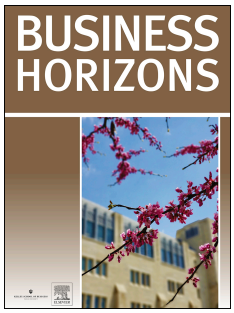

Five business problems platform thinking helps legacy firms solve

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Five business problems platform thinking helps legacy firms solve

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Abstract
Legacy firms struggle to adapt in a business environment increasingly shaped by platform-based models. While research has emphasized how digital-native companies harness network effects and ecosystems, less is known about how incumbents apply platform thinking to address their own challenges. We analyzed 140 platform initiatives launched by S&P 500 companies to understand how legacy firms use platforms in practice. Our findings reveal five recurring business problems that incumbents address through platform thinking: transaction inefficiencies, evolving customer demands, innovation bottlenecks, underutilized data, and lack of data for strategic insights. We identify corresponding "platform thinking hacks" that map these problems to specific platform mechanisms. The study contributes by reframing platform thinking as a problem-driven strategic lens for legacy firms. For managers, it offers a taxonomy and roadmap to selectively embed platform elements without abandoning existing business models.

KEYWORDS: Platform thinking; Legacy firms; Digital transformation; Ecosystem strategy; Network effects; Innovation management

1. From linear models to platforms: The challenge for legacy firms

Digital platforms have become pervasive in contemporary economies, mediating how individuals work, consume, and interact. From ordering food or transport to accessing entertainment and financial services, platforms increasingly structure daily experiences worldwide (Parker et al., 2016; Cusumano et al., 2019). Their ability to orchestrate interactions between multiple stakeholders, rather than relying on asset ownership, has reshaped competitive dynamics. Research has examined platforms through diverse lenses, including economics (Rochet & Tirole, 2003), innovation management (Gawer & Cusumano, 2014), and marketing (Muzellec et al., 2015), highlighting mechanisms such as network effects, modularity, and ecosystem orchestration.

Yet much scholarly and managerial attention has focused on digital-native firms "born platform." Cases like Uber and Airbnb exemplify startups building transactional platforms from scratch, leveraging technology to scale and disrupt (Täuscher & Laudien, 2018). This emphasis has overshadowed how legacy firms—large, established organizations with linear, product-centric models—can adopt platform strategies. While studies show that incumbents can repurpose platform principles (Dell'Era et al., 2021; Farronato et al., 2021), evidence and theorization remain concentrated on entrepreneurial ventures.

Legacy firms, however, face pressing needs that make platform thinking relevant. Operating in mature industries, they encounter inefficiencies, rigid routines, and slower innovation cycles (Teece et al., 2022). They also hold valuable but underexploited assets such as brands, customer relationships, infrastructure, and data (Libert et al., 2016; Trabucchi & Buganza, 2022). Embedding platform mechanisms allows them to unlock value while preserving core strengths. Examples include John Deere's Operations Center connecting farmers with providers (Perlman, 2017), Siemens' Xcelerator enabling external developers, and AXA's Digital Commercial Platform linking customers with risk-mitigation partners.

A key challenge remains: incumbents often lack a systematic understanding of why to deploy platforms. While typology-based approaches clarify what kinds of platforms exist (Trabucchi and Buganza, 2022), they offer limited guidance to managers facing concrete operational problems in established organizations, and are blocked by organizational identities that let perceive platforms as start-up models (Schreick et al, 2024). Much of the literature stresses structural features (e.g., two- vs. multi-sided, transactional vs. innovation) or competition among digital natives (Cusumano et al., 2019), devoting less attention to how incumbents address daily business problems. Consequently, managers struggle to connect abstract concepts with tangible inefficiencies, innovation bottlenecks, or data underutilization (van Dyck et al., 2024).

This study addresses that gap by analyzing 140 platform initiatives launched by S&P 500 firms. We identify five recurring business challenges - transaction inefficiencies, evolving customer demands, innovation bottlenecks, underutilized data, and lack of data for strategic insights - and show how firms recurrently respond to them through "platform thinking hacks," empirically grounded managerial heuristics that emerge from observed platform-based solutions across different platform configurations. By mapping problems to solutions, we develop a taxonomy linking managerial challenges to platform mechanisms.

Our contribution is twofold. Theoretically, we extend platform research beyond digital-native firms by framing platform thinking as a problem-driven strategic lens. Practically, we offer managers a roadmap to diagnose challenges and identify platform-based responses without

abandoning existing models. In doing so, the paper shifts the focus from platform archetypes to the business problems that motivate legacy firms to adopt platform mechanisms in the first place.

