UNLOCKING VALUE IN PLATFORM ECOSYSTEMS: THE INTERPLAY OF DESIGN AND GOVERNANCE IN DIGITAL WALLETS

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ABSTRACT

Digital wallets, no longer mere tools for managing payments, are emerging as infrastructural technologies shaping the governance, organization, and value dynamics of platform ecosystems. While often treated as peripheral add-ons, we conceptualize digital wallets as strategic boundary resources that mediate interactions among users, service providers and issuers. We develop a framework based on two structural dimensions—platform scope and ecosystem orientation—that reveals four archetypal configurations. Some wallets function as internal features that reinforce existing services within closed ecosystems, while others operate as external infrastructures function as public digital layers that support cross-sector innovation but limit value capture. Building on these distinctions, we advance three contributions to research on platform ecosystems. First, we reframe technological co-evolution by showing how wallets actively reconfigure ecosystem boundaries and innovation trajectories to give rise to distinct configurations. Second, we develop a new theory of value dynamics by decoupling generativity from value capture, revealing tensions between innovation and appropriation. Third, we theorize wallets as governance-by-design artifacts that embed participation rules through modular architecture, with implications for policymaking in sectors like identity verification and payments. By revealing the role of wallet configurations in shaping competitive landscapes, this study provides strategic guidance for ecosystem design and regulation.

Keywords*: platform ecosystem, digital wallet, value dynamics*

1. INTRODUCTION

Digital wallets, initially perceived just as tools for storing payment cards, have rapidly evolved into sophisticated platforms that reshape the architecture and governance of entire ecosystems (Podgorelec et al., 2022). Prominent examples such as Apple Wallet, now extend far beyond payments, offering identity verification, event ticketing, and mobility services (Babel et al., 2025; Hoess et al., 2025). Across domains, from fintech to Web3, digital wallets increasingly serve as the fundamental layer mediating complex interactions among users, Service Providers (SPs)[1] and issuers. Yet, despite their increasing prominence, digital wallets remain undertheorized within platform ecosystem research—often viewed as peripheral features rather than core infrastructural elements.

Indeed, a central challenge lies in disentangling the platform logic of digital wallets from the ecosystems they shape. As illustrated in Figure 1, digital wallets operate as

[1] SPs refer to entities–such as financial institutions, public administrations, or digital platforms–that offer services accessible through digital wallets. Examples include merchants accepting digital payments, government agencies providing digital identity verification, banks offering financial services, or transportation companies enabling ticketing via digital wallets.

platforms characterized by the presence of three sides (Hagiu & Wright, 2015), where one side issues user data[2] that is stored in the wallet in the form of digital credentials[3]. This data is then used and managed by users directly to access services, such as identity verification and payments[4]. In doing so, they generate network effects (McIntyre & Srinivasan, 2017) and enable complementarities (Jacobides et al., 2018), actively shaping the value dynamics of the platform ecosystem in which they are embedded. While some wallets function as tightly integrated components of predefined ecosystems (e.g., Apple Wallet), others—as the European Digital Identity[5] wallet—are designed as interoperable infrastructures spanning multiple ecosystems. These differences raise a core question: How do the design and governance of digital wallets, as platform ecosystems, influence the value dynamics within the ecosystems in which they operate?

Despite its ubiquity, the concept of platform ecosystem remains theoretically ambiguous, blurring the distinction between platform architecture and ecosystem coordination. Platform studies emphasize the technological architecture and the modular core that enables third-party innovation (Gawer, 2014), while ecosystem theories focus on loosely coupled networks of interdependent actors who co-create and capture value (Adner, 2017; Jacobides et al., 2018). This conflation has led to definitional slippage, limiting our ability to analyze how platforms shape—and are shaped by—their surrounding ecosystems (Jacobides et al., 2024). Digital wallets sit at the intersection of these logics: at once boundary resources (Ghazawneh & Henfridsson, 2013), infrastructures, and potential orchestrators, yet are rarely treated as such. Depending on their design, wallets reinforce existing governance structures or enable novel forms of distributed coordination. Thus, the relationship between digital wallets and their ecosystems is not necessarily as intuitive as the existing literature suggests.

Without a clearer conceptualization, current research risks three limitations. First, it conflates technological affordances with relational governance, obscuring how these factors interact to give rise to value dynamics. Second, it overlooks the infrastructural role wallets play in reinforcing or reshaping existing ecosystems. Third, this limits the

[2] The authors want to stress that, unlike in traditional digital identity systems, in digital wallets the data is issued by the issuer to the wallet, in the format of digital credentials, such that subsequent interaction do not require the direct interaction between the SPs and the issuers.

[3] Digital credentials are cryptographically verifiable documents that can be used to authenticate, authorize, or otherwise provide information about a user.

[4] In details, users provide their verifiable credentials in exchange for secure storage and frictionless service access, while the wallet aggregates and standardizes this data for downstream consumption by SPs. Through the wallet, SPs access a pre-verified user base, which lowers onboarding and compliance costs and enhances security, and in turn increases the wallet's appeal by offering diverse services. Issuers supply verifiable credentials in interoperable formats and receive issuance fees while benefiting from the wallet's distribution network. Beyond these core exchanges, the wallet's integration with adjacent platforms or services by the wallet provider (provider ecosystem) enables cross-selling, interoperability, and ecosystem-wide network expansion. Direct network effects, though modest, can arise as additional users marginally boost peer-to-peer credential utility; more SPs adopting common verification protocols drive down per-provider costs and lead to competition-drive innovation; finally, a growing number of issuers standardizes credential formats, reducing issuance overhead. More powerful are the indirect network effects, whereby a larger user base attracts additional SPs, which in turn enhances wallet utility for users. An expanded service roster increases demand for new credentials (encouraging the adoption of the wallet by issuers), and a wider array of issuers enriches the service ecosystem (drawing still more users). Together, these interdependent value flows and network effects create a self-reinforcing cycle that strengthen the wallet's central role in the platform ecosystem.

