relevant managerial problems (Hevner, 2007; Hevner et al., 2004). Moreover, the Mode 2 paradigm calls for knowledge co-creation between academia and practice, emphasizing collaborative inquiry and contextual relevance (Van de Ven and Johnson, 2006). Bringing these approaches together offers a promising avenue to move from abstract models to concrete design principles for platform innovation.

This paper presents the Platform Thinking Journey, the result of a structured DS program developed and tested across multiple cycles in collaboration with more than 20 incumbent firms. The Journey operationalizes the principles of platform thinking through a project-based sequence of phases, but its primary purpose is not merely procedural. It first supports a cognitive reframing of managerial problems from product-centric to ecosystem-centric logic, and then structures platform design through phased choices, alternatives, and checkpoints. In this way, the artifact helps managers first recognize when platform thinking is relevant and what kind of ecosystem problem they are addressing, and only then moves toward coherent design, validation, and growth decisions. The PTJ addresses a cognitive and decision-making problem in incumbent firms. It operates through three connected mechanisms: cognitive reframing, attention focusing through literature-grounded alternatives, and reasoning stabilization through shared tools and milestones. First, it reframes the problem through interaction and actor-centric reasoning. Second, it presents structured alternatives derived from platform literature, which focus managerial attention on a limited set of relevant design alternatives and reduce ambiguity in discussions (Hagiu and Wright, 2015; Parker et al., 2016; Gawer, 2021). Third, these alternatives are translated into design tools and milestones through which teams compare options, externalize assumptions, and progressively align interpretations before stabilizing managerial choices (Carlile, 2002; Stigliani and Ravasi, 2012; Hevner et al., 2004; Gregor and Hevner, 2013).

The paper contributes to three streams of literature. First, to the platform literature, by framing platform thinking as a *designed socio-technical system*, not merely an emergent market configuration (expanding the view proposed by Gawer, 2021). Second, to innovation management, by offering an artifact-based process model that helps incumbents align internal functions and external actors in the creation of platform-based value (in response to Schreieck et al., 2024). Finally, we develop a DS artifact that emerges from a multi-firm, multi-cycle Design Science process rather than from a single project in a single organization (incrementally contributing to Hevner et al., 2004).

2. Theoretical background

2.1. Platform thinking: from business models to a transformative approach

The literature on digital platforms has evolved from its economic foundations in the theory of two-sided markets (Rochet and Tirole, 2003; Evans, 2003; Parker et al., 2016) toward a broader management and innovation perspective (Gawer and Cusumano, 2014; Trabucchi and Buganza, 2022). In early works, platforms were primarily analyzed as intermediaries enabling efficient transactions among distinct user groups through cross-side network effects. Over time, management scholars reframed platforms as socio-technical architectures that orchestrate contributions from multiple actors (Gawer and Cusumano, 2014). This shift highlighted design choices, such as openness, governance, and ecosystem boundaries as critical levers of innovation (Hagiu and Wright, 2015).

Recent research has emphasized that platforms are not limited to digital marketplaces but encompass infrastructures that coordinate knowledge, data, and interactions across industries (Kenney et al., 2021; Trabucchi and Buganza, 2022). They represent hybrid organizational forms that merge technological, strategic, and social dimensions (Gawer, 2021; Kretschmer et al., 2022). As a result, *platform thinking* has emerged as a managerial logic centered on orchestrating distributed value creation. It requires moving from linear, pipeline-based processes to modular and adaptive architectures capable of continuous recombination (Trabucchi and Buganza, 2023).

For incumbent firms, this implies adopting a platform mindset not

merely as a technological transformation but as an organizational redesign that affects capabilities, culture, and governance (Altman and Tripsas, 2015; Cozzolino et al., 2018). As Teece et al. (2022) argue, platform strategies challenge established routines and demand dynamic capabilities to sense emerging opportunities, seize them through new configurations, and reconfigure internal assets accordingly. Consequently, platform thinking provides a conceptual bridge between strategy, technology, and organizational design (Teece et al., 2022; Schreieck et al., 2024): it is an integrative approach that redefines how firms innovate and compete.

2.2. The incumbents' curse dealing with platform thinking to foster innovation

Despite the growing adoption of platform logics among established corporations, evidence shows that most incumbent initiatives fail to deliver the network effects and scalability typical of successful platforms (Trabucchi and Buganza, 2025). The literature and recent empirical analyses reveal several interrelated causes, often quite coherent with the historical and famous incumbents' curse (Chandy et al., 2001).

Managers in traditional firms often misinterpret what a platform truly is, equating it with a digital product, having difficulties in understanding this different value creation architecture (Amit and Han, 2017; Haenlein et al., 2020). This conceptual ambiguity generates strategic inconsistency and false starts (van Dyck et al., 2024). As emphasized by Teece et al. (2022) and Pundziene et al. (2022), the key challenge is cognitive: understanding the platform not as a technology but as an architecture of relationships and value creation.

Incumbents operate within rigid structures built around product pipelines and efficiency logics (Altman and Tripsas, 2015). Transitioning toward open, ecosystemic models demands a redefinition of organizational identity and power dynamics (Stonig et al., 2022; Morgan et al., 2021). Fear of cannibalization (Ritter and Lettl, 2018; Sund et al., 2021) and the persistence of control-oriented cultures hinder the adoption of collaborative approaches (Schreieck et al., 2024, 2025).

Large multi-business organizations must balance corporate control and local autonomy when managing platform initiatives. This creates governance tensions among business units and ecosystem partners (Springer et al., 2025). Platforms require new decision mechanisms and incentive structures to align participants' contributions, often absent in traditional management systems (Bäcklander, 2019).

Empirical studies highlight the role of dynamic capabilities as enablers of transformation (Pundziene et al., 2022; Teece et al., 2022). Leadership behaviors fostering experimentation and learning are also crucial. As Şimşek et al. (2022) note, transformational leadership helps overcome internal inertia by legitimizing trial-and-error and effectuation processes (McGrath, 2010). Mody et al. (2020) further demonstrate that there are various ways for incumbents to leverage platforms successfully. Idle assets of the incumbent firms emerge as key variables in cases like Axa or Siemens (Dell'Era et al., 2021; Trabucchi and Buganza, 2025).

In short, Incumbents are simultaneously advantaged and constrained: they possess valuable assets that platforms value (Trabucchi et al., 2020) yet remain bound by legacy structures (Teece et al., 2022; van Dyck et al., 2024). As a result, many projects fail due to poor design, the inability to activate cross-side network effects, or organizational inertia that prevents further development (Trabucchi and Buganza, 2025). This points to a methodological void: managers lack actionable frameworks to guide platform transformation, a gap this paper seeks to address.

2.3. Toward a design-oriented perspective on platform innovation

Addressing the complexity of platform transformation requires more than strategic analysis; it calls for a design-oriented mindset to make it happen (Hevner et al., 2004). Design has long been recognized as a way of thinking that integrates exploration, iteration, and sensemaking (Beckman and Barry, 2007; Dorst, 2011). In innovation contexts, design thinking fosters empathy with users, reframing of problems, and experimentation through prototyping (Brown, 2008; Dell'Era et al., 2020; Carlgren et al., 2016).

Recent studies (e.g., Magistretti et al., 2021) show that design thinking supports the research part in R&D activities by helping teams navigate uncertainty and generate shared understanding across disciplines. Its emphasis on iteration and feedback mirrors the incremental learning processes needed for platform development. However, design-driven approaches alone may lack the specificity of a business transformation that differs from the traditional linear model, creating value in a complex ecosystem of relationships (Amit and Han, 2017). To transform platform thinking into a replicable organizational capability, these approaches must be integrated with a research methodology that ensures validity and cumulative learning. Entering the domain of Design Science can help (Hevner et al., 2004).

Design Science (DS) builds on the principle, that research should both contribute to theory and produce practical artifacts that solve real problems (Hevner et al., 2004; Peffers et al., 2007). It follows an iterative cycle of design, evaluation, and refinement, combining scientific rigor with relevance to practice. DS has increasingly been adopted in innovation management to operationalize solutions that address managerial challenges.