2. Digital platforms: A conceptual foundation

Research on platforms has developed along several disciplinary streams, progressively shaping a multidisciplinary understanding of the phenomenon. The economic foundations rest on two-sided markets, where an intermediary creates value by enabling interactions between distinct user groups and internalizing cross-side network externalities (Katz & Shapiro, 1985; Rochet & Tirole, 2003; Evans, 2003). A classic case is credit cards: the more merchants accept a card, the more valuable it becomes for consumers, and vice versa. This work clarified that platforms differ from traditional intermediaries because they actively design pricing structures, access rules, and incentives to balance sides and overcome the "chicken-and-egg" adoption problem (Caillaud & Jullien, 2003).Building on this foundation, management and innovation scholars reframed platforms as organizational and technological architectures coordinating contributions from multiple actors (Gawer & Cusumano, 2014). In this view, platforms are not only about pricing but also about ecosystem orchestration—defining boundaries, governing participation, and shaping innovation at the periphery (Hagiu & Wright, 2015). The emphasis shifted from equilibrium conditions to strategic design choices, such as openness, governance, and the prioritization of sides.

Taken together, these perspectives establish platforms as a distinctive organizational form that orchestrates ecosystems, exploits modularity, and leverages data. This multidisciplinary base underpins typologies of platforms and clarifies the ambiguities managers face in practice.

While these perspectives have significantly advanced our understanding of platforms as organizational forms, they primarily explain what platforms are and how they work. The next two sub-sections therefore review the resulting typologies and problematize their relevance for established firms and their interaction with traditional business models.

2.1. Conceptual ambiguity and typologies

Despite significant scholarly attention, the term platform continues to carry conceptual ambiguity. Different disciplines have used it to describe product architectures, innovation bases, and multi-sided intermediaries, each with distinct mechanisms of value creation (Cusumano et al., 2019). This richness advanced theory but also created confusion in practice. Managers in legacy firms often face uncertainty about whether "platform" refers to a technology, a business model, or a governance strategy, fueling skepticism when adopting platform logics (Amit & Han, 2017; Trabucchi & Buganza, 2022, 2026). As a result, typologies clarify differences between platform forms, but remain largely silent on how managers in legacy firms should choose among them when confronted with concrete organizational problems.

Management research highlights three typologies most relevant today: transactional, orthogonal, and innovation platforms. The transactional platform aligns with two-sided markets (Rochet & Tirole, 2003; Evans & Schmalensee, 2016), directly matching demand and supply across sides. Value depends on cross-side network externalities (Katz & Shapiro, 1985), as in Airbnb or Uber (Täuscher & Laudien, 2018). Success requires reaching critical

mass, and overcoming the chicken-and-egg problem often involves subsidies, side-seeding, or leveraging assets (Caillaud & Jullien, 2003; Trabucchi et al., 2020).

Orthogonal platforms feature unidirectional interactions. Newspapers illustrate this model: readers attract advertisers, though advertisers do not add value to readers (Filistrucchi et al., 2014). In digital contexts, social networks and search engines monetize attention and data. Subtypes include "Client-as-a-Target" (advertising) and "Client-as-a-Source" (data monetization) (Trabucchi et al., 2017).

Innovation platforms, by contrast, provide technological foundations enabling complementors to build new products or services (Gawer & Cusumano, 2014). Examples such as iOS or Android thrive on network effects between consumers and developers (Cusumano et al., 2019). Governance challenges include balancing openness and control, managing complementors, and resolving conflicts (Schreieck et al., 2024).

[INSERT FIGURE 1]

Together, these typologies show that platforms embody different value logics: transactional models orchestrate exchanges, orthogonal models monetize data, and innovation platforms foster co-creation. Each introduces dilemmas—from critical mass to data governance and complementor management. Yet for legacy firms, such distinctions are rarely actionable. In practice, the broad "platform" label blurs differences, complicating strategy identification (Teece et al., 2022; van Dyck et al., 2024). This fragmentation reinforces the need for a problem-driven perspective that complements platform typologies by explaining why established firms can turn to platforms and which business problems platform mechanisms can help address.

2.2. Legacy firms and platform adoption

Unlike digital-native firms, legacy companies are embedded in long-standing product-centric logics, with deeply institutionalized routines, and a strong organizational identity often far from the platform one (Schreick et al., 2024). These features create both opportunities and barriers. As a result, incumbents rarely pursue platform strategies as full business model replacements, but rather integrate selective platform mechanisms into existing organizational and market structures (Dell'Era et al., 2021; Trabucchi & Buganza, 2026).

However, previous research explains conditions and barriers of platform adoption (Van Dyck et al., 2024), rather than the managerial motivations that trigger platform initiatives in the first place. Incumbents hold valuable resources—brands, infrastructures, customer relationships, and data—that can seed ecosystems (Trabucchi and Buganza, 2023). Yet organizational inertia, risk aversion, and siloed structures hinder the openness and flexibility platforms require (Teece et al., 2022; Schreieck et al., 2025).

Conceptual ambiguity often generates hesitation: managers struggle to decide whether platforms are infrastructures, business models, or governance systems (Amit & Han, 2017; van Dyck et al., 2024). Cognitive uncertainty, cultural resistance, and fears of cannibalization reinforce skepticism, while processes and IT systems optimized for linear chains create inertia (Ritter & Lettl, 2018; van Dyck et al., 2024). Many corporate initiatives thus remain peripheral or fail to reach scale (Teece et al., 2022).