[5] The European Digital Identity (EUDI) Wallet is a digital wallet initiative introduced by the European Commission under the eIDAS2 regulation. It enables EU citizens and residents to securely store, manage, and selectively share verified identity data and official documents (e.g., IDs, driving licenses, medical records) to easily access public and private services across EU member states.

practical relevance of research for both managers and policymakers seeking to govern or regulate digital wallets effectively.

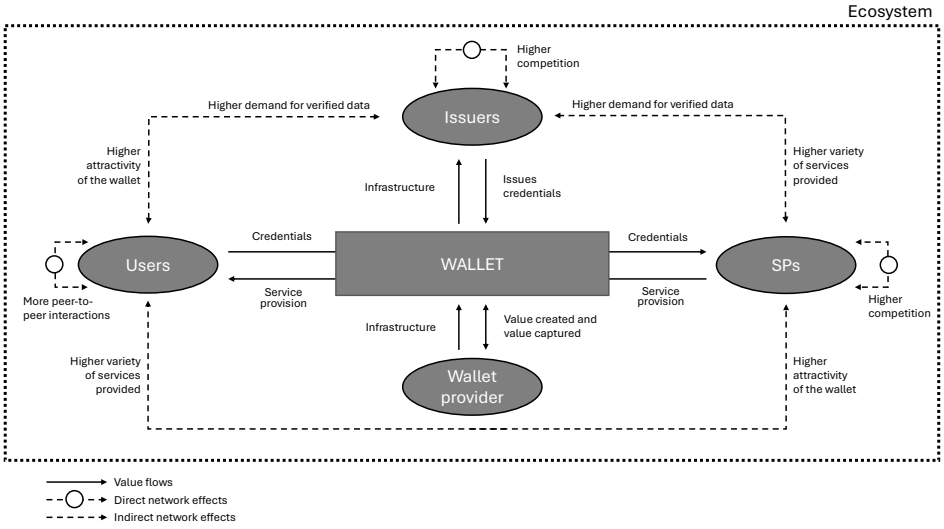

Figure 1 - Wallet scheme

Against this background, we argue that digital wallets are not merely technical intermediaries, but strategic boundary resources that shape the locus of control, data management, and economic participation across platform ecosystems. Depending on their configuration, wallets can either amplify the orchestrator dominance (Shen et al., 2024) or enable user agency and inter-platform interaction (Yan & Feng, 2023). To capture this variation, we propose a conceptual framework based on two dimensions: (1) the functional scope of digital wallet platforms, from narrow-purpose feature to broad-purpose infrastructure, and (2) their ecosystem orientation, from inward-looking (ecosystem-bound) to outward-looking (operable across ecosystems).

Our framework makes three contributions to research on platform ecosystems. First, we advance a co-evolutionary view of digital infrastructures showing how wallets reconfigure the boundaries, coordination mechanisms, and innovation pathways of multi-actor systems. Second, we offer a new theory of value dynamics that decouples generativity from value capture showing how wallet design contributes to distributing (or concentrating) power. Third, we theorize wallets as governance-by-design artifacts, revealing how modular technologies encode and enforce ecosystem rules without explicit regulation or central authority, with implications for policymaking. These insights reposition digital wallets as active structuring devices—transforming how we understand platforms, infrastructures, and the contested space in between.

This conceptual paper employs a theory-building approach (Rivard, 2021) to develop an initial framework of platform ecosystems through which analyzing digital wallets. These constructs are developed through engagement with existing theoretical work and iteratively refined using an abductive logic (Timmermans & Tavory, 2012) informed by observed patterns in digital wallet development and in collaboration with a university research center. Rather than empirical testing, the focus is on theoretical integration and the generation of insights into the value dynamics that shape these emerging ecosystem-platform configurations.

2. CONCEPTUAL FOUNDATIONS

2.1 DIGITAL WALLETS AS A LENS ON PLATFORM ECOSYSTEMS

Digital wallets offer a valuable lens for exploring and refining the concept of platform ecosystems. As three-sided, data-driven platforms (Hagiu & Wright, 2015), they encapsulate dynamics central to platform theory, including indirect network effects (Rochet & Tirole, 2003), orchestration (G. Parker et al., 2017), interdependence (Kapoor et al., 2021), and value creation and capture (Ceccagnoli et al., 2012; Sjödin et al., 2020). Their architecture and interaction logic foreground how the design of a platform can shape broader patterns of engagement and value distribution across an ecosystem.

At the same time, digital wallets expose the conceptual ambiguity that characterizes current understandings. The term "platform ecosystem" merges two distinct theoretical roots: platforms as technological or organizational foundations enabling complementary interactions (Evans, 2003; Gawer, 2014), and ecosystems as networks of interdependent yet autonomous actors that co-evolve around shared value propositions (Moore, 1993; Adner, 2017; Jacobides et al., 2018). This blending of architectural and relational logics tends to obscure important distinctions.
The consequences of this conflation are more than semantic. When these logics are collapsed, the heterogeneity of roles, power structures, and coordination mechanisms in real-world configurations can be overlooked (Jacobides et al., 2024), leading to ambiguous value dynamics, for scholars (Hurni et al., 2022; Oh et al., 2015), and to mismatched expectations and strategic misalignment, for practitioners and policymakers. Thus, we leverage digital wallets as a defined and unambiguous unit of analysis for examining how platform architecture and ecosystem coordination interrelate in practice.

2.2 TWO STRUCTURAL DIMENSIONS: PLATFORM SCOPE AND ECOSYSTEM ORIENTATION

Digital wallets vary significantly in how they are positioned within and across ecosystems. Indeed, wallets are neither simply "platforms" nor "ecosystem actors." Rather, their role depends on two interrelated characteristics: the scope of their functionality and their governance orientation toward the broader ecosystem. Some wallets act as orchestrators; others serve as connective tissue or infrastructure. This variability makes them particularly useful for theorizing the dynamic interface between platform and ecosystem logics.