It belongs to the Mode 2 knowledge-production paradigm, which complements this perspective by emphasizing co-creation between researchers and practitioners (Gibbons et al., 1994; Van de Ven and Johnson, 2006). Within Mode 2, knowledge emerges from collaborative inquiry embedded in real contexts, focusing on usefulness, reflexivity, and contextual validation. Applying these principles to innovation management often means the design and testing of artifacts which are not software, but methods, tools, or frameworks (Trabucchi et al., 2024).

Therefore, this study addresses the following question: *How can a design-oriented artifact, developed through Design Science, help legacy firms reframe and manage the complexity of platform value architectures to foster innovation?*

3. Research design

3.1. Research approach and rationale

This study adopts a Design Science (DS) approach to address the complex challenges that legacy firms face when implementing platform strategies. DS is a methodological paradigm originally developed within Information Systems to generate actionable knowledge by designing and evaluating artifacts that solve organizational problems (Hevner et al., 2004; Peffers et al., 2007; Gregor and Hevner, 2013). Unlike traditional analytical methods, DS builds knowledge by designing artifacts and refining them through iterative testing in real contexts.

While DS originated in information systems, it is increasingly applied in innovation and management studies, where researchers seek to design actionable artifacts, tools, and frameworks to address "wicked" managerial problems (Ganesh, 2021; Romme and Holmström, 2023; Sebrek et al., 2025). Its iterative nature and focus on relevance make it suitable for studying dynamic innovation contexts where theory and practice must evolve together.

The choice of DS is coherent with the nature of the problem this paper investigates: the difficulty legacy firms encounter in managing the complexity of platform value architectures mentioned in the previous section. Such *ill-structured problems* (Pham et al., 2023) cannot be solved through static models; they require iterative cycles of design, testing, and reflection (Hevner et al., 2004; Gregor and Hevner, 2013).

In this study, DS provides the epistemological and methodological grounding for developing the Platform Thinking Journey as an artifact to help legacy firms cope with platform transformation. The approach combines conceptual framing with practical experimentation, allowing

knowledge to emerge through iterative refinements of the artifact and its design principles. Each iteration contributes to improvement knowledge, the mid-range theorization that explains how and why the designed approach supports innovation in organizational settings (Gregor and Hevner, 2013).

Consistently with recent DS-based studies in innovation management, this research separates the design and refinement of the artifact from firm-level performance effects, focusing instead on the creation of actionable design knowledge (Sebrek et al., 2025).

3.2. Research setting and context

The research was conducted within the *Platform Thinking HUB*, a collaborative research initiative led by the School of Management of Politecnico di Milano within the Digital Innovation Observatories that brings together more than twenty incumbent firms over 3 years from diverse industries, including manufacturing, energy, finance, and mobility. The project was designed as a living laboratory to explore and co-develop artifacts and process solutions for platform-based innovation through direct engagement between academia and practice. Each company joined the initiative voluntarily, recognizing the relevance of the problem that the research was aiming to solve. Each company involved managers in workshops and interviews and brought real innovation challenges or opportunities to be explored through the emerging artifact. In return, participating firms received access to facilitated cross-company workshops, benchmarking across peers, structured design tools, and direct interaction with the research team around their own platform-related innovation projects. This multi-company configuration allows for cross-sectoral learning and comparative validation of design choices, while maintaining a shared methodological framework across participants.

The *Platform Thinking HUB* embodies the principles of Mode 2 knowledge production (Gibbons et al., 1994; Van de Ven and Johnson, 2006), fostering an environment of joint experimentation and reflection. Companies were not treated as isolated case studies, but as participating organizations that actively contributed empirical problems, feedback, and evaluation inputs to the definition, testing, and refinement of the research artifact. For the firms, the value proposition of participation was twofold: advancing a concrete platform-related innovation project and learning from a structured comparison with other incumbent organizations facing similar transformation challenges. This distinctive methodological configuration (described as *collaborative inquiry platforms* in Trabucchi et al. (2024)) represents an evolution of traditional DS settings, where validation often occurs within a single organizational context. By contrast, the project facilitates multiple, parallel design–evaluation loops across firms, strengthening the robustness and generalizability of findings. The research team acted as an orchestrator of this process, coordinating workshops, synthesizing insights, and translating empirical evidence into progressive refinements of the artifact. Over time, this structure enabled the accumulation of both empirical data and theoretical understanding through a sequence of three annual research waves (2023–2025). Each wave involved a new edition of the HUB with a partially renewed group of participating firms, allowing the research artifact to evolve iteratively through application and feedback.

Data were collected from multiple sources: observation of 12 co-design workshops over 3 years, participation of 25 companies (roughly 10-13 per year), documentation of materials produced (such as canvases, Miro boards, conversations with GenAI), post-session surveys, and notes from roughly 100 one-to-one interviews with participating managers. This triangulation of data provided complementary perspectives on the artifact's evolution and on its perceived utility and usability across different organizational settings, following established practices in qualitative research to ensure validity and depth (Miles, 1994; Saldaña, 2021; Hevner et al., 2004).

We employed a thematic analysis approach to examine the qualitative data collected across the three waves. Following each wave, the research team collaboratively coded observation notes, interview notes, survey comments, and workshop materials to identify recurrent breakdowns, tensions, and opportunities for improving the artifact. The coding process was inductive in its first stage, with first-order codes derived directly from participants' expressions and from recurrent issues observed during workshops. In a second stage, these first-order codes were grouped into broader second-order themes capturing recurring managerial and design challenges, such as platform misinterpretation, lack of convergence, reasoning externalization, cognitive overload, and the need for continuity across sessions. In a third stage, these themes were abstracted into aggregate dimensions that reflected the main problem spaces emerging from the empirical material. Finally, these aggregate dimensions were translated into design principles that informed the successive refinement of the Platform Thinking Journey. The purpose of this analysis was to systematically connect empirical evidence to artifact refinement in line with Design Science. The resulting coding tree is reported in the Appendix, where we provide representative first-order codes, second-order themes, aggregate dimensions, and the corresponding design principles.

This combination of data sources enabled triangulation: we could compare what participants said in interviews with their survey responses and our direct observations. For instance, if managers from multiple companies commented in interviews that a particular canvas was hard to use, we would often see lower survey ratings for that tool, reinforcing the finding. The immediate post-workshop feedback ensured that issues were identified quickly, and the end-of-wave interviews allowed participants to reflect on the overall process once they had some distance, often yielding strategic suggestions for the next iteration. All these data were catalogued and organized wave by wave, forming the empirical basis for evaluating and refining the artifacts.

The combination of longitudinal engagement, multi-firm participation, and iterative refinement positions the *Platform Thinking HUB* as a distinctive environment for Design Science. It enables the development of design knowledge that is both contextually grounded and transferable, bridging academic theorization and managerial practice in the domain of platform-based innovation.

Following the DS model (Hevner et al., 2004), each iteration involved three interconnected cycles: a *relevance cycle* connecting research to managerial problems, a *rigor cycle* grounding it in theory, and a *design cycle* producing and evaluating artifacts that bridge the two.

3.3. The three waves of the design science process

While prior DS studies in innovation management typically rely on single-organization settings (e.g., Sebrek et al., 2025), this research adopts a multi-firm, longitudinal configuration that allows cross-contextual validation and cumulative refinement of design principles (Trabucchi et al., 2024). This multi-year engagement project (2023–2025) involved close collaboration with established firms across sectors to co-develop and trial the platform thinking tools. Each wave corresponds to a full DS cycle, encompassing problem diagnosis, artifact design, evaluation, and reflective learning (Hevner et al., 2004).

Table 1 summarizes the 3 waves.

As the table shows, some of the companies participated in multiple editions, others in just one. This gives us the chance to compare the results longitudinally and to have fresh eyes on each iteration at the same time.

Across the three waves, the Design Science process progressively evolved from exploratory artifacts to a structured and validated process model. The first wave focused on defining the problem space and identifying the key challenges firms faced in developing platform strategies. The second wave formalized these insights into a replicable process and a coherent set of tools (the *Platform Thinking Journey*) which guided managers through the main phases of platform design. The third wave extended this artifact by integrating GenAI components that

Table 1
Overview of waves, companies involved, artifacts developed, activities and methods.