Enablers include dynamic capabilities such as sensing, seizing, and reconfiguring (Pundziene et al., 2022), leadership commitment (Simsek et al., 2022), and experimentation-oriented approaches like effectuation (Sosna et al., 2010). Relational capital with suppliers and customers can also accelerate critical mass (Mody et al., 2020; Dell'Era et al., 2021).

Governance emerges as central. Springer et al. (2025) frame industrial platforms as meta-organizations coordinating multiple entities, identifying archetypes such as matchmakers, marketplaces, enablers, and consortia. Schreieck et al. (2025) add that governance in incumbents is multi-layered, spanning business units, partners, and complementors. This raises tensions between innovation and control, and coordination issues in multi-business contexts.

Taken together, legacy firms appear both advantaged and constrained. Their resources and relationships provide strong foundations, but entrenched logics and governance complexity limit outcomes. While prior research classifies platforms and maps barriers and enablers, less is known about the managerial rationale for adoption. This motivates our guiding question: Which business challenges can legacy firms solve through platform thinking?

3. Research design and data collection

This study adopts a systematic content analysis to examine how legacy firms use platform thinking to address recurring business challenges. Content analysis is well suited for identifying patterns across large bodies of textual data and is increasingly applied in management research to investigate strategies through publicly available information (Krippendorff, 2018). The method is particularly appropriate here, as our goal is not to measure outcomes but to uncover the rationale behind firms' initiatives. Legacy organizations operate in mature industries, rely on linear value chains, and must reconcile platform logics with entrenched routines. To capture how they engage with platform strategies, we examined initiatives reported in corporate disclosures, specialized press, and industry reports (Ritala et al., 2018, 2022). This approach enables us to systematically identify initiatives meeting established criteria for platform models and analyze them in terms of the problems they aim to solve.

3.1. Data collection

Our dataset was constructed from the Standard & Poor's 500 index, updated as of February 2023. We selected the Standard & Poor's 500 as our empirical setting because it represents large, established firms with the resources and organizational capacity to experiment with and scale platform-based initiatives across multiple industries. The S&P 500 is inherently multi-sectoral and, being based in US - where many of the most influential platform models have historically emerged - provides a particularly relevant context for observing how legacy firms engage with platform thinking. At the same time, this choice obviously introduces a bias toward large incumbents; accordingly, we address the implications for the generalizability of our findings to smaller firms in the conclusion.

Because our study focuses on legacy firms—historically structured around linear value chains—we excluded companies "born platform," such as digital-native firms in technology. This filtering resulted in 484 companies representing leaders across sectors and offering a comprehensive perspective on how established firms engage with platform strategies.

To identify initiatives, we conducted a structured search using predefined keywords. Each company name was combined with the terms platform and data, the latter included to capture initiatives related to orthogonal platforms. Alternative keywords were tested during the pilot phase but did not add value. The goal was not full exhaustiveness, but a broad dataset where firms explicitly adopted—or described themselves as adopting—platform mechanisms.

Searches were performed via Google and covered multiple secondary sources, including corporate reports, announcements, initiative-specific websites, press releases, and coverage in business outlets and industry magazines. Drawing on multiple sources for each initiative enhanced triangulation and reduced bias from self-reported communications (Bowen, 2009). This procedure yielded 796 initiatives across 484 firms. Each was documented in a structured database recording company name, initiative title, year of announcement, and sources. This dataset formed the foundation for coding and screening, through which initiatives were assessed against established definitions of platform models.

3.2. Screening and coding

The 796 identified initiatives were systematically evaluated to determine whether they qualified as platforms. We relied on established definitions (Cusumano et al., 2019) and applied three criteria: 1) at least two interdependent user groups; 2) reliance on cross-side network externalities; 3) fit with one of the three typologies (transactional, orthogonal, innovation, as described previously).

Initiatives that did not meet these criteria were excluded and recorded as non-platform cases. The most common reason was that they represented digital services rather than platforms, lacking multiple user groups or network effects. Out of 796 initiatives, 656 fell into this category. This screening process resulted in a final dataset of 140 platform initiatives across 484 S&P 500 legacy firms.

The analytical process then proceeded in two distinct phases. First, all platform initiatives were coded by the two authors according to platform typology using a theory-driven coding scheme grounded in the platform literature, using the labels of transactional, orthogonal, and innovation platforms as defined in previous sections (Trabucchi and Buganza, 2022). This step ensured analytical consistency in identifying the underlying platform mechanisms.

Second, the identification of business problems followed an inductive qualitative coding process. In an initial phase, each author independently coded a subset of initiatives to identify recurring managerial challenges, following established practices in inductive content analysis (Miles, Huberman, & Saldaña, 2014). Through iterative comparison and discussion, we converged on five recurring business problems. In a second phase, the remaining initiatives were independently coded against these emergent categories. Borderline cases were discussed jointly and assigned when agreement was reached. Finally, each recurring business problem was associated with a dominant platform reasoning pattern that managers use to reconfigure existing and new assets, namely “platform thinking hacks”, which are managerial heuristics grounded in empirical regularities and informed by platform theory.