Thus, we focus on these two core dimensions—platform scope and ecosystem orientation—that together determine how digital wallets function within their ecosystems, and how they structure value dynamics.

2.3 PLATFORM SCOPE: FROM FEATURE TO INFRASTRUCTURE

Platform scope refers to the breadth of functionalities a digital wallet provides. At one end of the spectrum are feature wallets, which offer narrow, task-specific capabilities such as storing loyalty points, holding credentials, or enabling electronic signatures. These wallets serve targeted user needs within a predefined interaction domain that can be determined by the provision of other services or by niche or local requirements. At the other end are infrastructure wallets: multifunctional platforms that bundle a wide range of services—payments, identity verification, ticketing, access control—into a

unified architecture. These wallets serve as foundational layers for interaction across a variety of services and actors, often becoming central to data and value flow coordination within or across ecosystems.

Platform scope has important implications for indirect network effects (Rochet & Tirole, 2003), as it determines their strength and, thus, the leverage that the platform provider has on the platform ecosystem. Feature wallets typically generate limited multi-actor engagement and fewer complementarities. In contrast, infrastructure wallets increase cross-side interactions and often act as chokepoints within an ecosystem—concentrating user attention and raising switching costs. The broader the functional scope, the greater the potential for orchestration and value capture from the wallet provider.

2.4 Ecosystem Orientation: From Inward-Looking to Outward-Looking

Ecosystem orientation captures the governance stance a digital wallet adopts toward its surrounding ecosystem. Inward-looking wallets are defined by closed architectures, centralized control, and governance models that restrict access to predefined partners. These wallets often reinforce ecosystem lock-in, leveraging proprietary standards to create tight integration between the wallet and adjacent services (e.g., major technology companies or bank wallets). Outward-looking wallets, by contrast, promote openness, interoperability, and external engagement. These wallets support cross-ecosystem collaboration and third-party participation by relying on shared standard and protocols, and open APIs. EUDI wallets are a leading example, aiming to enable public–private service delivery through standardized, citizen-controlled infrastructures.

Ecosystem orientation aligns closely with debates on platform governance (Tiwana et al., 2010; Jacobides et al., 2018), as it is determined by the degree of openness, standardization, and participant autonomy (Huber et al., 2017; Uzunca et al., 2022). Inward-looking wallets aim to maintain control over a proprietary ecosystem, by enforcing strict standards and participation rules, seeking to lock in actors within their platform boundaries (Haftor et al., 2025). Outward-looking wallets adopt governance structures that encourage interoperability, shared protocols, and external engagement (Miric et al., 2023; C. Zhang et al., 2022). By promoting openness and reducing barriers for third parties, they act as a connective hub, enabling broader ecosystem expansion.

2.5 Interplay and Implications: Platform Ecosystem Configurations and Value Dynamics

As illustrated in Figure 2, platform scope and ecosystem orientation jointly shape the value dynamics of digital wallets. These dynamics unfold through three interconnected mechanisms: value proposition, value creation, and value capture.

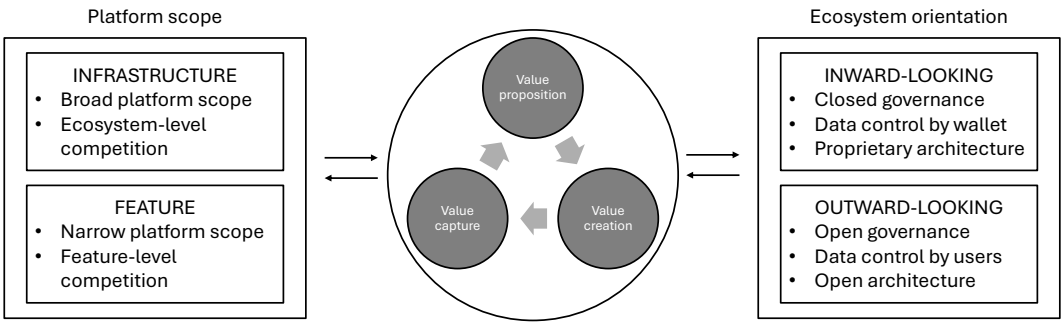

Figure 2 - Relation between platform scope, ecosystem orientation and value dynamics

Value proposition refers to the unique benefits that the wallet offers to users, SPs and issuers, and serves as a foundation for attracting ecosystem participants (Teece, 2010). The platform scope of a wallet determines how value is created. Ecosystem orientation, in turn, determines "who benefits". Inward-looking wallets serve a focal firm's ecosystem. Outward-looking ones enable a broader array of actors to participate.

Value creation, generally defined as one actor's attempt to increase value (Chesbrough et al., 2018), describes the generative potential enabled by wallets (Blaschke & Brosius, 2018; Boudreau & Lakhani, 2009). Outward-looking wallets, especially infrastructure ones, facilitate innovation by lowering integration barriers and enabling third-party development, leveraging openness (Miremadi et al., 2023), enabling broader ecosystem expansion and complementary innovation. Inward-looking wallets typically offer limited generativity, prioritizing predictability and control, as centralization results in a more insular, self-contained value creation processes, limiting external innovation and cross-ecosystem collaboration.

Lastly, value capture refers to the mechanisms used to appropriate financial or non-financial returns from value creation (Teece, 2010; Uzunca et al., 2022). Outward-looking wallets, especially infrastructure ones, can increase the complexities of appropriating value as distributed control more broadly and dilute direct monetization opportunities (Altman et al., 2022). Meanwhile, inward-looking ones tend facilitating value capture for the provider but often limit external innovation (Cennamo & Santaló, 2019).

Taken together, the dimensions of our framework—scope and orientation—enable to move beyond generic notions of platforms and ecosystems and isolated analyses. They reveal how wallets shape participation, governance, and competitive dynamics, ultimately structuring how value is proposed, created and captured withing their platform ecosystem.

3. DIGITAL WALLET ARCHETYPES

To illustrate how platform scope and ecosystem orientation combine to shape the strategic role of digital wallets, we propose a typology of four archetypes: internal feature, internal infrastructure, external feature, and external infrastructure wallets (see Table 1 and Table 2).