Wave	Year	Companies Involved	Artifacts Developed	Activities and Methods
Wave 1: Initial Artifact Design and Pilot Testing	2023	10 companies: Angelini Industries, ENI, Epta, Sintetica, Edenred, Gruber Logistics, Poste Italiane, Prysmian Group, SDF, Sisal	Single tools: - Idle Asset Canvas, - Data Board, - Platform Thinking Canvas Plus, Workshop formats and digital (Miro) templates	Facilitated and independent workshops (4), hands-on artifact application, interviews, real-time observation
Wave 2: Process Definition and Expanded Tools	2024	13 companies: Alpitour World, Angelini Industries, Epta, Gruber Logistics, GS1 Italy, Iveco, Leonardo, Poste Italiane, Prysmian, Relatech, Retail Reply, Sisal, Trentino Sviluppo	Platform Thinking Journey (first version) - Seven-step process – 60 Support Cards - Refined canvases Plus, Workshop formats and digital (Miro) templates	Structured consequential workshops (4), systematic artifact application, participant surveys, interviews, real-time observation
Wave 3: GenAI integration and Enhanced Toolkit	2025	13 companies: Prysmian, Poste Italiane, Retail Reply, Relatech, Iveco, Angelini Industries, GPS Bilance, Sisal, ENI, EY with Board, GS1 Italy, Trentino Sviluppo, Istituto Neurologico Nazionale Fondazione Mondino IRCCS	Platform Thinking Journey (Final) - Four-step process – 52 Support Cards - GenAI Chatbot (Platform Thinking Journey GPT) Plus, Workshop formats and digital (Miro) templates	Structured consequential workshops (4), systematic artifact application, participant surveys, interviews, real-time observation, analysis of chatbot interaction during and between the workshops

supported reflection and learning between sessions, enhancing both scalability and cognitive depth.

This cumulative logic reflects the core DS principle of iterative learning through design and evaluation cycles (Hevner et al., 2004; Gregor and Hevner, 2013). Each wave contributed to refining both the artifact and its underlying design principles, enabling theory-building through practical experimentation. The multi-firm configuration of the HUB further strengthened the external validity of these learnings, allowing for cross-comparison and generalization of results (Trabucchi et al., 2024). It is important to note that thematic analysis was used not to build grounded theory, but to identify recurrent breakdowns, tensions, and opportunities for improvement in the artifact across iterations (Sebrek et al., 2025). The primary outcome of this DS program is not a single tool, but a set of validated design principles embedded in a replicable journey that supports platform-based innovation.

4. Findings

The findings section is divided into two main sub-sections. The first one aims to dig into the learnings of the waves, the three experimental research cycles we had with companies, focusing on what we learnt in each cycle and how they shaped the following. The second presents the final artifact, namely the Platform Thinking Journey as a process model and toolbox, as the main result of the research.

4.1. Learning through three waves

In Design Science, findings emerge through iterative learning cycles that reveal breakdowns, tensions, and design requirements. Accordingly, this section reports the empirical learnings generated across the three waves that informed the progressive refinement of the artifact.

In line with Design Science, the three waves are not reported as independent empirical results, but as cumulative learning cycles in which breakdowns and tensions revealed specific design requirements that progressively shaped the final artifact.

4.1.1. Wave 1 – exploring and framing the problem

The first edition of the Platform Thinking HUB represented the exploration phase of the research program. It gathered managers from multiple industries who shared a growing curiosity for platform models, but who initially displayed limited conceptual clarity about what a platform truly is.

Most participants initially equated platforms with digital services. As one participant noted, *"We realized we were still thinking in products rather than in interactions."* Another commented that the process *"opened our eyes to new forms of value through partnerships and network effects."*

The workshops were structured around exploratory tools such as the Idle Asset Canvas and the Data Board, aiming to help participants identify how platform logic could unlock opportunities for established firms. Through this hands-on process, they began to uncover potential multi-sided relationships within their existing ecosystems. The open design of the sessions encouraged experimentation, allowing teams to surface both opportunities and contradictions.

However, the sessions also revealed significant confusion and fragmentation in the participants' reasoning. Teams tended to jump between ideas without a clear process for convergence. As one manager explained, *"We had to unlearn some of our old logic before seeing the platform opportunity."*

This revealed a first critical design requirement: exploratory tools were valuable to surface opportunities, but insufficient to support convergence toward actionable platform projects. Managers needed a structured sequence capable of connecting strategic reframing with concrete design decisions.

For the research team, this insight marked the transition from tool-based exploration to the need for a process-oriented artifact that could guide managerial reasoning from opportunity identification to project formulation.

4.1.2. Wave 2 – structuring the process

The second wave began with this precise goal: to move from individual tools to a coherent, project-based journey. Based on feedback from Wave 1, the research team developed the first full version of the *Platform Thinking Journey*, a seven-step process combining sixty decision cards (as typical of design thinking to guide participants) and a modular canvas architecture. This version was tested with multiple companies through a series of facilitated workshops that were considered the desired beginning of real innovation projects.

The process allowed managers to advance more systematically. As one participant reflected, "The sequence helped ideas mature step by step, it made our discussions much more structured and productive."

Compared to the previous edition, this structured flow fostered a shared language across teams and enabled researchers to observe how design decisions unfolded in different contexts. Each workshop produced tangible artifacts (canvases, business model representations, and roadmaps) that documented the reasoning behind strategic choices such as governance or openness.

At the same time, new forms of difficulty emerged. Some managers

reported cognitive overload, noting that *"sometimes we felt overwhelmed, too many cards, too much information at once."* Others highlighted the need for reflection between sessions: *"We moved fast, but we didn't always have time to internalize what we learned."*

While the structured journey improved coherence and shared understanding, it simultaneously exposed a second design requirement: excessive cognitive load hindered reflection and learning, particularly when multiple design decisions had to be addressed within limited timeframes.

These observations were central to the DS iteration. The research team refined the artifact by reducing the number of cards, simplifying the visual layout, and introducing pause points for reflection and peer comparison.

This breakdown led to a refinement of the artifact, highlighting the need to balance structure and simplicity, and to introduce moments of pause and synthesis that would support sensemaking rather than procedural compliance.

The multi-company setting proved particularly valuable. Testing the Journey across diverse sectors (like manufacturing, energy, insurance, and healthcare) made it possible to identify recurring design bottlenecks and cross-sector patterns, mainly related to the typologies of platforms.

4.1.3. Wave 3 – Augmenting with GenAI

The third wave focused on simplifying the previous iteration and embracing participants' feedback. The goal was to manage complexity within the design activity to reduce the cognitive load of participants. The phases moved from 7 to 4 (*Framing, Design, Ignition, and Growth*), while cards evolved from a series of tools and definitions to structured cycles of questions, alternatives, or tools and milestones, to support managers in their reasoning. The full details will be given in the next section.

Still, the feedback of Wave 2 was coherent with a very high cognitive load, so another change was introduced, leveraging digital augmentation. A *GenAI co-thinker* was trained on the Journey's materials, academic literature, and a curated database of platform cases to support participants during the process. In the form of a customized GPT-based assistant trained on a specific knowledge base and with clear behavioral rules (e.g., not to give ideas, but to answer questions and support a critical reflection on the ideas emerging from the team) to support the managers in the workshop.

The introduction of the GenAI co-thinker directly addressed this requirement by extending reflection and sensemaking beyond physical sessions, supporting continuity in managerial reasoning rather than replacing human decision-making. This innovation aimed to extend learning beyond physical sessions and to provide managers with on-demand access to examples, definitions, and reasoning prompts. The chatbot was integrated as a conversational sparring partner, accessible both during and after the workshops.

Participants actively adopted the tool. One manager explained, "We used the chatbot to verify our understanding between workshops." Another added, "It was like having a sparring partner always available."

Researchers observed that the AI system supported both recall and exploration: "Participants used it to challenge their own reasoning, not just to retrieve information."

This addition not only maintained engagement between sessions but also increased the artifact's scalability, allowing participants from different firms and geographies to progress asynchronously through the same sequence. The revised flow, with only 4 steps and the structure cycles of questions, alternatives, or tools, and milestones, received generally positive reactions both from companies that already joined the workshops in previous editions and newcomers, describing it as a clear and manageable framework for dealing with project complexity.