4. Five business challenges addressed through platform thinking

Our analysis of 140 initiatives by S&P 500 legacy firms surfaced five recurring business problems that platform mechanisms help address: (1) transaction inefficiencies, (2) evolving customer demands, (3) innovation bottlenecks, (4) underutilized data, and (5) lack of data for

strategic insights. These categories emerged inductively from the coding process and represent the main dimensions of how legacy firms deploy platform thinking.

Each problem maps to a "platform thinking hack," which we define as an empirically grounded managerial heuristic that captures a recurring way in which legacy firms deploy platform-based solutions to address that specific challenge. For clarity and space, we illustrate each problem–hack pair with one representative case from the dataset, even though each category is supported by multiple initiatives across industries.

4.1. Transaction inefficiencies → hack: Enhance or enable transactions among existing stakeholders

Transaction inefficiencies represent the most common challenge in our dataset, with 60 initiatives (43 percent). Legacy firms often face slow, costly, or unreliable exchanges between actors already in their ecosystems, such as suppliers, partners, or customers. These inefficiencies typically appear in procurement, marketing, and after-sales activities.

Across these initiatives, managers recurrently rely on a similar approach: the creation of transactional platforms that streamline interactions among existing stakeholders which defines the hack. By standardizing information flows, embedding trust mechanisms, and providing real-time visibility, these platforms reduce friction without the need to onboard entirely new categories of users.

4.1.1. Case: Chipotle Virtual Farmers' Market

During the pandemic, Chipotle launched a Shopify-based marketplace that connected its existing network of local suppliers with consumers. Because both sides were already part of Chipotle's ecosystem, the initiative avoided the classic chicken-and-egg paradox of multi-sided platforms. As more farmers joined, variety increased; as more consumers participated, sales volumes rose. The platform layered a new service on top of the company's linear business model at near-zero marginal costs, creating additional value for both suppliers and customers.

4.2. Evolving customer demands → hack: Onboard new stakeholders to solve customer needs

The second category, representing 37 initiatives (26 percent), reflects the difficulty incumbents face in meeting rapidly changing customer expectations. Customers increasingly demand seamless, personalized experiences that extend beyond the traditional product or service. Product-centric models often fail to deliver this flexibility.

The hack here involves using platforms to onboard new categories of stakeholders—often external experts or service providers—into the ecosystem. These stakeholders are treated as customers in their own right, with value propositions tailored to them. This move allows firms to extend their offering and meet customer demands without vertically integrating new competences.

4.2.1. Case: Intuit TurboTax Live and QuickBooks Live

Intuit complemented its core software with live access to certified experts. Through the platform, tax professionals and bookkeepers could offer on-demand services directly to Intuit's users. For customers, this solved the problem of confidence and accuracy in filing taxes or managing accounts. For experts, the platform created a qualified demand stream and

monetization channel. By reframing professionals as a new customer side, Intuit delivered greater value without transforming its underlying software business model.

4.3. Innovation bottlenecks → hack: Complement products through others' capabilities

A third cluster of initiatives, comprising 24 cases (17 percent), targeted innovation bottlenecks. Legacy firms often struggle to sustain the pace and diversity of innovation when relying solely on internal R&D. Closed models limit the inflow of ideas and the range of complementary services available to customers.

The hack in these initiatives was the establishment of innovation platforms that invite external developers, suppliers, or partners to build complements around the firm's product or installed base. In these cases, complementors become a new side of the platform, and bi-directional cross-side effects reinforce growth: more complementors increase the value for customers, while more customers enlarge the addressable market for complementors.

4.3.1. Case: PACCAR Virtual Vehicle

PACCAR created a developer ecosystem around its connected trucks, enabling third parties to offer tailored fleet services. The company leveraged its trusted brand and existing telematics infrastructure as a foundation for external innovation. Customers benefited from richer and more personalized services, while developers gained access to a large installed base. The initiative allowed PACCAR to extend value without expanding its internal R&D footprint.

4.4. Underutilized data → hack: Data exploitation

The fourth challenge, underutilized data, accounted for 16 initiatives (11 percent). Legacy firms often hold vast amounts of operational and customer data that remain siloed, unmonetized, or underexploited. These initiatives revealed opportunities to transform latent data into new services and revenue streams.

The hack observed here was the creation of orthogonal platforms that monetize data by connecting end-user activity to third-party demand. In these models, cross-side effects are uni-directional: the more users generate data, the more valuable the insights for advertisers, partners, or other buyers, even if the reverse does not hold true.

4.4.1. Case: Target Roundel

Target launched Roundel to turn its retail data into a service for advertisers. By offering insights into customer behavior and campaign performance, the platform transformed vendors into orthogonal clients. Shopper activity on Target's core business enhanced the value of Roundel, creating a feedback loop: more transactions generated better insights, which attracted more advertisers. This initiative demonstrated how legacy firms can extend their business model by exploiting existing data assets without disrupting the core retail operation.