		Ecosystem orientation	
		Inward-looking ecosystem	Outward-looking ecosystem
Platform scope	Infrastructure –broad scope	**INTERNAL INFRASTRUCTURE** –broad platform scope in an inward-looking ecosystem	**EXTERNAL INFRASTRUCTURE** –broad platform scope in an outward-looking ecosystem
	Feature –narrow scope	**INTERNAL FEATURE** –narrow platform scope in an inward-looking ecosystem	**EXTERNAL FEATURE** –narrow platform scope in an outward-looking ecosystem

Table 1 - Digital wallet archetypes

3.1 INTERNAL FEATURE WALLET: EMBEDDED ADD-ONS THAT REINFORCE THE ECOSYSTEM THROUGH INTEGRATION

Internal feature wallets function as narrowly scoped solutions embedded within a firm's service portfolio, to complement the existing value proposition. A typical example would be a banking app allowing users to store also loyalty cards or identity documents.

These wallets do not introduce new users or foster ecosystem expansion. Instead, they enable a more complete and integrated experience for its users, thereby consolidating control. By increasing service stickiness and bundling functionality without altering the governance structure of the broader actor network, these wallets enhance existing interdependencies. Thus, the wallet provider (e.g., the bank) assumes the role of a keystone actor, managing the wallet alongside its service portfolio to reinforce client lock-in, generating the most interdependencies between the wallet and its ecosystem as to increase its stickiness (Parker et al., 2016).

From a platform perspective, these wallets are transactional enablers with low generativity as complementors cannot build on top of the wallet infrastructure. However, value capture remains high, as the firm appropriates incremental benefits from efficiency gains and deeper client embedding. The wallet often functions as a non-monetized strategic lever, amplifying the provider's ability to retain and monetize the core service offering.

3.2 INTERNAL INFRASTRUCTURE WALLETS: ORCHESTRATED HUBS FOR CONTROLLED INNOVATION

Internal infrastructure wallets represent a broad-scope, multifunctional evolution of the internal feature logic. Deployed by orchestrators such as major technology companies, these wallets serve as connective infrastructure for payments, identity, travel, ticketing, and more. They are embedded across a proprietary ecosystem and leverage interconnections with other actors to complement an existing value proposition.

Unlike internal feature wallets, these solutions strengthen interdependencies among existing ecosystem participants–including banks, merchants, and SPs–by centralizing transactions through a unified interface. While these wallets do not redefine governance boundaries, they enhance coordination, increase switching costs, and deepen platform dependency (Ofe, 2018; Opara-Martins et al., 2016). By providing an additional layer of complementarity, these wallets give rise to a stickier ecosystem (Zhou et al., 2024).

Critically, internal infrastructure wallets exhibit moderate generativity: while third-party actors can engage with wallet functions, participation is often subject to controlled access, API gating, and integration standards. This allows the orchestrator to maintain strategic control over ecosystem evolution. Value creation is higher than in feature wallets, yet value capture remains concentrated. In other terms, the wallet becomes a tool for monetizing the broader ecosystem through bundling, data aggregation, and orchestrated complementor engagement.

3.3 External Feature Wallets: Lightweight Tools for Emergent Ecosystem Formation

External feature wallets are standalone offerings developed outside of a proprietary ecosystem as they constitute the primary offering of the wallet provider. Typically introduced by independent firms or consortia, these wallets aim to serve targeted functionalities—such as digital credentials, crypto storage, or Self-Sovereign Identity (SSI)[6]—in a loosely coordinated environment.

Unlike internal feature wallets, which reinforce pre-existing relationships, external feature ones attempt to build new ecosystems from scratch, offering a platform for previously unconnected actors to interact, as such they create new interdependencies. These wallets are transactional in nature, helping to reduce friction, but do not provide an open foundation for third-party development or integration.

Furthermore, they exhibit low generativity and limited value creation, functioning more as innovations-in-themselves than as innovation platforms (Gawer, 2021). Moreover, given their outward-looking posture, value capture is more difficult. Governance tends to be fragmented, limiting the wallet provider's ability to impose access standards or enforce monetization strategies. Revenue typically depends on pay-per-use models, often in highly competitive environments, since switching costs are comparatively low.

3.4 External Infrastructure Wallets: Public Utility Platforms for Cross-Ecosystem Innovation

External infrastructure wallets are designed as foundational digital infrastructure within open ecosystems. Often enabled through public mandates—such as the European eIDAS2[7] regulation—these wallets support identity credentials, e-signatures, and data-sharing functions across diverse domains (e.g., health, government, finance) that allow SPs to simplify service provisioning.

They differ from internal infrastructure wallets by embracing interoperability, openness, and public governance, which allows for the creation of new interconnections. Control is distributed across multiple actors, from regulators to SPs to users. By facilitating secure data portability and cross-platform interoperability, these wallets enable broad experimentation and service innovation.

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[6] SSI wallets refer to digital wallets implementing SSI, an approach allowing individuals to own, control, and share their identity data independently of centralized authorities, typically using decentralized technologies such as blockchain.

[7] The Electronic Identification, Authentication, and Trust Services (eIDAS2) Regulation is the European updated regulation aimed at providing a common framework for digital identity and trust services, facilitating secure electronic transactions, and ensuring interoperability and recognition of electronic identification across member states by promoting the usage of European Digital Identity (EUDI) Wallets.

This openness supports high generativity: complementors can build new services without seeking permission from a central orchestrator. However, value capture by the wallet provider is low, since the wallet provider has lower control over how services are offered and monetized. Instead, value is distributed across the ecosystem, manifesting as public trust, institutional legitimacy, and collective innovation.