Across the three-years, the iterative combination of workshops, feedback, and design refinement transformed a set of disconnected tools into a coherent, empirically grounded process model.

Each wave addressed a specific learning gap and collectively contributed to shaping the final artifact presented in the following section.

Across the three waves, the PTJ progressively evolved from a set of exploratory tools into an artifact that operates through three connected mechanisms. First, it reframes managerial understanding by shifting attention from products and services to actors, interactions, and ecosystem value creation. Second, it focuses attention through structured alternatives that make relevant platform options explicit and comparable. Third, it stabilizes reasoning through shared tools (Miro), milestones, workshops, digital templates, and a GenAI co-thinker that make platform design decisions discussable, testable, and reusable over time. The progression from Wave 1 to Wave 3 reflects this logic: initial ideation support proved insufficient without reframing and convergence; added structure then improved decision quality but generated overload; the final configuration balanced cognitive reframing, guided decision-making, and between-session continuity (Fig. 1).

Table 2 reports the validated design principles emerging from the three DS waves. These principles connect recurrent problem spaces observed in incumbent firms with more general solution logics and show how such principles were instantiated in the PTJ artifact. The full coding structure underlying this abstraction, including representative first-order codes and second-order themes, is reported in Appendix.

Taken together, these design principles define the core solution logic of the PTJ beyond its specific tools and phases, which emerged throughout the three waves, as shown in Fig. 1. The artifact can therefore be interpreted not only as a four-phase journey, but as a concrete instantiation of broader design principles for supporting platform transformation in incumbent firms, as explained in the next section.

4.2. Resulting artifact: The Platform Thinking Journey

The Platform Thinking Journey (PTJ) is the final artifact resulting from the DS process. It is a composite artifact composed of three tightly connected elements.

- A four-phase process model;
- A decision-support cycle that proposes bounded cycles of questions, design alternatives (coming from the platform literature), design tools (canvases) and milestones (canvases and checkpoints) within the four phases;
- A phygital support toolbox, made of 52 physical or digital cards (that encompass the bounded cycles mentioned in the decision-support toolbox), a set of design canvases, workshop design (one per phase), digital templates (that encompass and support the whole process), and a GenAI co-thinker (a dedicated GPT that supports the process and allows for in-depth exploration of theoretical constructs and examples)

Fig. 2 shows the entire artifact across its layers, while Table 3 shows per each phase the Triggering questions, the Support Elements (Design Alternatives and Design Tools), the Milestone and the Illustrative effect on reasoning and an example.

More specifically, the process model defines the overall sequence of the artifact. Framing supports the reframing of the focal challenge through an ecosystem and interaction-based logic. Design helps configure the platform architecture through explicit design choices and trade-offs. Ignition focuses on the conditions for launch, side activation, and the emergence of early interaction. Growth addresses how the platform can evolve through extension, exploitation, and scaling. Together, these four phases provide the backbone of the PTJ.

Within this backbone, the decision support cycle structures how participants reason and decide. Each cycle begins with a triggering question that defines the focal design issue and directs managerial attention toward a specific decision arena. This is followed by design alternatives and, when needed, analytical tools that help teams compare possible configurations and explore their implications. Each cycle

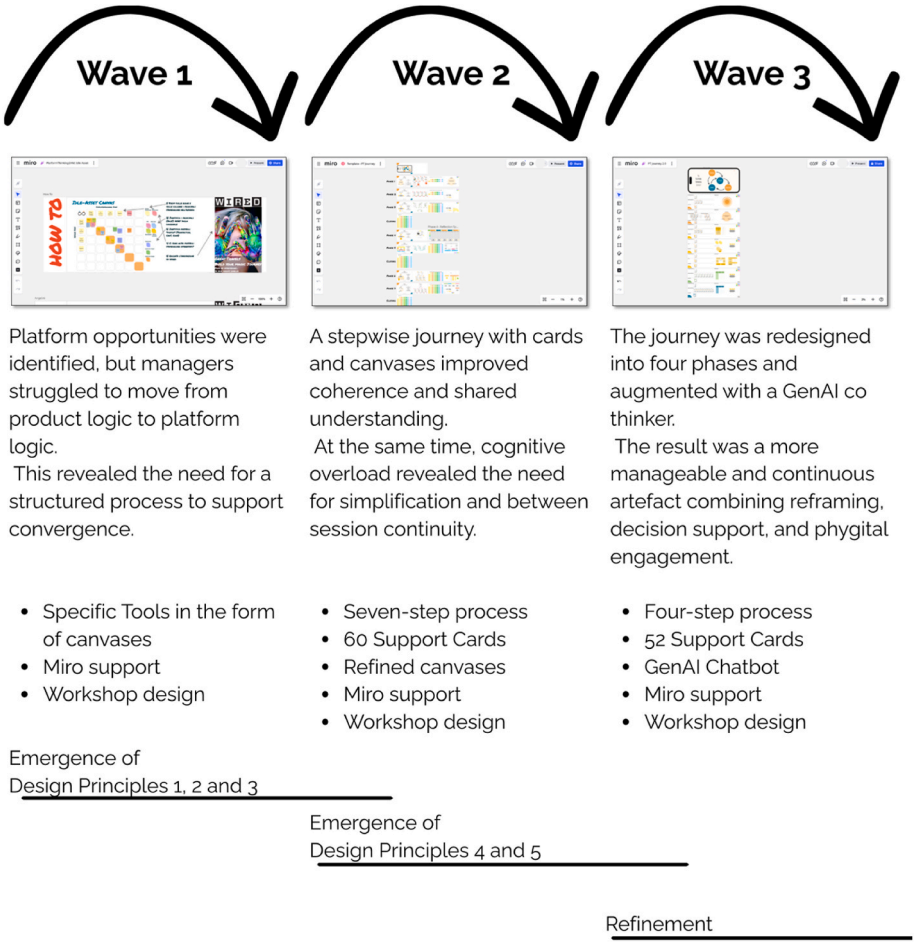


Fig. 1. –Artifact evolution through the waves and emergence of the Design Principles.

Table 2
The emerging Design Principles.

Recurrent problem space	Design principle	Instantiation in PTJ
Managers equate platforms with digital services	**Reframe from products to interactions before solutioning**	Framing phase, Where/ Why questions, Problem Framing Canvas
Teams generate ideas without converging	**Structure the process as bounded decision cycles**	Four phases, milestones, recursive flow
Platform choices remain abstract and implicit	**Materialize reasoning through boundary objects**	Cards, canvases, milestones, digital templates (Miro)
Rich content overwhelms participants	**Balance conceptual depth with cognitive manageability**	Reduced cards, simplified logic, interactive workshop format
Learning fades between sessions	**Sustain reflection through phygital continuity**	Workshop series, Miro memory, GPT co-thinker

concludes with a milestone, namely a checkpoint used to consolidate decisions, assess coherence, and determine readiness to move forward. More specifically, the mechanism of the PTJ lies in the interaction of three connected elements: reframing, attention focusing, and reasoning stabilization. The triggering questions delimit the design space and orient attention toward one platform issue at a time. The design alternatives, grounded in codified knowledge from the platform literature, make relevant options explicit and comparable rather than leaving participants with vague or purely intuitive ideation. This reduces ambiguity and limits the risk that different actors attach different meanings to the same platform concept. The subsequent design tools and/or milestones then require teams to work on those alternatives, translate them into shared representations, and test their internal coherence. In this way, the PTJ combines literature-based focusing with collective sensemaking: it does not replace managerial interpretation, but structures and aligns it through repeated cycles of comparison, externalization, and consolidation to inform the actual design activities.

The phygital support toolbox provides the enabling layer of the artifact. It combines the 52 cards and related templates that support the decision-cycle structure, workshops, design canvases, digital templates in Miro, and a GenAI co-thinker. Workshops create the primary setting for collective reasoning, allowing participants to confront assumptions, compare alternatives, and progressively consolidate platform design choices. Canvases such as the Idle Asset Canvas, Data Board, Problem Framing Canvas, and Platform Thinking Business Model Canvas help externalize assumptions and translate abstract discussions into shared visual representations. Miro preserves intermediate outputs, visual traces, and artifacts across sessions, making prior decisions visible and reusable over time. The GenAI co-thinker extends reflection during and beyond workshop interaction by offering clarification, examples, and reasoning prompts. Rather than generating solutions, it supports deeper engagement with platform logic and helps participants revisit and challenge their assumptions.