4.5. Lack of data for strategic insights → hack: Data harvesting

The final cluster, although the smallest with only 3 initiatives (2 percent), reflects an important managerial problem: the absence of timely, structured data to support decision-making. In these cases, the challenge was not exploiting existing data but generating new, decision-relevant data streams.

The hack here was the design of platforms that incentivize contributors to generate and share new data. Contributors were treated as customers, receiving immediate value (such as insights, convenience, or compliance) in exchange for providing information that enhanced organizational intelligence.

4.5.1. Case: Carnival Neptune

Carnival developed Neptune, a platform that centralizes real-time telemetry from ships. The system provided operational feedback to crews, improving safety and compliance, while also creating a broader dataset for predictive maintenance and fleet-wide optimization. By embedding value for contributors—the crews generating the data—the platform aligned incentives and ensured consistent, high-quality information flows.

4.6. The five problem-hack pairs

Taken together, the five problem–hack pairs form a practical taxonomy of how legacy firms apply platform thinking (Table 1). Importantly, the identified platform thinking hacks should not be interpreted as prescriptive best practices or abstract analytical constructs, but as empirically observed heuristics that managers mobilize when confronting recurring business problems. When transactions falter, firms use transactional platforms (Rochet and Tirole, 2003) to streamline exchanges among existing actors. When customer needs evolve, firms onboard new stakeholders to extend their offerings, generating a transactional platform. When internal innovation stalls, they open their products to external complementors through innovation platforms (Gawer and Cusumano, 2014). When valuable data remain underused, they create orthogonal platforms to monetize it, through an orthogonal platform (Trabucchi et al., 2017). And when crucial data are missing altogether, they design harvesting platforms to generate it again with an orthogonal approach.

[INSERT TABLE 1]

The distribution across our dataset is: 60 initiatives targeting transaction inefficiencies, 37 evolving customer demands, 24 innovation bottlenecks, 16 underutilized data, and 3 data for strategic insights. This distribution offers the space for an in-depth analysis and comment along two complementary dimensions. First, the dominance of transaction inefficiencies and evolving customer demands is closely linked to the platform typologies involved. These challenges are primarily addressed through transactional platforms (Rochet and Tirole, 2003; Tauscher and Laudien, 2018), which represent the most familiar and comparatively simpler form of platform model. Transactional platforms often build on existing digital infrastructures and do not require deep technological reconfiguration, making them more accessible for legacy firms. By contrast, innovation bottlenecks are typically addressed through innovation platforms (Gawer and Cusumano, 2014), which demand more advanced technical capabilities, higher investments, and more complex governance arrangements, helping to explain their lower frequency. Similarly, challenges related to data exploitation and data generation rely on orthogonal platforms (Trabucchi et al., 2017), whose business logic is less intuitive and more subtle for incumbents, contributing to their lower diffusion.

Second, the observed distribution is also influenced by the visibility of initiatives in publicly available sources. Market-facing platforms addressing transactions and customer experiences are more likely to be explicitly communicated through corporate announcements and press coverage. In contrast, initiatives related to data exploitation and, in particular, data harvesting are often embedded in internal processes and decision systems, making them less visible and

more difficult to capture through secondary data. This visibility bias likely contributes to the relatively low number of cases observed for data-driven challenges in our dataset.

This taxonomy reframes platform thinking as a problem-driven strategic lens for legacy firms. Instead of treating platforms as an abstract business model, it shows how incumbents selectively embed platform mechanisms to overcome specific barriers rooted in linear value chains.

5. From platform typologies to problem-solving: Linking findings to theory

5.1. From typologies to problems: Reframing the literature

Much of the platform literature, as reviewed in Section 2, has emphasized typologies: transactional (Rochet & Tirole, 2003), orthogonal (Filistrucchi et al., 2014; Trabucchi et al., 2017), and innovation platforms (Gawer & Cusumano, 2014). While these categories have advanced theoretical clarity, they often obscure the managerial motivations that drive incumbents to adopt platform elements. As noted, ambiguity persists in practice: managers struggle to determine whether "platform" refers to a business model, a governance mechanism, or a technological base (Amit & Han, 2017; Trabucchi & Buganza, 2022).

Our findings suggest an alternative entry point. Instead of asking "which type of platform should we build?", legacy firms begin with the question "*which problem are we trying to solve?*" Typologies become secondary: they describe the mechanisms through which platforms operate, rather than the managerial motivations that trigger their adoption. Our taxonomy, therefore, complements existing solution-based categorizations with a demand-side, problem-driven lens (Springer et al., 2025; Schreieck et al., 2025). The different typologies remain relevant in our findings, but theoretically and practically, we reframe platform thinking from an archetypal choice (Trabucchi and Buganza, 2022) to an instrumental logic. Existing theories of platforms remain valid, but their role changes: rather than prescribing alternative business models, they inform a repertoire of mechanisms that incumbents mobilize selectively to address specific organizational problems.