	Internal Feature	**Internal Infrastructure**	**External Feature**	**External Infrastructure**
Platform scope	Narrow–single or limited functionality	Broad–multi-functionality and integrated services	Narrow–specific and standalone functionality	Broad–multi-functionality and foundational infrastructure
Ecosystem Orientation	Inward-looking–within the firm's existing network	Inward-looking–within the firm's controlled ecosystem	Outward-looking–across independent actors	Outward-looking–cross-sector and open
Example case	Bank wallet	Device manufacturer or OS provider wallet	Standalone or proprietary wallet	EUDI or government wallet
Platform role	Add on to reinforce existing value proposition	Orchestrator of firm-owned platform ecosystem	Standalone solution for enabling new transactions	Shared infrastructure for enabling open and secure digital services
Ecosystem role	Deepens interdependencies within closed network	Builds interconnections among multiple actors under firm control	Builds new interdependencies across loosely coupled actors	Facilitates interconnection across sectors and jurisdictions
Value proposition	Efficiency and integration with firm's core services	Seamless multi-service integration for users and partners	Simplifies interaction and reduces transaction costs	Supports trust, security, and interoperability at ecosystem level
Value creation	Low–limited complementor innovation	Moderate—guided innovation under orchestrator control	Low–minimal complementor engagement	High–open innovation by third parties across sectors
Value capture	High–controlled by provider through vertical integration	High–strong appropriation by orchestrator through ecosystem control	Low–limited control; competitive environment	Low–diffuse and public-oriented; limited monetization potential

Table 2 – Archetype characteristics and examples

4. DISCUSSION

The proposed archetypes of digital wallets illustrate potential platform-ecosystem relationships by defining the different roles that a wallet can assume within an ecosystem.

4.1 CO-EVOLUTIONARY VIEW OF PLATFORM ECOSYSTEMS

We advance a co-evolutionary view of platform ecosystems by showing how wallets act not just within ecosystems, but on them—reconfiguring the boundaries, coordination mechanisms, and innovation pathways of multi-actor systems to give rise to previously

uncharted value dynamics. Whereas prior research has largely treated platforms through the lens of core evolution, modularity, or abstract governance rules (Gawer & Cusumano, 2014; Tiwana, 2013; Boudreau, 2010), we demonstrate that digital wallets—through their degree of functional scope and ecosystem orientation—instantiate distinct ecosystem architectures that either concentrate or disperse value.

As an internal feature, the wallet's primary value dynamics is that of integration with the firm's core offerings, reinforcing relationships and lock-in through incremental service extensions. While value creation is limited due to minimal third-party innovation, value capture is high as the orchestrator retains most benefits without broad sharing. In contrast, internal infrastructure wallets, characterized by a combination of the provider-orchestrator roles, centralizing ecosystem governance and enabling higher value creation via third-party integrations and new services. Thus, the orchestrator maintains dominant control, capturing significant value through fees and access terms.

External feature wallets operate across competing ecosystems, they are defined by high competition that limits value creation and capture due to limited governance that the wallet provider exercises on the ecosystem, thus they rely on transaction fees rather than ecosystem-wide control. Conversely, external infrastructure wallets function as foundational utilities in open ecosystems, enabling high value creation through cross-sector innovation (e.g., healthcare, government) but diffusing value capture across participants due to the lack of centralized governance.

By mapping wallet configurations (e.g., internal vs. external, narrow vs. broad) to distinct value dynamics, we demonstrate how wallets mediate the coupling of technological affordances with governance regimes. This reframes co-evolution not as a downstream effect of platform design, but as a dynamic process of boundary resource configuration that shapes ecosystem trajectories in both incremental and transformative ways.

4.2 DECOUPLING VALUE CREATION AND VALUE CAPTURE

Thus far, platform ecosystem research has explored how digital platforms enable value creation through generativity and third-party innovation (Boudreau, 2010; van Alstyne et al., 2016), often assuming that orchestrators can capture significant value in proportion to the innovation they enable (Teece, 2010; Ceccagnoli et al., 2012). Our findings complicate this view by showing that wallets can decouple value creation from value capture, depending on their scope and ecosystem orientation. Thus, we extend the literature on platform ecosystems by explaining how the peculiar value dynamics of digital wallet ecosystems are fundamentally shaped by the interplay of value flows and network effects, which vary in strength and direction depending on the wallet's configuration, as illustrated in Figure 3.

Internal wallets, with their narrow scope and inward-looking governance, are designed to reinforce existing ecosystems, making them relatively easy to engage for users (Duan et al., 2024). These wallets are typically embedded within services already familiar to users, where user participation is encouraged through seamless integration with core services. On the other hand, external wallets, designed for broader, outward-facing functionalities face significant challenges in engaging users, since users must be convinced a new and logically separate tool that is not integrated with any other service they already used, thus increasing friction in user engagement. This discrepancy in user

engagement potential between internal and external wallets illustrates a key tension in wallet adoption strategies.

Similarly, SPs find it easier to engage with infrastructure wallets, which provide broad, multifunctional services, due to the greater value these wallets offer in terms of opportunity to reduce onboarding costs, increase service reach, and benefit from a more standardized and interoperable service (Miller & Toh, 2022; Nylund & Brem, 2023). In contrast, feature wallets, offering narrow functionalities, attract fewer SPs as they often fail to offer a broader integration with a wide array of service domains or cross-platform interoperability, limiting their attractiveness for service providers (Tian et al., 2022). Furthermore, issuers, essential in providing the credentials necessary for wallet functionality, exhibit engagement patterns that align with SPs. Issuers are more inclined to engage with infrastructure wallets, which facilitate the distribution of their credentials through standardization.