4.3. *Validation and empirical evidence*

The artifact was evaluated through a combination of observations, surveys, and interviews collected across the three-years of experimentation, in line with Design Science principles. This multi-source evaluation focused on perceived utility, usability, and adoption rather than on

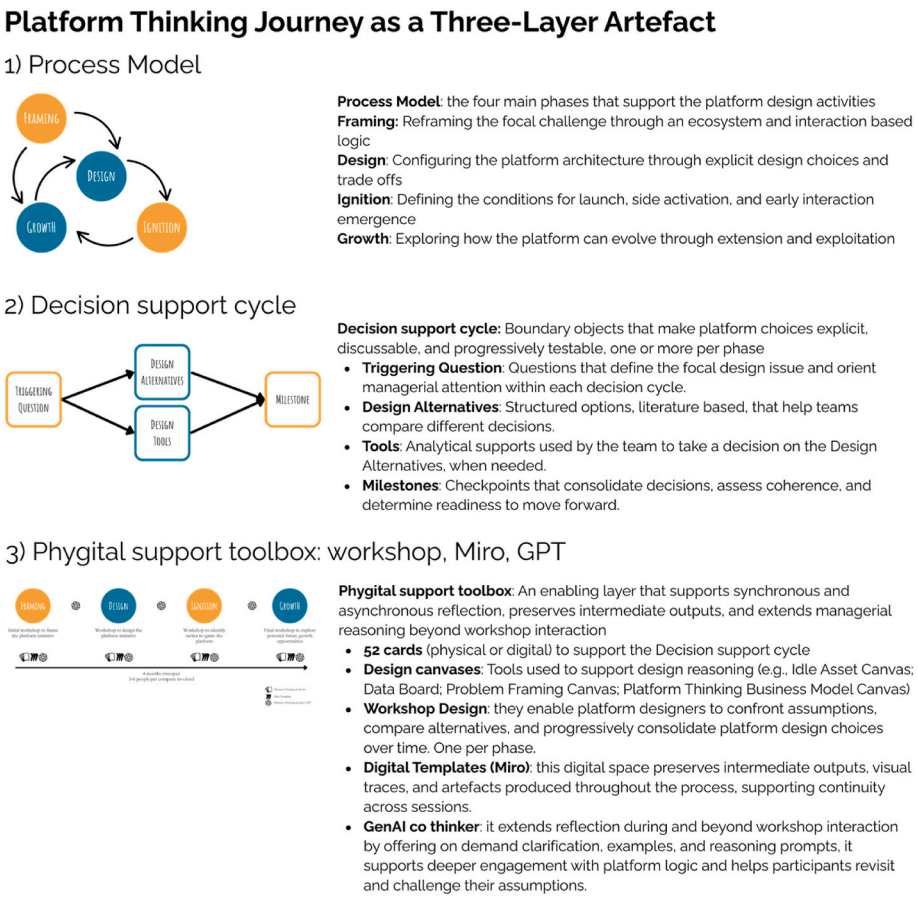


Fig. 2. –Platform Thinking Journey as the resulting artifact.

ex-post-performance outcomes.

Post-session interviews indicate a generally high perceived utility of the Platform Thinking Journey, while many participants reported reusing parts of the toolbox and process model internally after the research activities concluded. These results suggest that the artifact was not only understood during the workshops but also appropriated beyond the research setting.

Qualitative feedback reinforced these findings. Several participants described the tools as becoming embedded in their daily practices. As one manager noted, "*We kept using the cards after the project ended, they became part of our project rituals.*"

Across industries, firms consistently emphasized usability, adaptability to different innovation contexts, and intellectual engagement as key strengths of the approach. Field observations further confirmed that the tangible, visual, and iterative nature of the Journey facilitated alignment across hierarchical levels and functional boundaries, supporting collective reasoning on complex innovation decisions.

Taken together, these empirical signals indicate that the Platform Thinking Journey functioned as a useable and transferable artifact within incumbent organizations, providing a stable basis for the design and discussion of platform-based innovation initiatives.

5. Discussion

The findings of this study contribute to a central theoretical and managerial challenge in the platform literature. For incumbent firms, the difficulty is not simply launching a platform initiative, but understanding when a platform logic is relevant, what a platform logic actually is, and what it means to move from value creation within a linear pipeline to value creation through ecosystem orchestration (Altman and Tripsas, 2015; van Dyck et al., 2024; Schreieck et al., 2024; Teece et al., 2022; Pundziene et al., 2022). Prior research has shown that incumbents often struggle with platform transformation because inherited structures, routines, and assumptions make it difficult to adopt a relational and ecosystem-based logic of value creation (van Dyck et al., 2024; Schreieck et al., 2024). This study adds precision to that conversation by showing that the problem is not only strategic or technological, but also cognitive and decision-making in nature (Magistretti et al., 2021). Incumbent managers do not merely struggle because platform initiatives are complex. They struggle because they frequently misrecognize the underlying problem, treating platforms as digital services, channels, or technologies rather than as distinct value architectures based on orchestrating interactions across sides (Altman and Tripsas, 2015; van Dyck et al., 2024; Amit and Han, 2017; Trabucchi and Buganza, 2023). From this perspective, platform transformation fails upstream, at the level of framing, before it fails downstream in execution.

The Platform Thinking Journey helps address this challenge through three connected mechanisms: cognitive reframing, attention focusing through literature-grounded alternatives, and reasoning stabilization through shared tools and milestones. First, it reframes managerial understanding by redirecting attention from products and services to actors, interactions, and ecosystem value creation. Second, it focuses attention through bounded sets of literature-grounded alternatives that make key platform choices explicit and discussable. Third, it stabilizes managerial reasoning through milestones that force coherence checks before teams move forward. Crucially, this mechanism works because the PTJ does not ask managers to design a platform in generic terms. It presents structured alternatives derived from platform theory (Rochet and Tirole, 2003; Gawer and Cusumano, 2014; Hagiu and Wright, 2015; Stummer et al., 2018; Trabucchi and Buganza, 2022, 2025), which focus attention on a bounded set of possible interpretations, make differences across options discussable, and reduce the risk of fragmented

Table 3
–Phase-by-phase presentation of the artifact with the explained decision support cycles, identification of all the questions, design alternatives, tools, and milestones, with the effect and an illustrative example.