5.2. Linking problems to theories

Our findings also show that established theories of the firm, innovation, and value creation remain highly explanatory when platforms are mobilized as problem-solving instruments within legacy organizations. The theoretical contribution of this study lies in demonstrating that platform thinking does not require abandoning established theoretical lenses; instead, it reveals how these theories can be extended when platforms are used tactically to address concrete managerial problems.

The first problem–hack pair, enhancing transactions among existing stakeholders, connects directly to Transaction Cost Economics (Williamson, 1981). Firms exist to minimize transaction costs compared to markets; however, as firms scale, internal coordination costs rise. Our data show that legacy firms deploy transactional platforms as hybrid mechanisms: they reduce inefficiencies without resorting to vertical integration, instead redesigning exchanges among already connected actors.

Rather than challenging Transaction Cost Economics and its link with platforms (Evans and Schmalensee, 2016), our findings specify how its logic is operationalized in legacy firms through a platform-based approach that can potentially apply to any inefficient process.

Rather than replacing the firm–market boundary, platforms act as intra-ecosystem optimizers, often targeting procurement, sales, or after-sales. This reframes transactional platforms as tools of incremental efficiency enhancement in legacy firms.

The second problem, evolving customer demands, highlights the pressure on incumbents to adapt offerings to shifting expectations for personalization and integration. Classic marketing and strategy literature emphasizes customer-centricity and the capacity to respond to demand heterogeneity (Shah et al., 2006).

Our findings show that firms adopt transactional platforms that onboard new stakeholder categories (e.g., experts, service providers) as a response, managing multiple intercorrelated value propositions as platforms do (Muzellc et al., 2015). This extends customer-centricity from an internal orientation (designing flexible products) (Shah et al., 2006) to an ecosystem orientation (expanding the offering by including external actors) (Trabucchi & Buganza, 2022).

The result is a more fluid value proposition that can evolve dynamically with customer expectations. In theoretical terms, this positions platforms as enhancers of flexibility for legacy firms. They allow incumbents to remain competitive without vertically integrating new competences, offering a middle path between rigid product pipelines and disruptive ecosystem strategies.

Innovation bottlenecks reflect the well-documented limits of closed R&D. Theories of Open Innovation (Chesbrough, 2003) and Absorptive Capacity (Cohen & Levinthal, 1990) emphasize the importance of accessing and integrating external knowledge.

Our cases show that legacy firms establish innovation platforms that invite complementors to build on their products or infrastructure. These initiatives function as absorptive mechanisms, transforming external contributions into extensions of the firm's offering. This not only increases the pace of innovation but also diversifies the knowledge base available to the firm. This finding contributes to the literature by specifying the platform mechanisms through which open innovation occurs in legacy firms, not just for the purpose of new product development. It highlights that platforms can act as structured absorptive infrastructures, aligning external incentives with internal gaps. It also connects to recent work on governance (Schreieck et al., 2025), which stresses the need for incumbents to balance openness with control when inviting external contributors.

The fourth problem–hack pair, exploiting underutilized data, underscores the role of data as a latent but underexploited resource in legacy firms. From a Resource-Based View (Barney, 1991), to more recent theories (Alaimo & Kallinikos, 2022), data represent a valuable, rare, and hard-to-imitate asset—yet one that often remains idle within silos.

Our findings show that firms use orthogonal platforms to transform data into new services, typically sold to advertisers, suppliers, or partners. This aligns with prior research on data-driven business models (Trabucchi et al., 2017; Haenlein et al., 2020) but extends it by emphasizing how incumbents activate data as a secondary resource: not central to the original product, but repurposed into a parallel revenue stream.

This reframes orthogonal platforms as data monetization (through external or internal players, with cost saving in internal cases) mechanisms embedded in legacy firms, extending the RBV

into the digital era. It also raises governance and trust issues: while orthogonal models can unlock value, they may also trigger privacy concerns, echoing warnings in Ritter & Lettl (2018).

The final problem, lack of data for strategic insights, is the rarest but perhaps the most transformative. Here, firms face not just unused data, but the absence of relevant data altogether. Theoretical lenses from Organizational Learning (March, 1991) and Dynamic Capabilities (Teece, 2007) highlight the importance of creating new knowledge and reconfiguring resources in uncertain environments.

Our findings show that some incumbents build data-harvesting platforms that incentivize contributors to generate new information while receiving a service, giving data-driven innovation a new frame (Trabucchi & Buganza, 2019). This positions platforms as learning infrastructures, enabling firms to sense and seize opportunities by creating streams of actionable intelligence, through the power of reframing to solve complex issues.

The rarity of such cases in our dataset reflects the complexity of reframing a specific need as a multi-stakeholder service. Nonetheless, these initiatives underscore the potential of platform thinking to serve not just as a monetization tool but as a foundation for seeing digital technologies as a tool to create an ecosystem within and outside the firm, even for specific purposes.