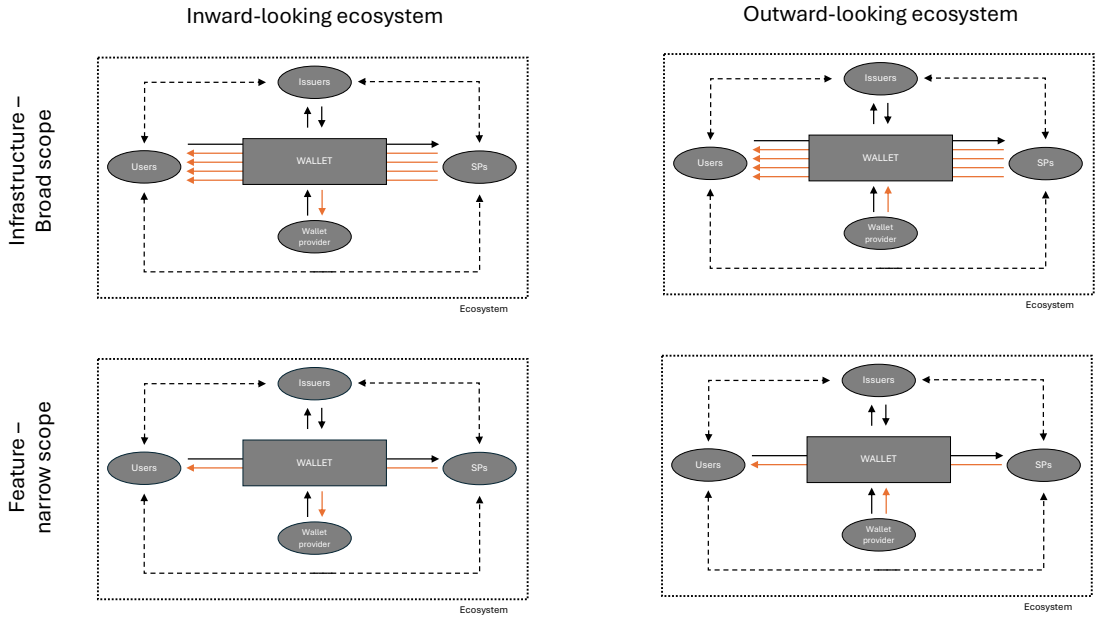

Figure 3 – Differentiation of value flows in the archetypes[8]

However, when one side of the ecosystem faces difficulties in engaging with the wallet, this challenge cascades, limiting indirect network effects (Panico & Cennamo, 2022) central to the success of platform ecosystems (Murthy & Levesque, 2020), as the participation of one group encourages further participation from other groups (Rochet & Tirole, 2003). Thus, when one side is difficult to engage, the overall network effect weakens, as illustrated in Table 4.

	Internal Feature	Internal Infrastructure	External Feature	External Infrastructure

[8] The highlighted arrows mark that in outward-looking wallets (value flow from the wallet provider to the wallet) the wallet provider brings value into the ecosystem; opposite to inward-looking wallets (value flow from the wallet to the wallet provider) where value is extracted from the ecosystem. In infrastructure wallets (multiple value flows from SPs to users), multiple functionalities are provided through the wallet; opposite to feature wallets (single value flow from SPs to users), where a single or limited functionalities are provided.

Users engagement	Simple	Simple	Complex	Complex
SPs engagement	Complex	Simple	Complex	Simple
Issuers engagement	Complex	Simple	Complex	Simple
Indirect network effects	Moderate	Strong	Weak	Moderate

Table 4 – Difficulty level in engaging the various sides of the wallet and consequent strength of indirect network effects

Furthermore, these insights apply to the analysis of platform ecosystems more broadly. The dimensions of functionality scope and ecosystem orientation define configurations that are not limited to digital wallets but are also observable in other platform ecosystems. Thus, these dimensions provide a robust framework for understanding the varying levels of stakeholder engagement and the differential success of platform ecosystems. All platform ecosystems face inherent challenges in engaging multiple sides—such as users, service providers, and other critical participants. These challenges are fundamentally tied to the platform's role in facilitating and mediating complex interactions between the platform and its ecosystem. Additionally, these configurations establish the foundation for the emergence of distinctive value dynamics, which are central to sustained growth and competitiveness. We thus contribute a more granular theory of value dynamics in platform ecosystems—that distinguishes between enabling innovation and extracting rents, and foregrounds the architectural and governance conditions under which this decoupling occurs.

4.3 DIGITAL WALLETS AS GOVERNANCE-BY-DESIGN ARTIFACTS

Lastly, we theorize wallets as governance-by-design artifacts—technological instruments that materialize control structures and redistribute agency within ecosystems. Drawing on Jacobides et al. (2018), who call for closer analysis of how platforms structure interdependencies, we argue that wallets encode governance choices into architecture: decisions about openness, data access, and standardization are not simply policies—they are designed affordances.

Platform ecosystem research has explored how digital platforms can enable winner-take-all dynamics (Eisenmann et al., 2006), where network effects drive a single platform to dominate the market. However, this perspective has faced critical scrutiny (Autio & Thomas, 2022), with empirical evidence supporting the continued coexistence of digital platforms within the same industry or sector. Our findings explain this coexistence by theorizing digital wallets as governance artifacts and emphasizing how a platform ecosystem's potential for market dominance is contingent upon its configuration.

In tightly integrated ecosystems, internal infrastructure wallets reinforce value capture by consolidating user activity and data flows within a single orchestrator's domain—while also generating third-party innovation. Conversely, external feature wallets often face challenges in both value creation—due to their limited openness to external

contributions—and value capture, as the externally-oriented ecosystem tend to distribute value widely, reducing the platform provider's ability to appropriate it.

These insights have important implications for policymakers, particularly in sectors such as identity verification, and payments—areas that are already highly regulated and would benefit from a clearer understanding of platform ecosystem dynamics. The recent evolution of regulatory frameworks in Europe underscores policymakers' increasing focus on governing sectors characterized by platform ecosystems. Our framework aims to enhance understanding in this domain, supporting the development of more effective policies that balance competition and coopetition within these markets.

5. CONCLUSION

This paper conceptualizes digital wallets as strategic boundary resources that structure the interplay between platform architecture and ecosystem coordination. We show that wallets reconfigure participation, control, and value creation across digital ecosystems. Our typology of wallet archetypes illustrates how these technologies mediate distinct governance regimes and ecosystem trajectories. By advancing a co-evolutionary view of wallets as infrastructure, theorizing them as governance artifacts, and revealing how they decouple value creation from value capture, we offer a new lens for understanding platform ecosystems. These insights are timely as both public and private actors invest in wallet infrastructures—whether to compete in consumer markets or to deliver digital public services at scale.