Phase and core purpose	Triggering Question	Support Elements (Design Alternatives and Design Tools)	Milestone	Illustrative effect on reasoning	Illustrative example
Framing: Reframing the focal challenge through an ecosystem and interaction-based logic	Where are you fostering Platform Thinking?	Strategic alternatives on where to apply Platform Thinking: Platform as a New Service; Platform to Innovate a Primary Activity; Platform to Innovate a Support Activity	Platform Stakeholders' Map, clarifying the organizational arena and key stakeholders of the initiative	Helps teams move from a generic idea of a digital initiative toward a clearer understanding of the business problem or opportunity, the relevant stakeholders, and the conditions under which a platform logic may apply	One of the organizations reframed an existing product-data verification service as an orthogonal platform: producers populate trusted product data, while retailers and marketplaces use the registry to verify product information.
	Why are you applying Platform Thinking, to solve problems or to exploit opportunities?	Problem-based alternatives: Enhance or Enable Transactions among Existing Stakeholders; Solving Customers' Needs by Onboarding New Stakeholders; Complementing My Product Through Others' Capabilities; Data Exploitation; Data Harvesting. Opportunity-based alternatives: idle assets (Data, Relationships, Physical Assets, Know-how). Supporting tools: Idle Asset Canvas; Data Board	Problem Framing Canvas, consolidating where and why, identifying the sides involved, and checking the presence of network externalities		
Design: Configuring the platform architecture through explicit design choices and trade offs	Which is the best type of platform to sustain your project?	Platform typology alternatives: Transactional Platforms; Innovation Platforms; Orthogonal Platforms	Platform Type Check, verifying distinct roles and the presence and direction of cross-side network externalities	Helps teams move from an initial idea to a more explicit configuration of platform type, user-side functionalities, and business logic, making trade-offs and design assumptions more visible	The team specified side-level value propositions: producers need a simple way to upload and control product identity data, while retailers and marketplaces need reliable verification of codes, licenses, and data quality through the registry.
	What are the main functionalities needed from each side?	Design tool: User Stories for each side	Value Proposition Canvas, validating coherence among the user problem, required functionalities, and value proposition		
	How does the platform business model work?	Design tool: Platform Thinking Business Model Canvas	Sustainability and feasibility assessment; definition of the Minimum Viable Platform (MVP)		
Ignition: Defining the conditions for launch, side activation, and early interaction emergence	How are you igniting the launch of the platform?	Ignition strategy alternatives: Leveraging an Existing Network; Door-to-Door; Direct Marketing; Bandwagon Effect from the Other Side; Involving Key Players; Simulating One Side; Contract Side	Roadmap specifying which side is onboarded first, with which ignition strategy, and how the subsequent sides will follow	Helps teams translate platform design into an actionable launch logic by forcing them to reason explicitly about side activation and sequencing rather than assuming adoption will emerge automatically	The team reasoned that adoption should start from existing producer relationships and key marketplace actors, using the company's installed base and selected lead partners to populate the registry and trigger verification demand.
Growth: Exploring how the platform can evolve through extension and exploitation	How will the platform evolve?	Platform Thinking Matrix; strategic alternatives for extension and exploitation, including Service Enlargement, Platform Gemini, Supply-Side Addition, Demand-Side Addition, Supply-Side Advertising, Side-Oriented e-Ethnography, Firm-Oriented e-Ethnography, Enhanced Advertising, and Data Trading	Growth Map prioritizing selected growth strategies and linking them back to subsequent design choices	Helps teams shift from seeing the platform as a one-off initiative to seeing it as an evolving system that can grow by adding sides or by exploiting the existing ones in new ways	The team explored growth through premium data services, API access for distributors and marketplaces, analytics, and later extensions such as digital product identity, traceability, and possible B2C verification interfaces.

understandings across participants. Design tools and milestones then transform those alternatives into a shared sensemaking process (Carlile, 2002; Stigliani and Ravasi, 2012; Magistretti et al., 2021; Magistretti and Trabucchi, 2025; Sebrek et al., 2025), helping teams move from abstract concepts to collectively validated design choices. In this sense, the contribution of the paper is to show not only why platform transformation is difficult for incumbents, but also how it can be supported through an artifact that combines reframing, guided choice, and progressive consolidation.

Only in a more indirect sense, these findings also help explain how firms may cultivate micro-processes akin to sensing, seizing, and reconfiguring. By supporting reframing, iterative comparison, and progressive commitment, the PTJ creates conditions that are compatible with capability development, absorptive capacity, and design-enabled learning (Teece et al., 2022; Pundziene et al., 2022; Cohen and Levinthal, 1990; Zahra and George, 2002; Magistretti et al., 2021). More specifically, our findings suggest that framing operates as a missing cognitive layer between platform theory and platform implementation in incumbent firms. Prior literature has clarified that platforms differ from linear businesses because they rely on interactions across sides, indirect network effects, complementarities, and new governance arrangements (Parker et al., 2016; Hagiu and Wright, 2015; Gawer, 2021; Jacobides et al., 2018). Yet incumbent managers often encounter these elements as abstract strategic principles rather than as concrete design problems. The PTJ addresses this gap by translating these abstract principles into sequential design choices that can be collectively interpreted, compared, and stabilized over time.

5.1. Design principles for supporting platform transformation in incumbent firms

The main contribution of this study is not limited to the presentation of the Platform Thinking Journey as a managerial artifact, coherently with Design Science (Hevner et al., 2004). More importantly, the paper makes explicit the design principles that explain why this artifact works and how it can support platform transformation in incumbent firms. In Design Science, the value of a study lies not only in the artifact itself, but also in the design knowledge that can be abstracted from it and reused beyond the focal instantiation (Hevner et al., 2004; Gregor and Hevner, 2013). This is particularly relevant in our case, because the PTJ did not emerge from a single intervention in a single organizational setting, but from a multi-wave, multi-firm, collaborative inquiry process in which recurrent managerial breakdowns were observed, interpreted, and progressively addressed through artifact refinement (Trabucchi et al., 2024). In this sense, the paper's contribution is twofold: it offers a concrete artifact to support platform transformation and explicates the broader principles that underpin its design. These design principles emerged from recurrent problem spaces observed across the three DS waves. They were first identified empirically through recurring tensions in workshops, interviews, surveys, and observation notes. They were then abstracted into more general solution logics and finally instantiated in the PTJ through specific phases, cards, tools, milestones, and continuity mechanisms. This progression is consistent with the logic of DS, where empirical relevance and iterative refinement support the development of actionable design knowledge rather than claims about firm performance outcomes (Hevner et al., 2004; Gregor and Hevner, 2013; Sebrek et al., 2025). Across the three waves, five principles progressively emerged as central.

The first principle is “Reframe from products to interactions before solutioning”. This principle reflects one of the most recurrent problems highlighted in both the literature and our empirical material: incumbent managers tend to approach platforms through a product or service lens, rather than through a logic of interactions, sides, and ecosystem value creation (Altman and Tripsas, 2015; Amit and Han, 2017; van Dyck et al., 2024). This difficulty is the starting point of many failed or weak platform initiatives, because it leads managers to frame the wrong problem from the beginning (Trabucchi and Buganza, 2025). The literature on design thinking and innovation has long emphasized the centrality of reframing in dealing with ill-defined innovation challenges (Magistretti et al., 2021). Our findings extend this point to the platform domain. In particular, the PTJ translates this principle into a dedicated effort to clarify why and where platform thinking should be applied before any design solution is developed. This logic is embedded in the Framing phase, in the “Where” and “Why” questions, and in the Problem Framing Canvas. It is also revisited cyclically, rather than being treated as a one-off diagnostic step. In this respect, the principle addresses the persistent misconception of platforms as digital services already discussed in the platform thinking literature (Trabucchi and Buganza, 2022).

The second principle is “Structure the process as bounded decision cycles”. Designing a platform from within a linear organization is not a matter of one strategic intuition followed by execution. It requires a sequence of interconnected decisions about roles, sides, governance, value propositions, launch, and growth. Our findings show that, when such choices remain unstructured, teams tend to diverge, reopen previous discussions, or move forward without enough coherence. This principle is consistent with the logic of DS itself, which proceeds through iterative cycles of design, evaluation, and refinement (Hevner et al., 2004; Gregor and Hevner, 2013). It is also consistent with a more incremental and agile view of complex innovation processes, where progress depends on manageable cycles of decision making and learning rather than on one linear plan (Magistretti and Trabucchi, 2025). In the PTJ, this principle is instantiated through the four-phase architecture and the seven triggering questions distributed across those phases. Each question defines a bounded design issue and helps teams make progress in a cumulative way, with each decision building on previous ones.

The third principle is “Materialize reasoning through boundary objects”. One of the main barriers observed in the workshops was the difficulty of translating abstract strategic discussions into concrete and shared reasoning. This is a classic sensemaking problem. Prior literature has shown that boundary objects can play a crucial role in supporting cross-functional dialogue, making assumptions visible, and enabling collective interpretation in innovation settings (Carlile, 2002; Stigliani and Ravasi, 2012; Caccamo et al., 2023). Our findings confirm this logic. The PTJ evolved from a loose set of tools into a process supported by canvases, milestones, visual representations, cards, and shared digital traces. These elements do not simply document decisions after the fact. They structure sensemaking as it happens. In this respect, the materiality of the PTJ is not accessory. It is central to its functioning. Canvases and cards externalize managerial reasoning, while milestones impose moments of verification and consolidation. Together, they transform platform thinking from an abstract aspiration into a discussable and designable object.