6. Implications, future directions, and conclusion

This study contributes to both theory and practice by reframing platform thinking as a problem-driven strategic lens for legacy firms. From a theoretical standpoint, our findings extend the literature beyond typologies and structural classifications (Rochet & Tirole, 2003; Filistrucchi et al., 2014; Gawer & Cusumano, 2014). Our analysis shows that those categories can actually be linked back to practical business problems lived by companies. Platform adoption is motivated by concrete business frictions: inefficiencies in transactions, rapidly evolving customer demands, bottlenecks in innovation, underutilized data, and the absence of data for strategic insights.

Rather than encouraging firms to "become platforms," our taxonomy suggests a practical decision sequence. Managers should first diagnose the business problem they are facing, then identify the platform logic most suited to that problem, assess whether the organization is ready to support that logic, and finally design governance mechanisms, incentives, and risk controls accordingly. This sequence matters because different platform thinking hacks do not require the same level of technological capability, ecosystem openness, or governance complexity. Transactional platforms can often begin with a focused minimum viable interaction, while innovation platforms require stronger technological interfaces and complementor governance. Data-oriented platforms, by contrast, require managers to identify less obvious relationships between data generators and data users and to assess whether the quantity, quality, and legitimacy of data are sufficient to sustain the model.

Table 2 translates this reasoning into a diagnostic roadmap for managers. It connects each platform thinking hack to the organizational symptoms that may trigger it, the diagnostic questions managers should ask, the underlying platform logic, the design and readiness requirements, and the main risks and trade-offs to anticipate.

[INSERT TABLE 2]

The table highlights that platform thinking is not a single transformation path. It is a modular problem-solving approach. Managers should prioritize the hack that fits both the urgency of the problem and the organization's ability to manage the required interaction. A firm facing simple transaction frictions may start with a transactional MVP and focus on ignition and trust-building. A firm facing innovation bottlenecks should first assess whether it has a technological base that can be opened safely and governed effectively. A firm pursuing data exploitation or harvesting should first test whether the data relationship is legitimate, valuable, and sustainable for all sides involved.

The cases analyzed in this study illustrate these managerial lessons. Chipotle and Intuit show that expanding the value proposition requires treating external partners or experts not simply as suppliers, but as a distinct platform side with dedicated incentives. PACCAR highlights that opening innovation requires deliberate choices about which assets should become accessible and how complementors should be governed. Target and Carnival illustrate that data-oriented platforms depend not only on technological capabilities, but also on designing trust mechanisms and incentives that sustain valuable data flows.

While these insights are grounded in a large dataset of 140 initiatives from S&P 500 companies, the study is not without limitations. Reliance on secondary data means that reporting bias cannot be ruled out; firms are more likely to disclose initiatives that succeed or align with their strategic narratives. As a result, internal or less visible projects may be underrepresented. In addition, our focus on large, established firms offers a clear view of how industry leaders pursue platform strategies, but it limits the generalizability of findings to small and medium-sized enterprises or firms in emerging markets. These limitations point to fertile avenues for future research. Scholars could build longitudinal studies to trace how problem-driven platform initiatives evolve over time, exploring whether they scale sustainably or stall after initial momentum and whether traditional platform evolution still occurs. Finally, more attention should be devoted to the "dark sides" of platform adoption, including privacy risks, cannibalization of core businesses, and cultural resistance inside legacy firms.

In conclusion, this study shows that platform thinking provides legacy firms with a modular, problem-driven approach to digital transformation. In an era where incumbents must adapt without abandoning their strengths, platform thinking offers a way to reconfigure existing assets, relationships, and data to unlock new value.

Declaration of Generative AI and AI-assisted technologies in the writing process
During the preparation of this work the authors used ChatGPT by OpenAI in order to improve the readability and grammar consistency of the text. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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Figure 1. The platform typologies