Policymakers increasingly view digital wallets as instruments of public infrastructure. Our framework suggests that regulatory interventions should go beyond technical compliance and consider how wallet design affects governance, market concentration, and innovation capacity. For firms, wallets offer a means of extending or reshaping platform reach—but the trade-offs between generativity and control are non-trivial. Strategists must therefore weigh the ecosystem roles they seek to enable or constrain through wallet design.

In sum, digital wallets are no longer auxiliary tools at the edge of platform strategy—they are programmable infrastructures at its core. Their design, governance, and deployment will play a pivotal role in shaping the future of digital economies. As firms and governments alike seek to unlock the next wave of digital transformation, understanding wallets as strategic, not just technical artifacts becomes imperative.

REFERENCES

Adner, R. (2017). Ecosystem as Structure: An Actionable Construct for Strategy. Journal of Management, 43(1), 39–58.

Altman, E. J., Nagle, F., & Tushman, M. L. (2022). The Translucent Hand of Managed Ecosystems: Engaging Communities for Value Creation and Capture. Academy of Management Annals, 16(1), 70–101.

Autio, E. (2022). Orchestrating ecosystems: A multi-layered framework. Innovation, 24(1), 96–109.

Autio, E., & Thomas, L. D. W. (2022). Researching ecosystems in innovation contexts. Innovation & Management Review, 19(1), 12–25.

Babel, M., Willburger, L., Lautenschlager, J., Völter, F., Guggenberger, T., Körner, M.-F., Sedlmeir, J., Strüker, J., & Urbach, N. (2025). Self-sovereign identity and digital wallets. Electronic Markets, 35(1).

Baldwin, C. Y., Bogers, M. L. A. M., Kapoor, R., & West, J. (2024). Focusing the ecosystem lens on innovation studies. Research Policy, 53(3), 104949.

Belleflamme, P., & Neysen, N. (2021). A Multisided Value Proposition Canvas for Online Platforms. Journal of Business Ecosystems (JBE), 2(1), 1–14.

Blaschke, M., & Brosius, M. (2018, December). Digital Platforms: Balancing Control and Generativity.

Boudreau, K., & Lakhani, K. R. (2009). How to Manage Outside Innovation. MIT SLOAN MANAGEMENT REVIEW.

Carst, A. E., & Hu, Y. (2024). Complementors as ecosystem actors: A systematic review. Management Review Quarterly, 74(4), 2579–2635.

Ceccagnoli, M., Forman, C., Huang, P., & Wu, D. J. (2012). Cocreation of Value in a Platform Ecosystem! The Case of Enterprise Software. MIS Quarterly, 36(1), 263–290.

Cennamo, C., & Santaló, J. (2019). Generativity Tension and Value Creation in Platform Ecosystems. Organization Science, 30(3), 617–641.

Chen, Y., Richter, J. I., & Patel, P. C. (2021). Decentralized Governance of Digital Platforms. Journal of Management, 47(5), 1305–1337.

Cheng, H. K., Daniel Sokol, D., & Zang, X. (2024). The rise of empirical online platform research in the new millennium. Journal of Economics & Management Strategy, 33(2), 416–451.

Chesbrough, H., Lettl, C., & Ritter, T. (2018). Value Creation and Value Capture in Open Innovation. Journal of Product Innovation Management, 35(6), 930–938.

Constantinides, P., Henfridsson, O., & Parker, G. G. (2018). Introduction—Platforms and Infrastructures in the Digital Age. Information Systems Research, 29(2), 381–400.

Cui, M., Li, W., Cui, L., Jia, Y., & Wu, L. (2022). How do keystones govern their business ecosystems through resource orchestration? Industrial Management & Data Systems, 122(9), 1987–2011.

Degen, K., & Teubner, T. (2024). Wallet wars or digital public infrastructure? Orchestrating a digital identity data ecosystem from a government perspective. Electronic Markets, 34(1), 50.

Della Corte, V., & Del Gaudio, G. (2014). A literature review on value creation and value capturing in strategic management studies. Corporate Ownership and Control, 11(2), 328–346.

Duan, W., Eva, A., Andrews, L., & Liu, Y. (2024). The role of platform ecosystem configuration toward performance bifurcation. Journal of Innovation & Knowledge, 9(2), 100490.

Eisenmann, T., Parker, G., & Alstyne, M. W. V. (2006). Strategies for Two- Sided Markets. Harvard Business Review.

Evans, D. S. (2003). Some Empirical Aspects of Multi-Sided Platform Industries. Review of Network Economics, 2(3).

Filosa, C., Jovanovic, M., Agostini, L., & Nosella, A. (2025). Pivoting B2B platform business models: From platform experimentation to multi-platform integration to ecosystem envelopment. International Journal of Production Economics, 280, 109466.

Gawer, A. (2014). Bridging differing perspectives on technological platforms: Toward an integrative framework. Research Policy, 43(7), 1239–1249.

Gawer, A. (2021). Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces. Long Range Planning, 54(5), 102045.

Ghazawneh, A., & Henfridsson, O. (2013). Balancing platform control and external contribution in third-party development: The boundary resources model. Information Systems Journal, 23(2), 173–192.

Haftor, D. M., Climent, R. C., & Kallmuenzer, A. (2025). Business ecosystems as a way to activate lock-in in business models: A theoretical integration. International Entrepreneurship and Management Journal, 21(1), 77.

Hagiu, A., & Wright, J. (2015). Multi-sided platforms. International Journal of Industrial Organization, 43, 162–174.

Hoess, A., Lautenschlager, J., Sedlmeir, J., Fridgen, G., Schlatt, V., & Urbach, N. (2025). Toward Seamless Mobility-as-a-Service: Providing Multimodal Mobility Through Digital Wallets. Business and Information Systems Engineering, 67(2), 149–170.