The fourth principle is “Balance conceptual depth with cognitive manageability”. Platform thinking is conceptually demanding because it requires managers to reason with a value creation logic that differs substantially from the linear models with which incumbents are more familiar (Amit and Han, 2017; Altman and Tripsas, 2015). Our second wave clearly showed that providing more content, more cards, and more design stimuli does not necessarily improve reasoning. At some point, it produces overload. The challenge, then, is not simplification, but maintaining conceptual depth while keeping the process cognitively manageable. Here again, boundary objects help because they anchor reasoning in concrete representations (Carlile, 2002; Stigliani and Ravasi, 2012; Caccamo et al., 2023). In addition, the introduction of the AI co-thinker created a new support layer that helped participants access content, examples, and clarifications without overloading the workshop flow itself (Farri and Rosani, 2025), going more in depth and managing the complexity of the overall design process. The PTJ therefore embodies this principle by reducing unnecessary complexity while preserving the richness of alternatives, checkpoints, and conceptual distinctions.

The fifth principle is “Sustain reflection through phygital continuity”. Platform design is not exhausted within a single workshop session. It unfolds over time, through revisiting, refining, and reconnecting partially stabilized choices. This is especially true for incumbent firms, where platform transformation is a long design process rather than an isolated ideation exercise (Trabucchi and Buganza, 2023). Our findings show that continuity mechanisms matter because without them, reflection fades, learning fragments, and the process loses coherence between sessions. The phygital support architecture of the PTJ addresses this issue by combining workshops, digital traces, and AI support. The Miro environment preserves prior choices and intermediate outputs, while the co thinker supports content recall and deeper engagement between sessions. This is coherent with recent work that highlights the value of non-technical artifacts, collaborative inquiry platforms, and iterative design infrastructures in innovation management (Romme and Holmström, 2023; Trabucchi et al., 2024; Sebrek et al., 2025).

Taken together, these five principles describe the core solution logic of the paper. They explain how platform transformation can be supported in incumbent firms by addressing recurrent cognitive and decision-making barriers through design, contributing the open debate on incumbents creating platform-based innovations (van Dyck et al., 2024; Springer et al., 2025; Trabucchi and Buganza, 2025). The PTJ is one concrete manifestation of these principles, but the contribution of the study is more general than the artifact alone. The PTJ translates abstract platform constructs such as network effects (Katz and Shapiro, 1985), governance (Gawer, 2021), and complementarities (Amit and Han, 2017) into discussable and testable managerial choices, thereby making platform theory more actionable for incumbent firms. What this

paper ultimately offers is a set of design principles to support platform transformation in incumbent firms, with the PTJ as their empirically grounded instantiation.

5.2. The phases and the link with the platform literature

Along with the design principles, the four phases of the PTJ therefore play differentiated roles in translating platform theory into managerial action. Framing addresses the cognitive challenge of recognizing when platform logic is relevant and of moving from pipeline assumptions to ecosystem reasoning (Altman and Tripsas, 2015; van Dyck et al., 2024). Design translates platform constructs such as sides, complementarities, and governance into explicit design choices (Hagiu and Wright, 2015; Gawer, 2021). Ignition connects platform design to the literature on launch and early activation by requiring teams to reason about sequencing, onboarding, and the conditions for the emergence of interaction (Parker et al., 2016; Stummer et al., 2018). Growth, in turn, repositions the platform as an evolving system whose development depends on extending sides, services, and value extraction mechanisms over time (Trabucchi et al., 2020). In this sense, the PTJ does not only structure activities across phases, but assigns each phase a distinct role in making platform transformation progressively actionable for incumbent firms. More broadly, the contribution is not only to describe platforms as emergent market outcomes, but also to show how they can be approached as intentionally designed socio-technical systems in contexts shaped by legacy structures and pipeline logics.

This study does not claim a major methodological innovation in Design Science itself. Its methodological contribution is more restrained and, we believe, more credible. Specifically, it shows how DS can be applied rigorously to a non-technical managerial artifact in the innovation management domain, rather than to a technical system or digital solution.

The relevance of the methodological setting lies in the combination of four elements. First, the research unfolded across multiple waves rather than through a single intervention. Second, it involved multiple firms rather than a single organizational context. Third, it relied on a collaborative inquiry logic in which practitioners did not merely validate an artifact ex post but actively contributed to its refinement over time. Fourth, the study followed repeated loops of design, evaluation, and refinement, consistent with the core logic of DS and with the broader emphasis on engaged knowledge production in management research (Hevner et al., 2004; Gregor and Hevner, 2013; Van de Ven and Johnson, 2006; Trabucchi et al., 2024). Within this setting, the methodological value of the paper lies in three aspects. It applies DS to a process artifact aimed at supporting managerial reasoning, it derives design principles from recurrent empirical breakdowns rather than from a single intervention, and it does so in a collaborative multi-firm environment that strengthens both refinement and abstraction (Romme and Holmström, 2023; Sebrek et al., 2025; Trabucchi et al., 2024). Accordingly, the methodological contribution of this paper is best understood as one of application and exemplification. It extends the use of mainstream DS logic to the challenge of supporting platform transformation in incumbent firms, rather than proposing a new DS methodology.

6. Conclusion

Incumbent firms struggle with platform innovation not only because platform initiatives are difficult to execute, but because they often misframe the problem before design even begins. Rather than recognizing platforms as ecosystem-based value architectures, managers frequently interpret them as digital services, channels, or technologies, and this upstream misunderstanding weakens subsequent design choices (Altman and Tripsas, 2015; Amit and Han, 2017; van Dyck et al., 2024). This paper addressed that challenge through a three-year Design Science program in which we developed and refined the Platform Thinking Journey, a managerial artifact designed to support platform transformation in incumbent firms.

The main contribution of the study is not simply the presentation of the PTJ as a four-phase process model. More fundamentally, the paper identifies a set of design principles for supporting platform transformation in incumbent firms. Across the three DS waves, recurrent breakdowns in managerial reasoning revealed five solution logics that progressively shaped the artifact: “Reframe from products to interactions before solutioning”, “Structure the process as bounded decision cycles”, “Materialize reasoning through boundary objects”, “Balance conceptual depth with cognitive manageability”, and “Sustain reflection through phygital continuity”. The PTJ should therefore be understood as a concrete instantiation of these broader principles, rather than as the contribution in isolation.

From a theoretical standpoint, the study contributes to platform and innovation management research by showing how platform transformation can be actively supported, rather than only described as difficult. The findings suggest that incumbents do not fail only because of structural inertia or technological complexity, but because platform transformation is also a cognitive and decision-making challenge. In this respect, the PTJ helps managers reframe the problem, structure critical choices, and progressively stabilize a more coherent platform logic. This complements prior research on incumbent platform transformation and on the shift from linear value creation to ecosystem orchestration (Altman and Tripsas, 2015; Schreieck et al., 2024; Teece et al., 2022; Pundziene et al., 2022). In a more indirect sense, the study also suggests how design-oriented processes may support micro processes related to sensing, seizing, and reconfiguring, without claiming a new general theory of capabilities (Magistretti et al., 2021).

From a managerial perspective, the PTJ offers incumbent firms a structured way to diagnose when platform thinking is relevant, to move from vague digital ambitions to explicit ecosystem design choices, and to reduce the risk of mis-framing platform initiatives as simple service extensions. By organizing the process into four phases with distinct roles, the PTJ helps managers progressively clarify where platform logic applies, configure the architecture of sides and value propositions, reason about launch and side activation, and explore how the initiative can evolve over time. At the same time, the artifact supports collective reasoning across functions and hierarchical levels by making assumptions visible and discussable through cards, canvases, milestones, and digital traces. This is particularly valuable in incumbent settings, where platform initiatives often stall because decisions remain fragmented across units or are not translated into a shared language. The phygital support architecture further strengthens managerial practice by preserving continuity between sessions and enabling deeper reflection beyond workshops. In this sense, the PTJ helps managers not only design platform initiatives more coherently but also build a more disciplined and collaborative way of working on ecosystem transformation.

Methodologically, the contribution is more restrained. The paper does not propose a new version of DS. Rather, it offers a credible application of mainstream DS to a non-technical managerial artifact, developed through repeated design, evaluation, and refinement loops in a collaborative multi-firm setting (Hevner et al., 2004; Gregor and Hevner, 2013; Trabucchi et al., 2024). In this sense, its methodological value lies in application and exemplification rather than methodological novelty.