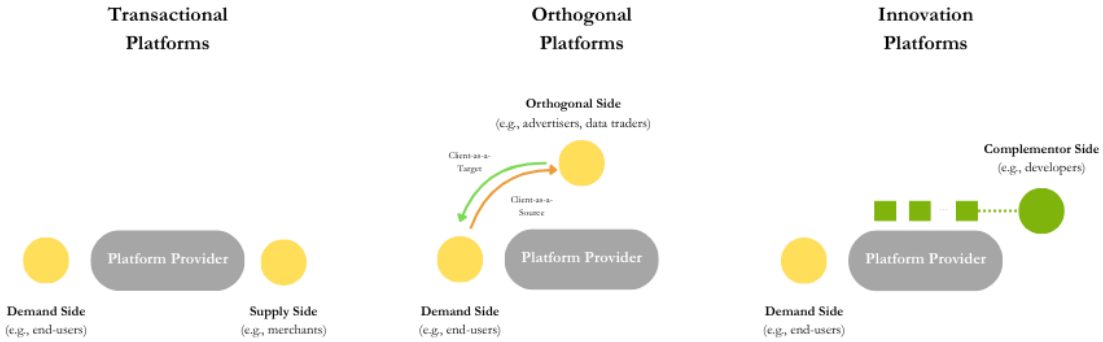

Table 1. The five problem-hack pairs

BUSINESS PROBLEM	Explanation	PLATFORM THINKING HACK	Tactic Definition	Examples
Transaction inefficiencies	Transactions between suppliers, partners, or customers are slow, costly, or unreliable, leading to inefficiencies and lost revenue opportunities.	**Enhancing or Enabling Transactions Among Existing Stakeholders** 	Streamlining transactions within an ecosystem to reduce friction, lower costs, and enable new value exchanges relying on network externalities.	Chipotle's Virtual Farmers Market Domino's AnyWare Kroger's Supplier Hub
Evolving customer demands	Customers demand seamless, personalized experiences, but rigid business models prevent rapid adaptation.	**Solving Customers' Needs by Onboarding New Stakeholders** 	Expanding the business ecosystem by integrating new stakeholders as customers (not as suppliers) who can contribute to solving customer needs in innovative ways relying on network externalities.	Royal Carribean's Hotels Intuit's TurboTax Live and QuickBooks Live Masco's The Human Library
Innovation bottlenecks	Internal resources and expertise limit innovation speed, making it hard to develop new offerings or improve existing ones.	**Complementing Products Through Others' Capabilities** 	Leveraging external contributors or internal talent to enhance and extend existing products and services rather than developing everything in-house relying on network externalities.	Catterpillar's CAT Digital PACCAR's Virtual Vehicle Merkc's & Co.'s Innovation platform
Underutilized Data	The company collects vast amounts of data but struggles to turn it into actionable insights or monetizable services.	**Data Exploitation** 	Unlocking hidden value from existing data by structuring, analyzing, and using it to drive decision-making and business growth relying on network externalities.	Target's Roundel DISH's Advatar Kraft Heinz's Kraft'O'Matic
Lack of data for strategic insights	The company does not have the right data to optimize operations, personalize experiences, or drive innovation.	**Data Harvesting** 	Creating mechanisms that encourage stakeholders to generate and share valuable data, leading to better insights and strategic advantages relying on network externalities.	Ners Corp's Vertical Video Platform Carnival's Neptune AbbVie's Research Collaborative (ARC)

Table 2. A diagnostic roadmap for applying platform thinking in legacy firms

PLATFORM THINKING HACK	Managerial symptom and diagnostic questions	Platform logic	What managers need to design / readiness requirements	Key risks and trade-offs
Enhancing or Enabling Transactions Among Existing Stakeholders 	Transactions among existing customers, suppliers, partners, or internal actors are slow, fragmented, costly, or unreliable. Diagnostic questions: - Are there interactions that already happen but could be made faster, safer, or more visible? - Are there valuable transactions that do not happen today because actors cannot easily find, trust, or coordinate with one another?	**Transactional platforms**	A minimum viable interaction from which the platform can start; dedicated value propositions for both sides; clear onboarding and ignition mechanisms; a revenue or sustainability model that makes participation attractive over time.	Low technological risk, as firms can often start with off-the-shelf solutions or low-cost MVPs. The main risk is designing an overly complex system before identifying the minimum viable interaction, or failing to reach sufficient critical mass to activate network effects.
Solving Customers' Needs by Onboarding New Stakeholders 	Customers ask for broader, more integrated, or more personalized solutions, or they have new emerging needs outside the companies' capabilities, but related to their products. Diagnostic questions: - Are there external actors that could help customers solve adjacent problems? - Could these actors become a new platform side rather than simply suppliers? Can they be treated as customers?			
Complementing Products Through Others' Capabilities 	Products, services, or technological assets cannot evolve fast enough through internal development alone. Diagnostic questions: - Are (internal or external) customers asking for features, integrations, or services that the firm cannot develop internally at sufficient speed or variety?	**Innovation platforms**	Advanced technological capabilities, including APIs, SDKs, interfaces, and documentation; clear rules on which assets can be opened; value propositions for complementors; governance of access, quality, compatibility, and intellectual property; a revenue or sustainability model.	Higher technological and governance risk. The firm may face compatibility issues, uneven solution quality, duplicate or competing complements, weak complementor engagement, or difficulty balancing openness with strategic control.

	- Is there a technological base that external or internal complementors could build upon?			
Data Exploitation 	The firm owns valuable data but uses it only internally, partially, or not at all. Diagnostic questions: - Do we have data that could solve a problem for another actor? - Are there non-obvious stakeholders who would value insights generated from our existing data flows?	**Orthogonal platforms**	Identification of a non-transactional and non-obvious relationship between data generators and data users; sufficient volume and quality of data; analytics and packaging capabilities; trust and data governance mechanisms; a revenue or sustainability model.	The firm may underestimate the amount and quality of data required, misread the needs of data users, or trigger privacy and legitimacy concerns. Because the interaction is not transactional, the value logic can be harder to explain and sustain.
Data Harvesting 	The firm lacks the data needed to improve decisions, operations, personalization, or innovation. Diagnostic questions: - Who could generate the data we need? - What immediate value would motivate them to contribute data consistently and reliably?			