Huber, T. L., Kude, T., & Dibbern, J. (2017). Governance Practices in Platform Ecosystems: Navigating Tensions Between Cocreated Value and Governance Costs. Information Systems Research, 28(3), 563–584.

Hurni, T., Huber, T. L., & Dibbern, J. (2022). Power dynamics in software platform ecosystems. Information Systems Journal, 32(2), 310–343.

Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. Strategic Management Journal, 39(8), 2255–2276.

Jacobides, M. G., Cennamo, C., & Gawer, A. (2024). Externalities and complementarities in platforms and ecosystems: From structural solutions to endogenous failures. Research Policy, 53(1), 104906.

Kapoor, K., Ziaee Bigdeli, A., Dwivedi, Y. K., Schroeder, A., Beltagui, A., & Baines, T. (2021). A socio-technical view of platform ecosystems: Systematic review and research agenda. Journal of Business Research, 128, 94–108.

Kumar, S. (2019). Understanding Different Issues of Unit of Analysis in a Business Research. Journal of General Management Research.

McIntyre, D. P., & Srinivasan, A. (2017). Networks, platforms, and strategy: Emerging views and next steps. Strategic Management Journal, 38(1), 141–160.

Meredith, J. (1993). Theory Building Through Conceptual Methods. International Journal of Operations & Production Management.

Miller, C. D., & Toh, P. K. (2022). Complementary components and returns from coordination within ecosystems via standard setting. Strategic Management Journal, 43(3), 627–662.

Miric, M., Ozalp, H., & Yilmaz, E. D. (2023). Trade-offs to using standardized tools: Innovation enablers or creativity constraints? Strategic Management Journal, 44(4), 909–942.

Murthy, R. K., & Levesque, M. (2020). Disentangling the Impact of Indirect Network Effects on Platform Growth. Academy of Management Proceedings, 2020(1), 21272.

Nylund, P. A., & Brem, A. (2023). Standardization in innovation ecosystems: The promise and peril of dominant platforms. Technological Forecasting and Social Change, 194, 122714.

Ofe, H. (2018). Building a Platform's User-base: An Investigation of Value-driven Lock-ins in Digital Service Innovation. AMCIS 2018 Proceedings.

Oh, J., Koh, B., & Raghunathan, S. (2015). Value Appropriation between the Platform Provider and App Developers in Mobile Platform Mediated Networks. Journal of Information Technology, 30(3), 245–259.

Opara-Martins, J., Sahandi, R., & Tian, F. (2016). Critical analysis of vendor lock-in and its impact on cloud computing migration: A business perspective. Journal of Cloud Computing, 5(1), 4.

Panico, C., & Cennamo, C. (2022). User preferences and strategic interactions in platform ecosystems. Strategic Management Journal, 43(3), 507–529.

Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). Platform revolution: How networked markets are transforming the economy and how to make them work for you. WW Norton & Company.

Parker, G., Van Alstyne, M., & Jiang, X. (2017). PLATFORM ECOSYSTEMS: HOW DEVELOPERS INVERT THE FIRM. Management Information Systems Quarterly, 41(1).

Podgorelec, B., Alber, L., & Zefferer, T. (2022). What is a (Digital) Identity Wallet? A Systematic Literature Review. 2022 IEEE 46th Annual Computers, Software, and Applications Conference (COMPSAC), 809–818.

Pujadas, R., Valderrama, E., & Venters, W. (2024). The value and structuring role of web APIs in digital innovation ecosystems: The case of the online travel ecosystem. Research Policy, 53(2), 104931.

Rivard, S. (2021). Theory building is neither an art nor a science. It is a craft. Journal of Information Technology, 36(3), 316–328.

Rochet, J.-C., & Tirole, J. (2003). Platform Competition in Two-Sided Markets. Journal of the European Economic Association, 1(4), 990–1029.

Sharma, D., Yadav, N., Dwivedi, Y. K., & Giannakis, M. (2024). Digital Transformation of Incumbent Pipeline Firms through Platformization. International Journal of Electronic Commerce, 28(2), 186–216.

Shen, L., Shi, Q., Parida, V., & Jovanovic, M. (2024). Ecosystem orchestration practices for industrial firms: A qualitative meta-analysis, framework development and research agenda. Journal of Business Research, 173, 114463.

Sjödin, D., Parida, V., Jovanovic, M., & Visnjic, I. (2020). Value Creation and Value Capture Alignment in Business Model Innovation: A Process View on Outcome-Based Business Models. Journal of Product Innovation Management, 37(2), 158–183.

Teece, D. J. (2010). Business Models, Business Strategy and Innovation. Long Range Planning, 43(2–3), 172–194.

Tian, J., Zhao, X., & Xue, L. (2022). Platform Compatibility and Developer Multihoming: A Trade-off Perspective. MIS Quarterly, 45(3), 1661–1690.

Timmermans, S., & Tavory, I. (2012). Theory Construction in Qualitative Research: From Grounded Theory to Abductive Analysis. Sociological Theory, 30(3), 167–186.

Uzunca, B., Sharapov, D., & Tee, R. (2022). Governance rigidity, industry evolution, and value capture in platform ecosystems. Research Policy, 51(7), 104560.

Yan, X., & Feng, Y. (2023). Mandating interoperability of interpersonal communications services in an ecosystems competition context. Computer Law & Security Review, 50, 105850.

Zhang, C., Song, P., & Lim, K. (2022). Standardize or Let a Thousand Flowers Bloom? Interface Design Coordination between Software Platforms and Hosted Apps. MIS Quarterly, 47(3), 1333–1352.

Zhang, T., Jia, F., Chen, L., Blome, C., & Ball, P. (2025). From platformization to ecosystem: How do third-party supply chain finance platforms develop an ecosystem? An inter-organizational network perspective. International Journal of Production Economics, 281, 109521.

Zhou, Z., Zhang, L., & Van Alstyne, M. (2024). How users drive value in two-sided markets: Platform designs that matter. MIS Quarterly, 48(1), 1–30.