The study has clear limitations. Participating firms were voluntary members of the HUB and were therefore likely more open to experimentation than the average incumbent organization. The evaluation focused mainly on early and intermediate phases of platform transformation, rather than on long term innovation or performance outcomes. In addition, the artifact was developed in a specific collaborative context, which may affect its portability. Future research could therefore examine how transferable these design principles are across different organizational settings, especially in firms that are less innovation oriented or less familiar with ecosystem logics. It could also assess longer-term outcomes of applying similar artifacts and further investigate the

role that GenAI-based co-thinkers may play in supporting managerial reasoning within design-oriented innovation processes. Overall, this paper aims to bridge the gap between understanding platforms and designing for them, offering a more disciplined foundation for supporting platform transformation in incumbent firms.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this manuscript, the authors used Generative AI tools (ChatGPT) to improve the readability and quality of the English language, including grammar, syntax, and proofreading. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

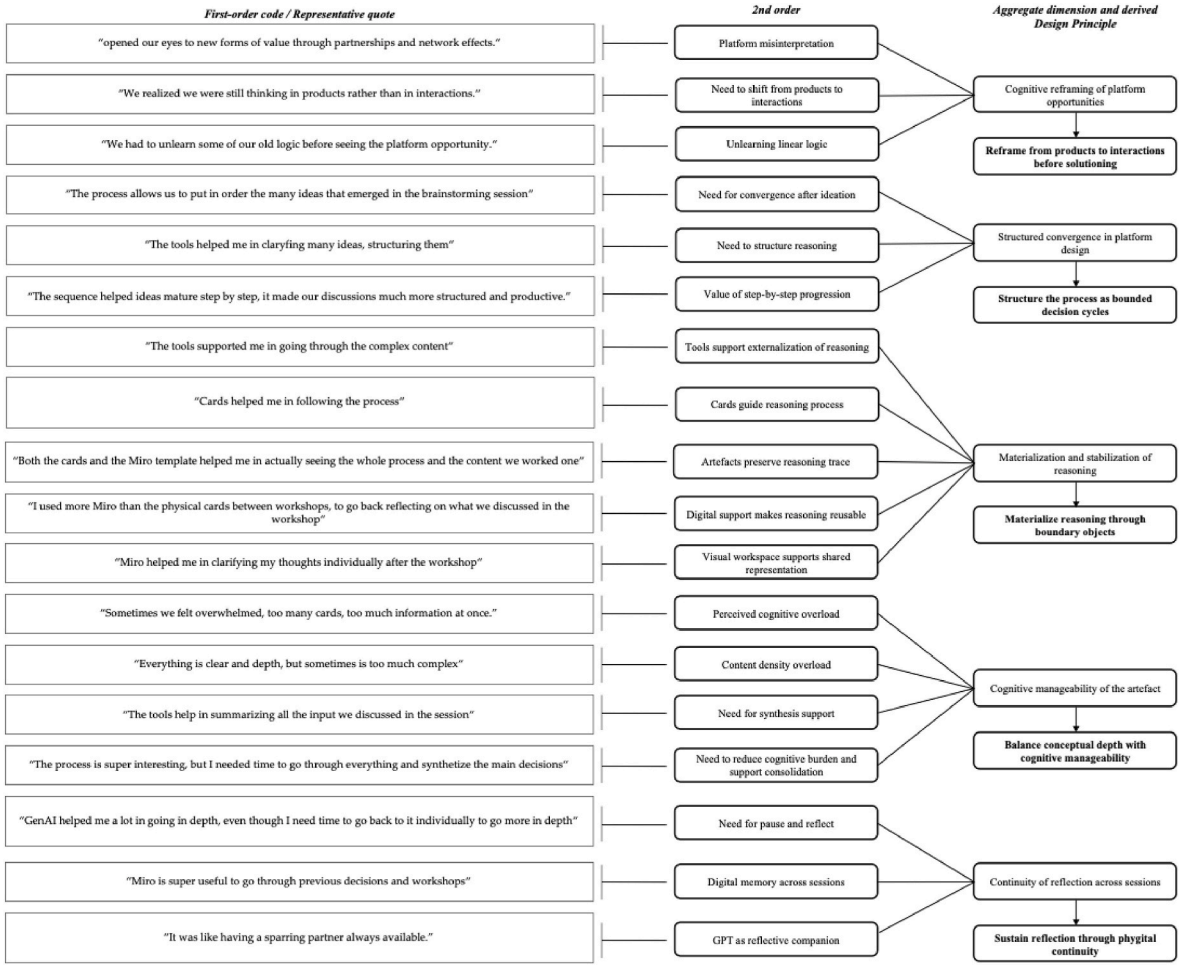
CRediT authorship contribution statement

Daniel Trabucchi: Conceptualization, Formal analysis, Methodology, Project administration, Writing – original draft. **Tommaso Buganza:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – review & editing.

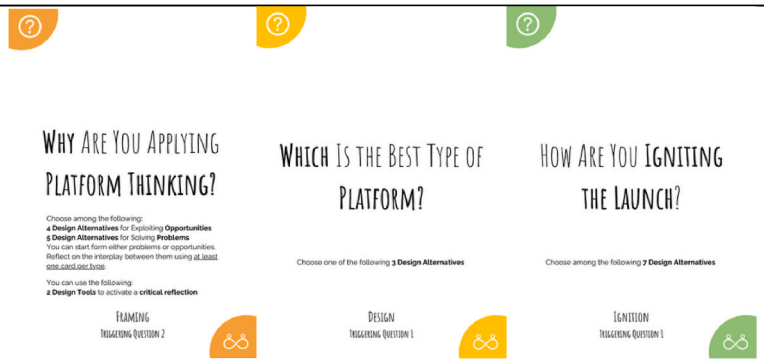
Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. – Coding Tree



Appendix 2. – Examples of cards for each typology, exemplar canvases and templates among the Design Tools and Milestones

Triggering Questions	
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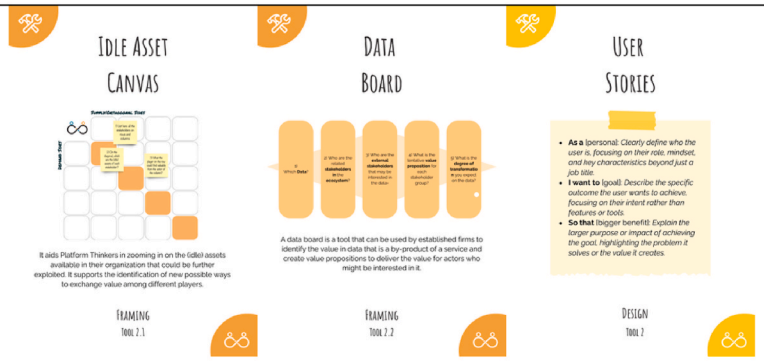
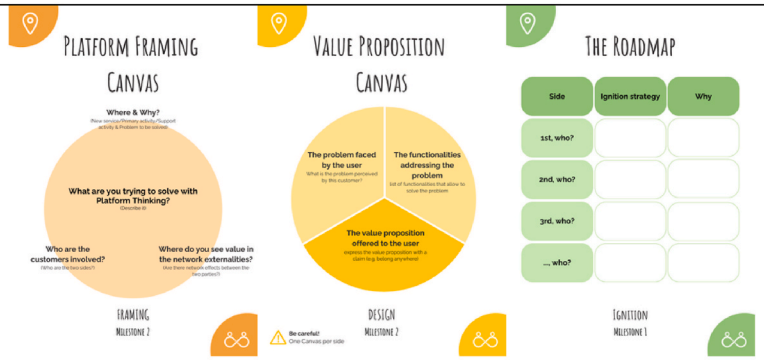
Design Tools	
Milestones	

Appendix 3. – Extracts of the shared digital workspace used across workshops

Idle Asset Canvas (Template used in Wave 1)

Template for the Platform Thinking Journey in Wave 2

Template for the Platform Thinking Journey in Wave 3

Data availability

Data will be made available on request.

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